

**Exploring the Perceived Impact of AI Tools on Critical
Thinking, Learning Engagement, and Academic
Performance among English Majors in Bangladeshi Higher
Education**



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Exploring the Perceived Impact of AI Tools on Critical Thinking, Learning Engagement, and Academic Performance among English Majors in Bangladeshi Higher Education

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CERTIFICATE OF APPROVAL

I hereby declare that this thesis is the student's own work and effort. All sources of information incorporated here have been duly acknowledged. This thesis has been submitted with my approval.



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DECLARATION

This thesis is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions.

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List of Abbreviations

AI	Artificial Intelligence
SDT	Self-Determination Theory
TAM	Technology Acceptance Model
PU	Perceived Usefulness
PEOU	Perceived Ease of Use
ESL	English as a Second Language
EFL	English as a Foreign Language
AISEC	AI technology with Simulation and E-Collaborative tools
ACTES	Adaptive Critical Thinking Enhancement System
AIPL	AI Enabled Personalized Learning
AP	Academic Performance
CMS	Campus Management Systems
ML	Machine Learning
SSP	Student Success Predictor
STEM	Science, Technology, Engineering, and Mathematics
BA	Bachelor of Arts
MA	Master of Arts
PCT	Perceived impact of Critical Thinking
PLE	Perceived impact of Learning Engagement
PAP	Perceived impact of Academic Performance

Abstract

Abstract

In the era of Artificial Intelligence (AI), how English major students perceive the impact of integrating AI tools such as, ChatGPT, Grammarly, QuillBot, and Gemini in their studies to enhance critical thinking, learning engagement, and academic performance. However, integrating AI tools in English studies raises significant concerns whether it would diminish critical thinking and cognitive skills. Increased use of AI tools, requires deep analysis of how they modify student learning experiences with emphasis on critical thinking development. The research aims to analyze how English majors in Bangladesh perceive the impact of AI tools in terms of their critical thinking, learning engagement, and academic performance. The research is conducted using the Constructivist Learning Theory (1950), the Self-Determination Theory (1985), and the Technology Acceptance Model (1989). A mixed-method approach was employed through a purposive sampling technique. The research design used two instruments such as a survey with 245 students from BA and MA program and six in-depth interviews to gather both numerical and descriptive findings. The study analyzed quantitative data using descriptive statistics and an independent samples t-test while thematic analysis was used for qualitative interview data. The interview data showed a deeper understanding of how the students perceive the benefits of AI tools. The key quantitative findings suggested that students widely recognized the usefulness of these tools in multiple academic areas such as organizing tasks, structuring writing, generating ideas, and goal setting (highest mean = 4.31), showing positive responses across all items. Additionally, AI tools helped students cope with cognitive stress as they assisted students in meeting deadlines. However, the participants expressed concern about ethical issues such as using AI to plagiarize. Therefore, this study asserts the necessity of adopting a balanced approach to AI in education and its advantages while mentioning its potential drawbacks.

Keywords: AI Tools, critical thinking, learning engagement, academic performance, perceptions of English majors, higher education.

Chapter One

Introduction

1.1 General Overview

Artificial intelligence (AI) tools are becoming increasingly included in higher education however, their impact on students' learning experiences remains a subject of debate. AI tools help learners in learning efficiently (Khlaif et al., 2024). While AI offers advantages such as instant feedback and enhanced writing support, concerns remain about its potential to weaken independent analysis and deep thinking. According to Gao et al. (2024), AI dependency might create passive attitudes among learners, and they might opt for AI generated solutions instead of thinking independently.

This study examines the perceptions of English major students of AI as a tool that helps or hinders their ability to think critically, how it impacts their academic achievement, and whether it increases or decreases their interest in English-related courses. The research by Khan et al. (2024) identifies AI tools ChatGPT, Gemini, Quillbot, Grammarly as essential for developing academic writing skills. Artificial intelligence tools provide instant detailed feedback about grammatical and spelling errors as well as sentence structure problems, which leads to better academic writing. Students gain confidence through AI assistance to develop a stronger motivation to learn. The system generates positive impacts, which result in both student self-efficacy improvement and active student participation. The application of AI plays an important role in educational modernization, according to Ruiz-Rojas et al. (2024), because it enhances learning outcomes, skill

development, and student engagement. The immediate feedback provided by AI along with complete progress tracking, shows exactly where performance weaknesses exist. As a result, students are forced to improve their weaknesses (Szmyd & Mitera, 2024). The researcher collects direct student feedback to establish a comprehensive view of how AI transforms learning processes. The research results will allow institutions and teachers to implement AI tools properly so that these resources enhance academic abilities rather than affecting them negatively. Teachers need to comprehend AI evolution because it influences higher education, specifically within English fields, where critical thinking stands as a vital factor for academic success.

1.2 Background of the Study

Higher education institutions are integrating AI tools, which may dismiss critical discussions about academic outcomes on critical thinking, learning engagement, and academic performance. Digital technology evolution results in AI tools becoming more prominent within university learning environments, particularly in fields like English studies. The emerging technology is considered an educational resource that aims to enhance learning experiences, but analyses show negative effects on student development of critical thinking abilities and academic performance skills.

Recent studies analyze (Abdelkader et al., 2024; Benouachane, 2024) the educational benefits and challenges of AI tools since they produce both advantageous and negative outcomes in higher education. The use of AI tools helps students through individualized educational support services, which combine with quick feedback to improve their learning outcomes (Szmyd & Mitera, 2024). However, the excessive use of AI tools can lead to diminished critical thinking skills, and their ability to engage deeply with course material (Shoaib et al., 2024). The effect of

AI tools on learning engagement remains uncertain as student interest depends on how AI resources are being integrated into their teaching procedures by their teachers (Yusuf et al., 2024). It is important to recognize how English major students experience these impacts to create effective pedagogical strategies that merge technological progress with cognitive education strategies.

1.3 Statement of Problem

The implementation of AI tools in higher education institutions modifies student learning outcomes while simultaneously prompting assessment about their influence on critical thinking, learning engagement, and academic performance, particularly within English studies. The adoption of AI tools including ChatGPT, Gemini, QuillBot, and Grammarly, in educational institutions underwent a rapid rise according to Al-Mamary et al. (2024). AI tools demonstrate the power to redefine educational practices and pattern the way education is delivered and students learn. The education process benefits from artificial intelligence tools because these tools supply personalized feedback and better academic performance while making learning more accessible (Anik & Rahman, 2025). AI tools continue to expand their presence in educational assistance, which students use to complete their tasks and develop writing skills while getting immediate feedback, especially in English studies. However, as these tools become more integrated into the academic environment, concerns have grown regarding the impact of AI on essential cognitive processes such as critical thinking, engagement, and academic performance. Because English major students are expected to have better analytical abilities, these technologies have potential effects on them (Woerner et al., 2024). According to Woerner et al. (2024), AI requires responsible use in educational settings because it should complement traditional teaching rather than replace it. The key issue for evaluation remains how AI resources influence academic progression and intellectual development, especially among students who need to have deep engagement with

content and perform academically in their subject areas. Educational institutions utilize AI tools, but research remains limited about their impact on critical thinking development, learning engagement, and academic performance in English-related courses across Bangladeshi universities. AI tools provide immediate feedback however, there is limited research that shows how AI tools impact the critical thinking skills and academic outcomes among English major students throughout their course activities (Bhatt & Muduli, 2024).

English majors need to use AI tools such as ChatGPT, Gemini, Quillbot and Grammarly cautiously because these tools either enable or limit the acquisition of essential academic abilities in their coursework, which includes complex reading, discussions, and writing assignments (Wu, 2024). The absence of empirical studies investigating English major students' perceptions about AI tools stands as the key problem since these tools impact critical thinking, learning engagement, and academic performance. Scientific analysis in other domains shows that AI overdependence can decrease deep cognitive activity because students will depend too heavily on technology for solutions and evaluations (Zhai et al., 2024). The need to depend on AI tools would negatively affect both the growth of essential academic skills and the independence of thought necessary for major English programs.

The study of AI tools on English major students' critical thinking skills, learning engagement, and academic performance needs detailed evaluation to prevent poor educational results from unintended student consequences. The excessive use of AI tools has the potential to make students skip a deep understanding of course material because they place value on automation more than self-directed thinking and deep contemplation (Darwin et al., 2024). This

could result in a decline in critical thinking abilities, which is a concern for students planning to enter professions that require analytical reasoning, such as education, literature, and communication since critical thinking skills are essential for such careers. Students who show less engagement in their learning activities may perform poorly as they might fail to grasp complex subjects or nurture academic interest for success. These current trends may have the potential to affect English studies education quality permanently, which can ultimately impact student work readiness (Eva et al., 2024). Moreover, without a comprehensive understanding of the effects of AI tools, academic institutions may struggle to integrate these tools in a way that maximizes their benefits while minimizing potential harm.

Three groups affected by this issue are English major students, their teachers, as well as institutions. The use of AI tools directly affects the academic performance and critical thinking abilities together with student engagement of English major students. Guo et al. (2024) emphasize that teachers should incorporate AI tools, balancing their benefits with preserving academic achievement and sustaining deep intellectual participation in educational settings. Academic institutions must evaluate the extent to which AI tools serve their educational objectives and promote important student abilities especially in English, where critical thinking and independent thinking are essential for success. The research focuses how English major students in higher education view AI tools including ChatGPT, Gemini, QuillBot, and Grammarly impacting critical thinking abilities, learning engagement, and academic performance over the past two academic years. The research analyzed how students from English-related courses perceive the implementations of AI tools within their writing tasks and research activities and overall academic support. Student opinions were studied to understand the ways AI tools influenced their ability to

work with class material while developing academic competencies. The research dedicated attention to English majors because its main goal was to identify specific barriers affecting their transition to AI enhanced learning environments.

Therefore, the perceived impact of AI tools including ChatGPT, Gemini, QuillBot and Grammarly needs thorough examination on the learning experiences of Bangladeshi English major students. The research investigated whether these tools assist or disrupt critical thinking, learning engagement, and academic performance and methodically approached resolving these issues. This research seeks to develop pedagogical strategies for integrating AI curricula by enhancing understanding of how AI tools affect English students' learning so they can improve academically. AI tools require appropriate implementation, which should motivate student independence and classroom engagement as well as support educational objectives to enhance higher education success rates.

1.4 Research Objectives

The objectives of this study are,

RO1: To explore English major students' perceptions of the impact of AI tools on their critical thinking skills.

RO2: To investigate how English major students perceive the influence of AI tools on their learning engagement in English-related courses.

RO3: To examine the perceived effects of AI tools on English major students' academic performance.

1.5 Research Questions

The research questions of the study are,

RQ1: How do English major students perceive the impact of AI tools on their critical thinking skills?

RQ2: How do English major students perceive the influence of AI tools on their learning engagement in English-related courses?

RQ3: What is the perceived effect of AI tools on English major students' academic performance?

1.6 Theoretical Framework

The research integrates Constructivist Learning Theory, Self-Determination Theory (SDT), and Technology Acceptance Model (TAM) to analyze perceptions about AI tools affecting critical thinking, learning engagement, and academic performance of English majors in Bangladeshi higher education. The Constructivist Learning Theory emerged in 1950 developed by Jean Piaget. Constructivist Learning Theory suggests that learners construct knowledge by actively engaging with their environment and tools (Jonassen & Rohrer-Murphy, 1999). AI tools such as ChatGPT and Grammarly provide cognitive support which enables students to analyze content and feedback while creating new understanding that strengthens their critical thinking abilities. Academic success evaluation for students becomes possible through constructivist principles incorporated within artificial intelligence generated learning procedures (Bada & Olusegun, 2015). Additionally, Self-Determination Theory (Deci & Ryan, 2013) offers learning motivation through its investigation of autonomy, competence, and relatedness as psychological needs. AI tools enable learners to get personalized automatic feedback and boost self autonomy so that students can enhance their participation in academic English related courses.

Moreover, the Technology Acceptance Model (Davis, 1989) explains that students accept AI tools based on their perceived usefulness and ease of use. Perceived Usefulness (PU) with Perceived Ease of Use (PEOU) serve as fundamental concepts that enable the model to explain technology adoption behaviors in human life. The TAM offers essential insights about technology usage, which make it applicable to discussions about AI applications. The application of this strategy yields optimal results when studying how AI affects student learning perceptions as well as its impact on critical thinking capabilities, learning engagement, and academic performance. Students find AI tools to be helpful for their writing support and assignment completion tasks tend to enhance their educational experiences and outcomes. These theories demonstrate a multi-dimensional picture to explain how AI tools influence students' educational development and their learning outcomes. The established frameworks offer researchers the ability to explore critically how students perceive AI tools also helps in evaluating these perceptions regarding pedagogical and psychological constructs.

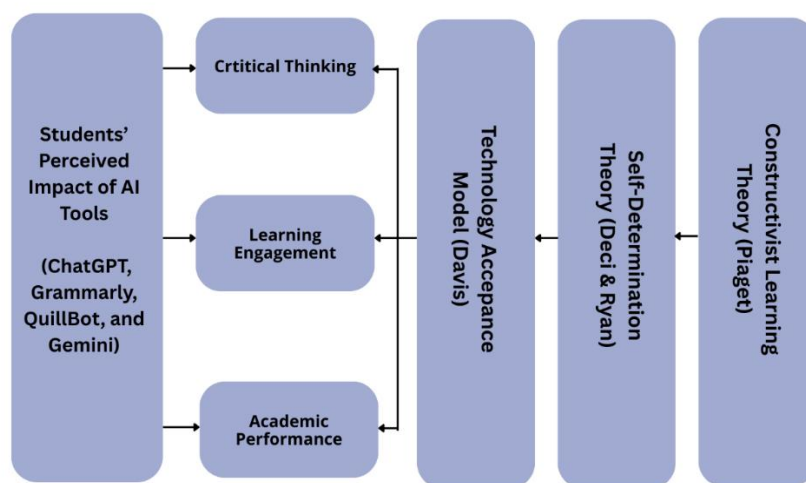


Figure 1: Theoretical Framework

1.7 Conceptual Framework

This research establishes AI as the independent variable that impacts three fundamental dependent variables including students' critical thinking skills, learning engagement, and academic performance. Several mediating elements form the connection between AI tools and important academic outcomes, while AI ethics and usability rate alongside adaptability and perceived value as significant factors. The research framework combines AI tools with critical thinking, learning engagement, and academic performance as its complete elements. The outlined framework demonstrates that AI based educational tools influence students' mental progression, motivational levels as well as educational achievement (Stasolla et al., 2025). Learner outcomes benefit from technological interaction with AI so the effectiveness of its educational applications depends on more than just technology presence in the learning environment. The framework presents dual objectives to deliver complete AI education insights while offering guidelines for ethical and successful integration of AI tools in higher education institutions.

1.8 Scope of the Study

The study examines how AI tools like ChatGPT, Gemini, QuillBot and Grammarly influence English majors' critical thinking skills, learning engagement, and their academic performance in higher education. It mainly focuses on academic students who rely on these AI tools for their learning strategies. The scope evaluates the potential effects of AI on learners' critical thinking development and engagement levels. This research examines higher education institutions in Bangladesh despite the unconventional struggles students encounter in their learning environment.

1.9 Significance of the Study

The study shows the perception of Bangladeshi higher education English major students regarding how AI influences their academic development plans and enhancing their academic achievements. It assesses English majors' comprehension of AI tool integration because these tools enhance engagement, develop critical thinking skills, and improve academic performance. This research guides teachers, students, and policy makers on the practice of integrating AI tools effectively to make learning more impactful and address the existing challenges. Additionally, it contributes recommendations to the existing studies to integrate AI tools in Bangladesh higher education, particularly in English-related courses.

1.10 Definition of Terms

I. AI Tools

AI tools make it easier for students to comprehend complex ideas. Artificial Intelligence (AI) is the application of technology that enables machines to learn and comprehend human tasks by completing jobs that would normally need human intelligence. These tools are software applications that use AI to carry out particular tasks. There are many different types of AI tools that are accessible today. Teachers, students, and others are using the four AI tools mentioned above in a variety of ways.

a. ChatGPT: The AI language model ChatGPT originates from OpenAI through deep learning methods to produce responses that mimic human responses. Education institutions utilize ChatGPT for various purposes including improving student engagement, personalizing educational materials, and providing assessment support. It helps with

writing, providing information, translating languages, summarizing documents, and responding to queries. With its capabilities, ChatGPT functions as an interactive virtual assistant by generating interactive content, providing assignment grading, and offering specific learning resources. However, issues like plagiarism and other misuse persist despite the benefits of ChatGPT for speed and communication (Rajeb et al., 2024).

b. Gemini: A Google generative AI tool, called Gemini, was created to assist users in improving the quality of their writing and communication. In addition to producing logical texts, it provides individualized feedback by recommending changes to writing style and grammar. Gemini might be helpful when someone needs to draft various types of sentences, such as an essay or an email. Moreover, it helps students write more creatively and effectively, which is beneficial for language development (Imran & Almusharraf, 2024).

c. QuillBot: The AI based tool QuillBot helps users to paraphrase their text, keeping the original meaning intact. It provides multiple word options, different phrases, and structural variations, which specifically helps students struggling with paraphrasing. Paraphrasing poses a significant challenge to EFL students since it requires excellent grammar knowledge, rich vocabulary, and strong analytical abilities. QuillBot gives a useful solution for students who lack time, motivation, or skills needed in generating proper texts. However, it has also raised some concerns about plagiarism and the authenticity of students' work (Mohammad et al., 2024).

d. Grammarly: As Mariappan et al. (2025) have stated that the popular online grammar checking AI tool Grammarly assists people in identifying and fixing writing errors. Grammarly performs over 250 grammar corrections, providing detailed explanations to clarify each issue. Students who learn English as a Second Language (ESL) and English as a Foreign Language (EFL) find Grammarly highly effective because it provides easy access to accurate editorial assistance. They get immediate, personalized feedback from Grammarly that helps them both identify problems and resolve them independently. The system actively builds a self-regulating learning environment because it teaches students how to control their language progress independently.

II. Critical Thinking

According to Darwin et al. (2024), critical thinking is the ability to carefully and methodically analyze, assess, and synthesize information. It helps to create logical conclusions and make well informed decisions, taking into account different perceptions. Instead of depending on intuition, critical thinkers use reflective thinking, evidence analysis, and logical decision making. These abilities allow people to approach complicated problems with clarity, impartiality, and inventiveness, which makes them crucial for problem solving, decision making, and academic success. Other crucial elements of developing critical thinking include admitting the limitations of one's reasoning and continuing to be open to altering one's views in response to compelling arguments or fresh data (Moustaghfir & Brigui, 2024).

III. Learning Engagement

Students actively participate in learning activities by engaging at different levels (Nguyen et al., 2024). Engagement in education brings together student enthusiasm and dedication to their

academic work and commitment to participate in class lectures and writings. Students who are engaged show greater focus, curiosity, increased learning enthusiasm, and they pursue various resources to enhance their understanding (LE, 2024). Academic performance gets improved through deeper learning outcomes and high levels of engagement because students better retain what they learn when their interest in learning experiences remains genuine (LE, 2024).

IV. Academic Performance

Academic performance defines the extent to which students meet educational targets in their fields of study. Academic assessments are based on student performance, include grades, examinations, assignments, and class participatory academic work. Students' academic performance measures their capabilities to understand information, their capabilities for critical thinking, problem-solving, and effective communication (Al-Mamary et al., 2024). The factors driving students' academic performance consist of personal drive with proper time use, learning practices, and available educational materials. The degree of academic success indicates thorough course understanding, and reduced performance can show learning deficiencies or educational barriers (Bressane et al., 2024).

V. Higher Education

The stage of academic teaching following secondary education exists as higher education, which people access at universities and colleges. The learning process at higher educational levels in Bangladesh requires specialized field study, which results in degree or diploma or certificate awards (Khalif et al., 2024). Higher education structures the intellectual advancement along with the social relationships and professional readiness of people. Higher education gives students valuable advanced understanding, analytical thinking abilities, and occupation specific

abilities to succeed in employment or research careers. Students acquire personal and social abilities through faculty and peer engagement opportunities at higher education institutions, according to Gasaymeh et al. (2024). The later stage of academic progress forms the backbone of economic development in addition to societal elevation, while driving knowledge evolution forward.

1.11 Chapter Summary

The chapter analyzes Bangladeshi English major students' perception of how AI tools such as ChatGPT, Gemini, QuillBot, and Grammarly impact critical thinking, learning engagement, and academic performance. The chapter demonstrates how educational facilities are accepting AI tools, and it examines their positive aspects as well as their risks. AI tools help students with writing through their capabilities to deliver prompt and individualized feedback. However, there are concerns that overreliance on these tools may weaken students' ability to think critically and engage deeply with their coursework. This chapter provides an overview of AI adoption in higher education in Bangladesh by explaining recent advancements in AI tools for learning institutions in the nation. The study examines these matters through an investigation that probes how English major students perceive AI tools and their effects on their critical thinking skills, learning engagement, and academic performance. This paper details the research design, which consists of objectives and questions, a scope definition to study the impact of AI tools on higher education students' learning, specifically within such discipline that combine analytical and writing requirements.

Chapter Two

Literature Review

2.1 Introduction

Artificial Intelligence has revolutionized the methods used in higher education institutions for teaching and learning. AI extends personalized education and instant feedback services; thus, education has progressed into more sophisticated formats that students find easily accessible while maintaining their focus. AI tools such as ChatGPT, Gemini, Grammarly, and QuillBot offer advantages to both teachers and students. AI offers tailored responses for students and effortless needs analysis for teachers. They are exploring the potential of AI to make learning more effective. While AI provides numerous advantages, such as instant feedback, personalized learning, and content generation, its extensive use also raises concerns about academic integrity, ethical considerations, and overdependency. This paper discusses the role of AI in higher education by exploring its impact on learning engagement, critical thinking skills, and academic performance.

2.2 AI Tools in Higher Education

The use of AI in higher education increases its effectiveness. With the release of ChatGPT-3 in 2022, generative AI tools have caught people's interest in their impact on higher education. As they can generate texts and provide critical reasoning, academicians grew concerned about their integrity in academics. However, proponents argue that AI tools increase student participation by providing instant feedback (Khlaif et al., 2024). Osorio et al. (2024) described how AI tools enhance educational accessibility in higher education particularly in analytical

courses. Higher education institutions face multiple challenges from the increased blend of online learners and the diverse student population when trying to address their different educational backgrounds and cultural and language variations. Through the combination of AI technology with simulation and e-collaborative tools referred to as AISEC institutions can develop more accessible and interactive learning experiences. AI technology exists in four main operational fields which include student profiling and prediction, intelligent tutoring, assessment, and adaptive learning systems. The impact of AI on higher education is prominent. Ruiz-Rojas et al. (2024) emphasized its impact on modernizing education and how it enhances student engagement, learning outcomes, and skill development. AI tools help develop efficiency, creativity, and personalized learning in higher education.

AI educational tools assist higher education students in enhancing their writing abilities and other essential competencies. The combination of chatbots and tutoring systems and grading software aids learners in developing their communication abilities and creativity capabilities and problem-solving competencies (Celik et al., 2024). Research (Ogunleye et al., 2024) showed their human centered approaches enhanced the impact, making them transformative tools in higher education that contribute to research, content generation, assessment, and curriculum development. By tailoring learning to individual needs, AI tools increase students' efficiency in academic work. Moreover, students and researchers polish their academic writing using AI tools namely, ChatGPT, Google Bard, Grammarly, and QuillBot (Saúde et al., 2024).

Furthermore, the prompt feedback and detailed progress report of AI determine areas for improvement. This makes students work on their shortcomings (Szmyd & Mitera, 2024). The use

of AI helps students become autonomous learners by promoting active learning. According to Jaladi et al. (2024), AI tools significantly contribute to shaping pedagogical practices. Research (Hasan et al., 2025) showed that Bangladeshi tertiary-level students integrate AI to make their learning better, while faculty members are exploring its use to detect plagiarism and its implementations in their teaching techniques. However, the ethical usage of AI is underdeveloped due to insufficient formal practices and academic guidelines. To ensure the responsible use of AI, it is important to keep ethical considerations in mind (Gasaymeh et al., 2024).

2.3 Role of AI in Enhancing Critical Thinking Skills

AI equips learners to generate new ideas. It has transformed education by providing immediate, personalized responses that boost learners' analytical and argumentative skills. Critical thinking involves analyzing and evaluating information, which is essential for assessing AI generated texts. Natural human ability to think critically can be trained through practice which enables individuals to improve their cognitive processes (Yusuf et al., 2024). Implementing AI tools (Darwin et al., 2024) creates conditions that boost critical thinking abilities by promoting problem analysis and decision making. Higher education must integrate critical thinking competencies with AI systems because its importance in this field is gaining popularity. Suriano et al. (2025) showed how this technique enhances the reasoning abilities of learners which forms the critical thinking skills. Moreover, using it increases learners' attention and memory retention. In modern education, the integration of AI has become an essential tool for students to enhance their critical thinking skills. Particularly, in the context of language learning, it increases students' problem-solving and critical thinking skills (Khalabuzar & Shymanovych, 2024). Essien et al. (2024) stated that critical thinking develops individuals' ability to evaluate, analyze, and justify their stance. The use of AI is transforming conventional teaching techniques as it offers new

prospects for boosting learning experiences. Using it helps in developing creativity. Furthermore, studying it makes students engaged with the content by stimulating curiosity. Having a variety of AI generated responses makes the learners reflect on their ideas. Critical thinking includes conceptualization, application, analysis, and evaluation of insights from different references. In the linguistics context, Bloom's taxonomy provides a valuable structure for understanding and analyzing critical thinking, leading to the creation of new outcomes and aligning AI tools help teachers to integrate Bloom's Taxonomy in their lesson plans (Essien et al., 2024). AI creates essential tasks that generate space for users to improve their complex problem-solving skills, developing higher order thinking skills. The use of AI contributes to critical thinking development by introducing innovative methods to handle material and information while assessing solutions according to Darwin et al. (2024).

Moreover, AI technology drives educational excellence by providing customized and interactive learning programs which boost critical thinking skills of students. The research conducted by Sultana and Faruk (2024) established that AI strengthens critical thinking among higher education students through tailored learning, personalized feedback, and advanced teaching assessment methods. By employing AI tools, students become able to think deeply on their own. Teachers find it difficult to develop critical thinking through conventional approaches, yet ACTES and other AI based enhancement systems help solve this problem. ACTES utilizes AI driven gamification methods along with specific strategies to both evaluate and teach critical thinking capabilities. Each learner's requirements become the basis for the system, which delivers customized challenges and feedback along with the chance for reflection (Correia & Lobo, 2024).

This innovative approach uses AI to personalize learning and motivate students, making critical thinking development more effective and enjoyable. (Correia & Lobo, 2024; Shoaib et al., 2024).

A study by Khalabuzar and Shymanovych (2024) showed AI assists in active and logical thinking and makes autonomous, creative learners. They emphasized “critical thinking is best learned with real-world scenarios and subject-specific contexts within the educational framework, which could be proposed by AI” (Khalabuzar and Shymanovych, 2024), p. 508). By using AI, learning becomes personalized and independent as it is tailored to meet individuals’ needs. The study argued that in the 21st century, it is crucial to foster critical thinking as learners are required to process a lot of information. Responsible use of AI encourages students’ cognitive engagement and develops their critical thinking abilities (Suriano et al., 2025).

According to Szmyd and Mitera (2024), AI plays a significant role in generating ideas, exploring other solutions, and analyzing large datasets. It encourages learners to question hypotheses and makes them participate actively for in-depth understanding. So, it is essential to use AI responsibly. Moreover, a study by Liang and Wu (2024) portrayed, learners’ critical thinking skills can be enhanced by using ChatGPT to support their cognitive development. Though the statistical results of the research did not show any significant improvement in critical thinking test scores, students’ reflection journals revealed that ChatGPT helped them become more thoughtful and strategic thinkers. They saw it as a valuable tool for enhancing their cognition, although they emphasized the importance to balance AI assistance with human critical thinking. In English studies, AI can support learning while complementing the teaching process, with a continued focus on developing reading, writing, and critical thinking abilities (Woerner et al.,

2024). Another study by Sultana and Faruk (2024) mentioned that AI can improve students' critical thinking skills in higher education by offering adaptive feedback and better teaching evaluation. These AI tools help students think more deeply and independently.

However, overdependency on AI might create passive attitudes among learners, and they might opt for AI generated solutions instead of thinking independently. Therefore, teachers should play the role of a moderator by assisting students in maintaining a proper “balance between using AI and developing critical thinking skills” (Szmyd & Mitera, 2024, p. 1027) and encouraging them to use AI ethically. Teachers should encourage them in discussions, group activities, and logical reasoning tasks. This way, their tendency to become passively reliant on AI will be managed. Sok and Heng (2024) also acknowledged that integrating AI tools like ChatGPT in higher education supports critical thinking by helping with assessment, instruction, research, academic writing, and productivity. However, they raised concerns about academic honesty, privacy, and accuracy. Due to the use of AI, learning is personalized, which helps in diverse learning opportunities. As a result, students choose their tailored learning path and think critically (Abulibdeh et al., 2024). With proper guidance and assistance, the integration of AI into critical thinking can transform conventional teaching practices into more active ones and encourage independent thinking. This would benefit the learners by developing critical thinking and allowing them to be involved with complex ideas effortlessly.

2.4 Role of AI on Learning Engagement

AI simplifies critical issues and engages learners. Oyeyemi et al. (2024) emphasized the impacts of AI on students' learning engagement and academic performance. Learning engagement refers to learners' active involvement, motivation, and participation in the learning process. AI

helps in quantifying “learning outcomes systematically and deliberately” (Oyeyemi et al., 2024, p. 17). Teachers must analyze three areas while assessing students: their academic knowledge, their learning requirements, and their interests. Bhatia et al. (2024) studied AI powered tools, including intelligent tutoring systems, adaptive learning platforms, and predictive analytics to develop personalized learning environments that produce better outcomes and maintain a flexible educational setting for improving student interest. The study investigated the ability of AI to tailor education to individuals, deliver prompt assessments, and stimulate student interaction. AI tools guide students toward “self-directed learning” as well as improve their classroom participation according to Oyeyemi et al. (2024, p. 17). The modern education system advances student learning through ChatGPT and other AI tools utilizing engagement technology and personalized inputs (Ajani et al., 2024). The implementation of AI in university education stimulates both student engagement and critical thinking skills. The specific responses that AI chatbots generate enable students to build an understanding of their course material. Learning engagement receives support through artificial intelligence as it develops important interpersonal competencies such as collaboration skills and critical thinking abilities. When incorporating AI into content delivery, institutions help students learn better while developing their adaptive capabilities. Elikkal and Rahamohan (2024) conducted a study showing that AI enabled personalized learning (AIPL) transformed management education by enhancing student engagement levels and improving academic performance (AP).

The automated profile generation system with AI provides data processing abilities, pattern identification, and participant engagement measures, which support large scale assessment processes (Guo et al., 2024). The AI based profile generation system evaluates student behavioral

patterns and mental processing methods from assessment approaches to deliver a nuanced view of student engagement patterns. The study by Bhatt and Muduli (2024) described that learners' engagement level functions as the essential factor that bridges the AI learning intention and behavioral shift when it delivers significant data to develop improved learning experiences and enhanced learner participation, operated by AI. The delivery of individualized feedback helps teachers understand their students' classroom struggles. AI tools function as a personal tutoring system that delivers distinct, detailed information to each student. Students maintain their interest level through receiving quick feedback during learning activities. Research conducted by Tamanna and Sinha (2024) investigates the ways AI contributes to higher education learning by offering personalized educational programs that boost results while protecting data information. The benefits of improved learning through AI tools coexist with the need to resolve plagiarism related problems and academic dishonesty issues. Using AI tools allows teachers to evaluate their students' understanding and locate their mistakes through quick assessment (Nguyen et al., 2024). In addition, teachers can detect plagiarism faster with the help of AI, which makes students cautious about its responsible usage. The broader accessibility of AI has created new affordances for teaching and learning. It offers a diverse learning context. These advancements help in engaging learners with the course materials.

AI helps teachers understand engagement data and enables them to draw insightful inferences (Guo et al., 2024). This allows teachers to bring necessary changes to their teaching styles to ensure students have better engagement and learning experiences. Therefore, AI helps teachers conduct a needs analysis of students. Moreover, AI “can serve as a dynamic teaching assistant” as it assists teachers in using tools to enrich their teaching strategies (Nguyenmn et al.,

2024). According to LE (2024), AI supports language learning by personalizing lessons through tools like “chatbots and speech recognition software such as Duolingo and Grammarly” (p. 69). These tools allow students to practice English at their own pace and convenience and boost student engagement, behavioral, cognitive, and emotional, by making learning interactive and flexible. However, their effectiveness depends on how actively students use them. Furthermore, with AI, teachers can develop their content by incorporating texts, images, visuals, and audio files to engage the learners more. Thus, AI is revolutionizing the learning experience by incorporating engaging content.

AI tools enable students to handle diverse educational requirements from tutoring to essay evaluation, customized educational activities, and research support services. According to Ogunleye et al. (2024), integrating AI tools in higher education with a focus on Generative AI tools, such as ChatGPT, because of its increasing popularity, makes learners more engaged. The implementation of AI tool enables educational institutions to generate customized learning materials that assist in evaluating student performance through prediction models to decrease student absences. Artificial intelligence technology brings forth significant opportunities to elevate student engagement in the classroom and academic achievements within educational institutions (Shoaib et al., 2024). While traditional Campus Management Systems (CMSs) tend to miss both recognizing the requirements of different students and noticing their academic difficulties at their initial stages. The research introduces a Student Success Predictor (SSP) that merges machine learning (ML) methods with natural language processing, predictive analytics into existing CMSs to meet this gap. The AI enhanced CMS generates individualized learning activities through student data evaluation, adaptive testing, and real-time performance assessments. AI enhances

student engagement, enabling “adaptive learning environments that respond to individual learning styles” (Mirdad et al., 2024, p. 1). Additionally, AI makes learning more inclusive and engages learners in the educational process. Education faces substantial difficulties when trying to implement AI tools. Through the utilization of AI tools, sessions become more interactive while achieving better student engagement (Mirdad et al., 2024, p. 2). Concerns remain about privacy, security, and fair access. Addressing these issues is crucial to securing a “fair and effective learning environment” (Mirdad et al., 2024, p. 2). Education can be made more inclusive and engaging with the proper utilization of AI.

2.5 Role of AI on Academic Performance

AI is transforming the learning process by offering individualized feedback tailored to individuals’ needs. AI provides decision enhancing capabilities that produce timely student support to enhance academic performance in educational settings (Sarker et al., 2024). According to Ou (2024), this improves the academic performance of the students. Integration of AI in higher education surpasses conventional learning. It provides various learning opportunities such as e-learning, virtual learning, and active learning, which boost students’ performance in the classroom. Al-Mamary et al. (2024) showed in their study how ChatGPT, and other AI tools, affects academic performance by evaluating their alignment with student learning experiences. AI tools’ effectiveness in education depends on students’ tech attitude, successful integration of AI within certified educational systems. If organizations properly implement Artificial Intelligence, they will achieve substantial gains in educational outcomes. Another study by Elikkal and Rajamohan (2024) analyzed the role of AI in reshaping learners’ academic proficiency. Moreover, AI is believed to completely transform education with its individualized instruction via insight based and dynamic interfaces. By providing them with tools that improve their capacity to address

difficult issues, such as artificial learning driven problem-solving techniques and data analytics for market developments, these AI tools engage students (Shahzad et al., 2024). AI enhances “engagement, motivation, and conceptual mastery” (2024, p. 3), tailoring academic resources according to the learners’ needs. Furthermore, it plays a crucial role in higher education by using new technologies to provide learners with “flexible learning opportunities” (Oyeyemi et al., 2024, p. 17). But learners must explore the challenging issues “related to bias, resource constraints, and ethical considerations” (2024, p. 3). Additionally, AI is acknowledged for its ability that replicate human cognitive abilities and further develop several procedures. Therefore, integrating AI in education makes it easier for learners to enhance the quality of teaching and learning.

Research (Bressane et al., 2024) demonstrated artificial neural networks, fuzzy based systems, and AI enabled performance analysis among study methods, learning difficulties, and academic results. AI tools demonstrate abilities to reduce learning disabilities by assisting teachers in creating student-specific intervention methods. According to Oyeyemi et al. (2024), academic performance is the organized and careful measurement of learning results, involving assessments, test scores, participation, engagement in class, study behaviors, and other important markers to assess students’ academic progress. Additionally, its impact on academic achievement is connected with its capacity to surpass conventional “one-size-fits-all” teaching strategies. AI makes it possible to create individualized educational experiences that accommodate different learning preferences, styles, and speeds by evaluating enormous volumes of data (Elikkal & Rajamohan, 2024). Moreover, a study by Gao et al. (2024) showed AI tools namely, ChatGPT reshaped education by helping learners with academic activities such as mind-mapping, essay writing, and problem-solving. Additionally, AI works best in generating texts, supporting

independent learning, and boosting students' academic achievement (Sun & Zhou, 2024). Furthermore, AI makes it easy for learners to monitor their improvement in studies, offering study routines and personalized guidelines (Oyeyemi et al. 2024, p. 17). AI tools help in grading, keeping attendance responsibilities, discovering student abilities, and their struggles. The benefits from AI solution, especially personalized feedback and operational efficiency, surpass the related ethical and creative challenges, and student focus challenges. This research showed that integrating AI in higher education must maintain ethical standards because it enhances both teaching quality and academic performance of the students (Jaladi et al., 2024). In addition, a study by Gao et al. (2024) stated how ChatGPT proves to be a significant academic tool that improves learner engagement, analytical skills, and writing abilities. It helps learners with active learning, leading them to become autonomous learners. AI helps to enhance learners' logical reasoning and their academic progress.

A study by Khan et al. (2024) highlighted AI tools' significance in enhancing academic performance and writing skills in the Bangladeshi context. AI tools improve academic writing by offering instant and detailed feedback on grammar errors, spelling mistakes, and sentence structure issues. This boosts their confidence, making them motivated to learn. A study by Eva et al. (2024) investigated how AI supports learning based systems to boost academic performance within Bangladeshi higher education institutions. The implementation of AI tools ChatGPT and Gemini serves two functions such as theoretical concept understanding and flexible learning opportunities which result in better academic outcomes. The adoption of ethical AI usage remains uncertain during assessment periods because students and institutions encounter issues with cheating and improper conduct. Besides, this helps in developing student engagement and self-efficacy. Using

advanced algorithms, AI helps students analyze complex issues and determine patterns by integrating different learning strategies. Personalized feedback and responses provided by AI smooth their learning experience, increase their engagement, motivation, and learning consequences (Ou, 2024). However, it is important to recognize that human attributes excel in understanding. Therefore, AI should be used as a supporting system, not as a substitute for human autonomy (Woerner et al., 2024). Moreover, it is important to balance the use of AI to have human authority over AI (Shahzad et al., 2024). Academic outcome largely depends on proper attention to ethics, and student autonomy decides the appropriate application of AI tools in education. The study provided useful knowledge to help teachers and policymakers create successful educational programs and policies for technological training and academic achievements (Fazil et al., 2024). As a vital educational tool, AI helps students achieve better results through adaptive help with increased student participation, and enhanced skill development in writing and problem-solving tasks. However, it is essential to recognize and address ethical concerns and ensure AI can be utilized as a complementary tool to ease the learning and achieve academic goals rather than replace human judgment in education.

2.6 Research Gap

Despite the increasing integration of AI tools in higher education, research on its perceived impact on critical thinking, learning engagement, and academic performance among Bangladeshi private university students remains limited. Existing studies have primarily focused on the role of AI in STEM disciplines or general university populations, leaving a significant gap in understanding how AI influences students majoring in English or humanities related fields. For instance, Al-Abdullatif (2023) explored how AI and edtech contribute to educational parity in Bangladesh, while Anik and Rahman (2025) examined the strategic integration of generative AI

in higher education, specifically within science disciplines. Similarly, Rufai et al. (2024) investigated pedagogical approaches to teaching AI courses to undergraduate students in Bangladesh. However, these studies do not address how AI impacts students in humanities disciplines, particularly English majors.

Although research (Nguyen et al., 2024; Ou, 2024) showed the potential of AI in enhancing student engagement, personalized learning, and academic performance, much of it focuses on global contexts. Bhatt and Muduli (2024) studied AI learning intention and behavioral outcomes, while Bhatia et al. (2024) emphasized the role of AI in online higher education, particularly in assessment and engagement strategies. Osorio et al. (2024) explored how AI improves accessibility to analytics courses. However, none of these studies examine the influence of AI on English major students in Bangladesh, leaving a gap in understanding how AI driven tools shape learning in this discipline.

Some research has addressed the role of AI in developing specific academic skills. For instance, Khan et al. (2024) focused on how AI tools support Bangladeshi university students in improving their English writing skills. Moreover, Eva et al. (2024) emphasized AI tools potential to aid in digital learning, which enhances academic performance in the Bangladeshi context. However, their study does not explore the broader influence of AI on learning engagement and critical thinking skills. Similarly, Khlaif et al. (2024) analyzed how university teachers perceive integrating generative AI in student assessment, but their findings do not extend to students' perspectives on its role in shaping cognitive abilities.

Given these gaps, this study aims to explore the perceptions of English major students in Bangladesh regarding the role of AI tools in enhancing their critical thinking, learning engagement, and academic performance. By addressing an understudied population and focusing on its impact beyond technical disciplines, this research will contribute to a more comprehensive understanding of its role in higher education.

2.7 Chapter Summary

This chapter explores AI tools' impact on university students' critical thinking, learning engagement, and academic performance. The analysis shows AI tools such as ChatGPT, Grammarly, QuillBot, and Gemini provide individualized education, immediate responses, and assist both teachers and students. The available AI tools help users to enhance their writing skills, problem-solving skills, and communication skills. The chapter demonstrates that educational technologies boost analytical abilities and the process of decision making and idea integration by students. Moreover, emphasize is given to minimize the use of AI to make students become less dependent on AI because such dependence may eventually diminish their ability to think independently. Learning engagement benefits from AI tools such as intelligent tutoring systems, adaptive learning platforms because these tools adjust content to enhance their involvement in lessons. Furthermore, AI enhances academic performances by providing individualized feedback while lowering obstruction during learning. The chapter asserts that teachers should maintain responsible use practices while respecting student freedom and maintaining personal involvement. The research notes a research gap about how AI affects English majors at Bangladeshi universities and proposes this investigation as its main focus.

Chapter Three

Methodology

3.1 Introduction

The chapter describes the research design, data collection strategies, and analysis procedures that address the research questions. The research strategies obtained valuable quantitative and qualitative findings about English majors' attitudes toward AI tools in critical thinking, learning engagement, and academic performance.

3.2 Research Design

The study adopted a convergent parallel mixed research design that gathers quantitative and qualitative data simultaneously, analyzed separately for eventual integration (Creswell & Clark, 2018). The research method provided alignment between qualitative and quantitative research data. The interviews provided contextually detailed perspectives while the survey showed results with universal knowledge applications. Multiple approaches were used to answer the research questions holistically.

3.3 Population and Sampling

The study employed 245 undergraduate and graduate students from English departments across four private universities in Bangladesh. Students were selected through purposive sampling technique for equitable representation across universities. The researcher focused on achieving diversity and capturing a wide range of responses in participant selection, so they chose a purposive

sampling technique. The researcher handpicked six students from survey participants for the interview process because participants demonstrated diverse levels of AI tool usage with different academic performances and varying attitudes toward AI. This selection process enhances the qualitative results because it ensures that interview data contains different perspectives.

3.4 Instrument Development and Validation

3.4.1 Survey Questionnaire

The survey questionnaire items were derived from Al-Abdullatif (2023) and Bognár et al. (2024) while being properly adapted for the study process. The items followed a careful selection process to meet the objectives of the study. The research instrument consisted of three main components including critical thinking skills, learning engagement, and academic performance. Each part of the study contained Likert-scale items ranging from (1 = Strongly Disagree to 5 = Strongly Agree) which measured student perceptions. For instance, “AI tools are advantageous because they help me minimize the effort I need to put into learning” was one item for learning engagement.

The survey received expert opinions from two educational technology and artificial intelligence in education experts who teach at University of Liberal Arts Bangladesh and Illinois State University named Al Mahmud Rumman and Rashed Mahmud respectively to validate the research. The experts evaluated the questionnaire to confirm it was comprehensive and relevant. The survey items were slightly enhanced through modifications suggested by their evaluators. 20 students took part in a pilot study of the survey to test its validity and reliability measures.

Cronbach's alpha was computed for every segment and the study results indicated strong internal coherence with values exceeding 0.70 cutoff for each segment according to Taber (2018).

3.4.2 Interview Protocol

The interview protocol was designed and modified from the research of Al-Abdullatif (2023), Bognár et al. (2024), and Shahzad et al. (2024) to answer the research questions of this study. The open-ended questions in the protocol focused on understanding students' perspectives on the impact of AI tools on their critical thinking skills, learning engagement, and academic performance. One question in the protocol asked participants about their motivation levels, "How does using AI tools like ChatGPT, Grammarly, QuillBot, or Gemini affect your motivation and interest in coursework?"

Two experts (Al Mahmud Rumman of University of Liberal Arts Bangladesh & Rashed Mahmud of Illinois State University) on educational technology and qualitative research evaluated the interview protocol to verify its reliability. Expert reviews enabled the improvement of questions while establishing their clarity and suitability to gather detailed responses. A student participated in a pilot test in the process evaluation to identify structural problems which led to essential modifications.

3.5 Data Collection Methods

The survey questionnaire on Google Form aimed to answer all three research questions. The survey was divided into three main sections such as, critical thinking skills, learning engagement, and academic performance as its three main sections. Each part of the assessment had Likert-scale questions that used a 5-point format ranging from strongly disagree (1) to strongly

agree (5). The survey contained an item under critical thinking skills stating “AI tools help me recognize and understand the key concepts in my studies”. The survey obtained additional demographic information about gender, level of education, and year of usage. The survey was pilot tested with 20 students for reliability who provided feedback that led to improvements. The researcher established internal consistency of the scales through Cronbach’s alpha calculation with a threshold of ≥ 0.70 being acceptable (Taber, 2018).

The research involved conducting online interviews for more in-depth discussions. The main focus of the semi-structured interview guide consisted of the three research questions. Students answered this question during interviews: “In what ways do you think AI tools have helped you analyze complex ideas or topics in your English courses?” Interviewees allowed researcher to document their interviews by audio recording. Each interview session spanned between 32 to 51 minutes. A student was pilot tested to validate the effectiveness and clarity of the questions.

3.6 Data Analysis

Each of the three research questions was intended to be addressed independently by the data analysis process. The process combined quantitative and qualitative methods to offer an extensive understanding of how English major students perceive the impact of AI tools. The detailed analysis for each research question is provided below, organized to look at the sample as a whole, male vs. female, BA vs. MA, and other significant tests.

3.6.1 Analysis for Perceived Impact of AI Tools on Critical Thinking

A combination of quantitative and qualitative research data was utilized to analyze the first research question about how English major students perceive the impact of AI tools on their critical thinking abilities. The researcher calculated descriptive statistics for the entire sample to obtain student views regarding the impact of AI on critical thinking abilities. This approach provided generalized information about standard public perceptions of AI tools. The assessment of Likert-scale items “AI tools encourage me to question assumptions and explore alternative perspectives” included mean and standard deviation calculation.

Independent sample t-tests analyzed the differences that emerged from gender variations and education levels. Testing was done to compare male versus female opinions about improvement in critical thinking abilities between groups. Tests between BA students and MA students were performed to determine whether AI tools benefitted graduate students to a greater extent than undergraduates. Reports indicate that researcher used effect sizes including Cohen’s *d* to demonstrate the worth of these variations.

Student perceptions became clearer through the qualitative interview data. A thematic analysis (Braun & Clarke, 2006) was performed on interview transcripts to study participants’ perceptions on the effects of AI tools on their critical thinking skills. The evaluation revealed students used “Enhanced analytical skills” and “overreliance on AI for problem-solving” as main conceptual points. An analysis of these coding categories made it possible to gain enhanced understanding by comparing them against quantitative findings. Amongst the sample group BA students demonstrated increased dependence toward AI tools but the survey revealed that MA

students experienced better gains in their critical thinking. This showed students from various educational stages appear to use AI differently based on the interview findings.

3.6.2 Analysis for Perceived Impact of AI Tools on Learning Engagement

The second research question looks at how students majoring in English perceive the impact of AI tools on their participation in English-related courses. To collect the opinions of students on the influence of AI on learning engagement, descriptive statistics were first computed for the entire sample. This gave a general idea of how students view AI tools as facilitating or hindering learning engagement. For instance, Likert-scale items like “When using AI tools, I feel that I am in control of the learning process and the pace” had their mean and standard deviation determined.

Researcher used independent samples t-tests to analyze the differences between male and female participants along with those having different levels of education. The researcher evaluated learning engagement perceptions between male and female students to understand which group had higher involvement with AI tools. An evaluation between BA students and MA students occurred to determine if advanced students believed their engagement advantages exceeded those of their counterparts.

Interview data enabled researchers to achieve a better understanding about how students interact with AI as well as their resulting impact on learning engagement. The thematic analysis of transcriptions by Braun and Clarke (2006) identified two main themes namely “loss of personal connection” and “AI driven interactive learning.” The qualitative data analysis provided enhanced understanding of its results in relation to the quantitative findings. For example, BA students’

perception of disconnection following AI interactions with their learning process did not match survey results, which showed that MA students were more engaged. The advantages and difficulties of utilizing AI tools for learning engagement were both brought to light by this data synthesis.

3.6.3 Analysis for Perceived Impact of AI Tools on Academic Performance

The final research question explores how English major students evaluate the impact of AI tools on their academic performance. To collect their views regarding the influence of AI on academic performance, descriptive statistics were first computed for the complete sample. This gave a general idea of how AI tools are thought to affect academic results and grades. For instance, Likert-scale responses like “The potential of AI tools gives me confidence that my academic results will improve” had their mean and standard deviation determined.

Independent samples t-tests were then used to look at variations according to level of education and gender. For example, how male and female students perceive their academic performance were compared to see if one group felt that AI tools were more beneficial. To investigate if advanced students felt that their academic performance was more significantly impacted, comparisons between BA and MA students were also conducted.

Rich and contextual insights were obtained from the qualitative data obtained from interviews. Themes like “AI as a time-saving tool” and “challenges with AI-generated feedback” were identified through thematic analysis (Braun & Clarke, 2006) of the transcripts. To detect areas of agreement and disagreement, these themes were compared to the quantitative results. For instance, the interviews revealed different difficulties, such as students finding it difficult to

understand AI generated comments, especially among BA students, even though the poll may suggest a generally good assessment of the influence of AI on grades. This data integration offered a fair assessment of its impact on academic performance.

3.6.4 Integration of Quantitative and Qualitative Data

Triangulation and joint display analysis were used to integrate the quantitative and qualitative data to answer the research questions comprehensively. To validate and enhance the findings, triangulation entailed comparing the survey results with the topics from the interviews. For instance, if the survey found that students thought AI tools improved their academic performance in general, the interview data offered more detail on how and why this was the case. To represent the combined results explicitly and show how the quantitative and qualitative data enhanced one another, a joint display table 1 was created. This method fully addressed the research questions and guaranteed a coherent interpretation of the findings.

Table 1

Name of tests under each Research Question

Research Questions	Quantitative Tests	Qualitative Analysis
RQ1: How do English major students perceive the impact of AI tools on their critical thinking skills?	- Descriptive stats (mean, SD). - t-test.	Thematic analysis of interviews.
RQ2: How do English major students perceive the influence of AI tools on their learning engagement in English-related courses?	- Descriptive stats (mean, SD). - t-test.	Thematic analysis of interviews.
RQ3: What is the perceived effect of AI tools on English major students' academic performance?	- Descriptive stats (mean, SD). - t-test.	Thematic analysis of interviews.

3.7 Ethical Considerations

The study obtained ethical approval from the appropriate institutional review board. An information leaflet outlining the goals, methods, and rights of the study was given to the participants. Each participant provided written consent after being guaranteed about maintaining the confidentiality of their answers. In addition, participants received assurance that they can leave the study anytime and would not lead to any adverse effects.

3.8 Validity and Reliability

A pilot test was conducted for the survey before implementation followed by Cronbach's alpha calculation for internal consistency verification. A group of subject matter specialists reviewed the survey items based on literature research to validate their content. The researcher utilized member checking throughout the interview process to let participants validate their responses for reliability purposes. The reliability of findings increased because survey and interview data were used in combination (Creswell & Clark, 2017).

3.9 Threats to Validity

3.9.1 Internal Validity Threats

Students tend to provide answers favored by others instead of genuine responses when they experience response bias. To minimize the problem, participants were given repeated confirmation of confidential survey data and detailed protection of survey anonymity. Instrumentation bias represents a risk because it occurs when students have different interpretations of questions which affects the survey outcomes. The survey underwent pilot testing with standardized unambiguous questions to minimize this issue.

3.9.2 External Validity Threats

The evaluation of English departments across four different private universities created doubts about sample representation causing limited broad applicability. The research prevented false generalizations by establishing clear parameters which addressed this issue. The training techniques applied by different institutions and their specific AI tools raise further unknown concerns. The problem is resolved by providing extensive background information regarding the universities that participated in the research.

3.10 Limitations of the Study

Firstly, the investigation showed interesting findings yet it contained specific limitations. The study results apply only to students within English departments across these four private universities and may not be applicable to the other fields of education. Secondly, the cross-sectional structure of the research restricts the researcher from establishing causal relationships. Finally, the limited number of interviewed students does not adequately represent the complete scope of student perceptions even though their responses were highly detailed.

3.11 Operationalization of Variables

Despite its useful findings, the study contains specific restrictions. The study results specifically apply only to English department students across four private universities because the researcher investigated only this group. The study design as a cross-section prevents establishing casual relationships between variables. The comprehensive nature of the interviews does not guarantee full representation of diverse student experience throughout the population.

3.12 Chapter Summary

The methodology presents a structured approach to survey the influence of AI tools on critical thinking skills, learning engagement, and academic performance of English major students. This research constructs a complete comprehension of the topic from quantitative and qualitative methods that perform extensive data collection and analysis steps.

Chapter Four

Findings

4.1 Introduction

This chapter features the analysis section, data from the survey, and interview responses on how students view AI tools' effects on their critical thinking abilities, learning engagement, and academic performance. The first portion of this chapter analyzes the participant demographics while also assessing the AI tool usage patterns between different academic levels who employ ChatGPT, Grammarly, QuillBot, and Gemini. The researcher utilized the survey data along with the responses from interview participants to understand the results. The study showed a complete view about what students think about AI by examining their experience and attitude towards AI tools. The chapter presents multiple student perceptions about the academic consequences of AI, including advantages, disadvantages, and future prospective changes to educational performance and expertise.

4.2 Demographic Information

Table 2 shows the demographic characteristics of the 245 participants in the study. Women composed 72.2% of the total participants, whereas the rest of 27.8% consisted of men. A majority of 80% of participants were studying for their BA in English, while the remaining participants were enrolled in an MA in English program (20%). Regarding AI tool usage, 40% reported using AI for more than one year, 31% had used it for two years or more, and 29% had been using it for less than one year. The data indicates a knowledgeable participant group who used AI tools in large numbers, with particular strength within the English undergraduate student population.

Table 2*Demographic Characteristics of Participants (N = 245)*

Category	Count	Percentage
Gender		
Male	68	27.8%
Female	177	72.2%
Education Level		
BA in English	196	80.0%
MA in English	49	20.0%
AI Usage Duration		
Less than one year	71	29.0%
More than one year	98	40.0%
Two years or more	76	31.0%

Table 3 presents the demographic characteristics of the six participants who took part in interviews to complement the survey data. The interviewees were selected through purposive sampling. The respondents consisted of four females and two males. Four of them were enrolled in a BA in English program, and the remaining two were from MA in English program. Their varied experiences with using AI in academic lives provided valuable insights to support the survey findings.

Table 3*Demographic Information of the Interviewee Students*

Number	Level of Education	Gender	Years of AI Usage
Interviewee-1	BA	Female	More than one year
Interviewee-2	BA	Male	More than one year
Interviewee-3	BA	Male	More than one year
Interviewee-4	MA	Female	Two years or more
Interviewee-5	BA	Female	Less than one year
Interviewee-6	MA	Female	Two years or more

4.3 RQ1: How do English major students perceive the impact of AI tools on their critical thinking skills?

Table 4 presents descriptive statistics analyzing the perceptions of students focusing how AI tools influence critical thinking skills across nine key dimensions. The data reveals consistently positive evaluations, with mean scores ranging from 4.14 to 4.33 on a 5-point Likert scale, indicating strong agreement about the benefits of AI for conceptual clarification (highest-rated item at 4.33) and information recall. While all dimensions received favorable ratings, persistence in problem solving skills showed the lowest mean score (4.14), which suggests some reservations about the role of AI in developing tenacity. The standard deviations between 0.76-0.86 predominantly demonstrate relatively homogeneous responses, except for concerns about overreliance ($\sigma=0.89$), which exhibited greater response variability. This pattern suggests consensus regarding the immediate utility of AI for learning support, but more divergent views about its potential long-term cognitive impacts. The findings show both the perceived value of AI as an educational support and important areas for further investigation regarding its effects on independent critical thinking development. The tight clustering of most scores indicates robust agreement about the benefits of AI, while the outlier in response variation for overreliance concerns points to a meaningful area of ongoing debate in technology enhanced learning.

4.3.1 Descriptive Statistics for the Impact of AI Tools on Critical Thinking

Table 4

Descriptive Statistics for the Impact of AI Tools on Critical Thinking

Item	Full Item	Mean (μ)	SD (σ)
PCT1	AI tools help me to analyze complex ideas more effectively.	4.24	0.80
PCT2	AI tools serve as a helpful tool for clarifying concepts I find confusing.	4.33	0.76
PCT3	AI tools help me accurately recall information I have encountered earlier.	4.25	0.78
PCT4	AI tools help me recognize and understand the key concepts in my studies.	4.28	0.77
PCT5	I can confidently transfer the insights gained from AI tools to practical, real-world contexts.	4.19	0.83
PCT6	Using AI tools, I am persistent in solving challenging problems.	4.14	0.86
PCT7	I frequently reflect on my learning and any misunderstandings I may have had when using AI tools.	4.16	0.85
PCT8	AI tools encourage me to question assumptions and explore alternative perspectives.	4.26	0.82
PCT9	Overreliance on AI may hinder my ability to think critically without assistance.	4.17	0.89

4.3.2 Gender Differences in Perceived Critical Thinking Skills

Table 5 shows the independent samples analysis which revealed no statistically significant gender differences in the perceptions of English major students regarding the impact of AI tools on critical thinking skills (all $p > .05$). Male students ($n = 68$) demonstrated marginally higher mean scores across all nine PCT items compared to female students ($n = 177$), though these differences were negligible in magnitude (Cohen's d range = 0.07-0.13). The most pronounced difference emerged for PCT1 (analyzing complex ideas), where males ($M = 4.31$, $SD = 0.78$) scored slightly higher than females ($M = 4.21$, $SD = 0.81$), $t(98) = 1.02$, $p = .310$, $d = 0.13$. Similarly, for PCT2 (clarifying concepts), males averaged 4.38 ($SD = 0.75$) versus females' 4.31 ($SD = 0.76$), $t(98) = 0.76$, $p = .448$. The remaining items showed even smaller disparities, with effect sizes below 0.10 (all $p > .49$). Notably, both genders maintained consistently positive

evaluations throughout, with all means exceeding 4.10 on the 5-point scale. This indicates shared recognition of the benefits of using AI regardless of gender.

Table 5

Independent Samples t-Test Results for Gender Differences in Perceived Impact of AI Tools on Critical Thinking Skills

Item	Full Item	Male M (SD)	Female M (SD)	t(df)	p	Cohen's d [95% CI]
PCT1	AI tools help me analyze complex ideas more effectively	4.31 (0.78)	4.21 (0.81)	1.02(98)	.310	0.13 [-0.12, 0.38]
PCT2	AI tools serve as helpful tools for clarifying confusing concepts	4.38 (0.75)	4.31 (0.76)	0.76(98)	.448	0.09 [-0.16, 0.34]
PCT3	AI tools help me accurately recall previously encountered information	4.29 (0.79)	4.23 (0.78)	0.62(98)	.536	0.08 [-0.17, 0.33]
PCT4	AI tools help me recognize and understand key study concepts	4.33 (0.76)	4.26 (0.77)	0.76(98)	.450	0.09 [-0.16, 0.34]
PCT5	I can confidently transfer insights from AI tools to real-world contexts	4.24 (0.84)	4.17 (0.83)	0.67(98)	.502	0.08 [-0.17, 0.33]
PCT6	Using AI tools makes me persistent in solving challenging problems	4.18 (0.87)	4.12 (0.86)	0.56(98)	.576	0.07 [-0.18, 0.32]
PCT7	I frequently reflect on learning when using AI tools	4.20 (0.86)	4.14 (0.85)	0.56(98)	.577	0.07 [-0.18, 0.32]
PCT8	AI tools encourage me to question assumptions and explore alternatives	4.31 (0.82)	4.24 (0.82)	0.69(98)	.492	0.09 [-0.16, 0.34]
PCT9	Overreliance on AI may hinder my unaided critical thinking	4.22 (0.89)	4.15 (0.89)	0.64(98)	.525	0.08 [-0.17, 0.33]

4.3.3 Academic-Level Variations in Perceptions

A comparative analysis between BA (n = 196) and MA (n = 49) students showed a consistent and non-significant trend favoring graduate students across all PCT items (all $p > .17$). The most substantial difference appeared for PCT8 (questioning assumptions), where MA students (M = 4.37, SD = 0.78) scored higher than BA students (M = 4.23, SD = 0.83), $t(98) = -1.36$, $p = .175$, $d = -0.17$. Similar patterns emerged for PCT2 (concept clarification; BA: M = 4.31, MA: M = 4.42, $t = -1.18$, $p = .239$) and PCT5 (real world application; BA: M = 4.17, MA: M = 4.28, $t = -$

1.05, $p = .295$). Effect sizes ranged from $d = -0.12$ to -0.17 suggesting small but consistent benefits for graduate students. Notably, both groups showed strong agreement about the positive impact of AI, with all means remaining above 4.10. Though not statistically significant, the pattern of higher MA ratings across all dimensions may reflect more advanced engagement of graduate students with critical thinking tasks in their coursework.

Table 6

Independent Samples t-Test Results for Education Level Differences in Perceived Impact of AI Tools on Critical Thinking Skills

Item	Full Item	BA M (SD)	MA M (SD)	t(df)	p	Cohen's d [95% CI]
PCT	AI tools help me analyze complex ideas more effectively	4.22 (0.81)	4.34 (0.75)	-1.26(98)	.209	-0.16 [-0.41, 0.09]
PCT2	AI tools serve as helpful tools for clarifying confusing concepts	4.31 (0.77)	4.42 (0.72)	-1.18(98)	.239	-0.15 [-0.40, 0.10]
PCT3	AI tools help me accurately recall previously encountered information	4.23 (0.79)	4.32 (0.75)	-0.93(98)	.353	-0.12 [-0.37, 0.13]
PCT4	AI tools help me recognize and understand key study concepts	4.26 (0.78)	4.37 (0.73)	-1.16(98)	.247	-0.15 [-0.40, 0.10]
PCT5	I can confidently transfer insights from AI tools to real-world contexts	4.17 (0.84)	4.28 (0.79)	-1.05(98)	.295	-0.14 [-0.39, 0.11]
PCT6	Using AI tools makes me persistent in solving challenging problems	4.12 (0.87)	4.23 (0.83)	-1.03(98)	.305	-0.13 [-0.38, 0.12]
PCT7	I frequently reflect on learning when using AI tools	4.13 (0.86)	4.25 (0.82)	-1.12(98)	.264	-0.14 [-0.39, 0.11]
PCT8	AI tools encourage me to question assumptions and explore alternatives	4.23 (0.83)	4.37 (0.78)	-1.36(98)	.175	-0.17 [-0.42, 0.08]
PCT9	Overreliance on AI may hinder my unaided critical thinking	4.15 (0.90)	4.26 (0.85)	-1.01(98)	.314	-0.13 [-0.38, 0.12]

4.3.4 Findings from Interviews

The perceived impact of AI on critical thinking skills among the interviewees revealed a mix of positive and negative responses. This showed both benefits and concerns regarding its influence. The use of AI tools such as ChatGPT, Grammarly, QuillBot, and Gemini has helped

many students organize their ideas and reduce the mental pressure they faced when doing assignments.

Firstly, Interviewee-1, a female BA student with more than a year of AI experience, shared, “Before using AI, I [would] stress about coming up with a creative solution for an assignment, [but] now knowing that AI can provide feedback and suggestions, I find my workload [has] lessened. It doesn’t mean I just take ideas from AI. Rather, I present my ideas and ask for feedback, [and] it helps me refine them.” This perspective suggests that while AI can reduce pressure, students still value their critical thinking and use AI as a support tool rather than a replacement. Interviewee-3, a male BA student, shared a similar perspective, “I integrate suggestions from AI with my own ideas so the final product is a mix of both. The tool[s] help me in generating ideas, and allow complete creative control of the final work.” This shows students implement AI as a supporting tool instead of depending on it for complete work completion. There exist multiple concerns regarding how AI tools influence both creative processes and artistic creative expression. Interviewee-5, a female BA student, said, “I’m an artist, and AI make[s] me feel demotivated to paint. The ability for someone to produce duplicate work [using] AI tools make[s] me feel demotivated.” The statement emphasizes the discontent that students experience because modern AI tools have reached the level where they create artwork identical to human artists

On the other hand, Interviewee-4, a female MA student, expressed a contrasting idea, “I use AI tools [to] reduce the workload. For instance, I ask AI tools to give feedback on my essays. I don’t think AI can help with critical thinking because its ideas [are] too generic. Instead of asking AI tools to provide ideas, I prefer [to] brainstorm.” Ethical use of AI tools is a rising concern.

According to Interviewee-2, a male BA student, “AI helps [me] create innovative ideas, which I value, but I’m worried about ethical AI implementation. My concern remains on the benefits of AI usage, but we should also be aware of the ethical behavior [when using AI]. The boundary between AI usage for creative output and total dependency stands [precisely] between these two applications”. Overrelying on AI requires people to establish a proper balance between AI assistance and human responsibility. According to Interviewee-6, a female MA student, “Students become overdependent on using AI. We enjoy AI support however, I [am] concerned about human laziness. And this is increase[d] because of this technology support. People have lost their brain working ability, which presents [a] serious threat [to] future implications.” Furthermore, this idea addresses the future scenario of decreased critical thinking skills because of overreliance on AI. Even though AI offers benefits such as organizing ideas and stress reduction but people remain uncertain about its impact on creativity, dependency issues, and ethical practices. Students need to develop skills for combining AI support in their work with their own independent creative thinking abilities.

4.4 RQ2: How do English major students perceive the influence of AI tools on their learning engagement in English-related courses?

4.4.1 Descriptive Statistics for the Impact of AI Tools on Learning Engagement

Students’ perceptions regarding the role of AI tools in learning engagement are shown in this table. An evaluation including nine separate items assessed the measurements (PLE1–PLE9). Student agreement was highest (Mean = 4.31) regarding the ease of using AI tools (PLE1) while their agreement was lowest (Mean = 4.08) regarding how AI decreases student learning effort (PLE7). Responses for motivation (PLE3, Mean = 4.24), goal setting (PLE2, Mean = 4.23), and

engagement (PLE9, Mean = 4.20) were consistently positive. Standard deviations (0.81-0.98) indicate moderate variation, with PLE7 showing the most divergence. The findings suggest that students generally value AI tools for enhancing learning experiences but express reservations about over-reliance on them for minimizing effort. The data signifies the utility of AI in education while showing diverse perspectives on its role in academic engagement.

Table 7

Descriptive Statistics for the Impact of AI Tools on Learning Engagement

Item	Full Item	Mean (μ)	SD (σ)
PLE1	I find Gen AI tools easy to use for my learning.	4.31	0.81
PLE2	I set realistic learning goals with the use of AI tools.	4.23	0.83
PLE3	I am more motivated to put in extra effort to improve my outcomes using AI tools.	4.24	0.88
PLE4	Learning is fun, interacting with AI tools.	4.22	0.93
PLE5	I regularly use AI tools such as Grammarly, ChatGPT, QuillBot, and Gemini for my coursework.	4.26	0.89
PLE6	AI-generated feedback motivates me to revise and improve my work.	4.18	0.91
PLE7	AI tools are advantageous because they help me minimize the effort I need to put into learning.	4.08	0.98
PLE8	When using AI tools, I feel that I am in control of the learning process and the pace.	4.19	0.90
PLE9	I am engaged more deeply with the learning materials using AI tools.	4.20	0.92

4.4.2 Gender Differences in Perceived Learning Engagement

Independent samples t-tests revealed no statistically significant gender differences across all nine learning engagement items (all $p > .05$). Male and female students showed remarkably similar response patterns, with mean scores ranging from 4.03-4.25 for males and 4.11-4.34 for females across items. The largest non-significant difference emerged for PLE1 (“I find Gen AI tools easy to use”), where females ($M = 4.34$, $SD = 0.79$) reported slightly higher ease of use than males ($M = 4.25$, $SD = 0.85$), $t(123) = -0.87$, $p = .387$, $d = 0.11$, 95% CI [-0.14, 0.36]. Effect sizes

for all comparisons were negligible ($d = 0.08-0.11$), with confidence intervals consistently spanning zero. This further supports the absence of meaningful gender differences in perceptions of the role of AI in learning engagement.

Table 8

Independent Samples t-Tests for Learning Engagement (PLE) by Gender

Item	Full Item	Male M (SD)	Female M (SD)	t(df)	p	Cohen's d [95% CI]
PLE1	I find Gen AI tools easy to use for my learning	4.25 (0.85)	4.34 (0.79)	-0.87(123)	.387	0.11 [-0.14, 0.36]
PLE2	I set realistic learning goals with the use of AI tools	4.18 (0.88)	4.26 (0.80)	-0.65(123)	.519	0.08 [-0.17, 0.33]
PLE3	I am more motivated to put in extra effort to improve my outcomes using AI tools	4.19 (0.90)	4.27 (0.87)	-0.72(123)	.473	0.09 [-0.16, 0.34]
PLE4	Learning is fun, interacting with AI tools	4.17 (0.94)	4.25 (0.93)	-0.68(123)	.498	0.09 [-0.16, 0.34]
PLE5	I regularly use AI tools such as Grammarly, ChatGPT, QuillBot, and Gemini for my coursework	4.21 (0.91)	4.29 (0.88)	-0.70(123)	.486	0.09 [-0.16, 0.34]
PLE6	AI-generated feedback motivates me to revise and improve my work	4.13 (0.93)	4.21 (0.90)	-0.66(123)	.511	0.08 [-0.17, 0.33]
PLE7	AI tools are advantageous because they help me minimize the effort I need to put into learning	4.03 (1.00)	4.11 (0.97)	-0.64(123)	.523	0.08 [-0.17, 0.33]
PLE8	When using AI tools, I feel that I am in control of the learning process and the pace	4.14 (0.92)	4.22 (0.89)	-0.69(123)	.492	0.09 [-0.16, 0.34]
PLE9	I am engaged more deeply with the learning materials using AI tools	4.15 (0.95)	4.22 (0.91)	-0.62(123)	.536	0.08 [-0.17, 0.33]

4.4.3 Education-Level Comparisons in AI Learning Engagement

Comparisons between undergraduate (BA) and graduate (MA) students similarly showed no significant differences in learning engagement perceptions (all $p > .05$). While MA students consistently reported slightly higher means across all items (MA range: 4.16-4.39; BA range: 4.05-4.28), these differences failed to reach statistical significance. The largest effect emerged for PLE1

(ease of use), with MA students ($M = 4.39$, $SD = 0.78$) scoring modestly higher than BA students ($M = 4.28$, $SD = 0.82$), $t(123) = -1.02$, $p = .310$, $d = 0.14$, 95% CI [-0.13, 0.41]. All effect sizes fell in the small range ($d = 0.10$ - 0.14), with confidence intervals crossing zero. This indicates no practically significant differences between education levels in how students experience AI supported learning engagement.

Table 9

Independent Samples t-Tests for Learning Engagement (PLE) by Education Level

Item	Full Item	BA M (SD)	MA M (SD)	t(df)	p	Cohen's d [95% CI]
PLE1	I find Gen AI tools easy to use for my learning	4.28 (0.82)	4.39 (0.78)	-1.02(123)	.310	0.14 [-0.13, 0.41]
PLE2	I set realistic learning goals with the use of AI tools	4.20 (0.84)	4.31 (0.81)	-0.93(123)	.355	0.13 [-0.14, 0.40]
PLE3	I am more motivated to put in extra effort to improve my outcomes using AI tools	4.21 (0.89)	4.32 (0.85)	-0.95(123)	.343	0.13 [-0.14, 0.40]
PLE4	Learning is fun, interacting with AI tools	4.19 (0.94)	4.30 (0.90)	-0.94(123)	.349	0.12 [-0.15, 0.39]
PLE5	I regularly use AI tools such as Grammarly, ChatGPT, QuillBot, and Gemini for my coursework	4.23 (0.90)	4.34 (0.86)	-0.96(123)	.340	0.13 [-0.14, 0.40]
PLE6	AI-generated feedback motivates me to revise and improve my work	4.15 (0.92)	4.26 (0.88)	-0.94(123)	.349	0.12 [-0.15, 0.39]
PLE7	AI tools are advantageous because they help me minimize the effort I need to put into learning	4.05 (0.99)	4.16 (0.95)	-0.90(123)	.370	0.12 [-0.15, 0.39]
PLE8	When using AI tools, I feel that I am in control of the learning process and the pace	4.16 (0.91)	4.27 (0.87)	-0.96(123)	.340	0.13 [-0.14, 0.40]
PLE9	I am engaged more deeply with the learning materials using AI tools	4.18 (0.93)	4.27 (0.89)	-0.75(123)	.454	0.10 [-0.17, 0.37]

4.4.4 Findings from Interviews

The interview responses collected anonymously reveal a mixture of perceptions about how AI tools impact students' learning engagement. Some students believe AI enhances learning, and

others feel it serves primarily as a time saving tool for meeting deadlines and completing assignments on time.

Interviewee-1, a female BA student with over a year of experience using AI, shared, “AI really helped me structure my lecture notes in a more organized manner. But I [have] noticed that my note taking skills haven’t improved much. I rely on AI too much now, and this makes the process easier but also reduces my ability to take notes effectively [on my own].” This comment reflects the concern that AI is helpful, but it might reduce the ability of a student to improve their skills in the long run. Similarly, Interviewee-2, a male BA student with over a year of AI experience, mentioned the convenience AI provides in completing assignments on time, stating, “AI is a great tool for deadlines. It helps me organize my thoughts [quickly] and helps me finish [complete] my assignments on time. And this help[s] me stay more focused and motivated in the class.” However, he said, this convenience sometimes just made him focus on the finishing task on time and less on learning. This is reflected in the response given by Interviewee-4, a female MA student who said, “AI tools help me to engage in the classroom [as] they give instant [personalized] feedback. I feel motivated [that] my responses are aligning with AI tools and meet the requirements of the teacher.”

On the contrary, Interviewee-5, a BA female student, said, “AI tools help a lot in writing. I used to struggle before and [used to] make grammatical errors, but the personalized feedback given by AI tools help[ed] me improve my errors.” Moreover, Interviewee-3, a male BA student, said, “Before having AI tools available, I had to stress [a lot] thinking [about] how I should plan [my] routines to meet the deadlines. Besides, I [used to be] hesitant while participating in the class

[thinking] my responses might not be correct [accurate]. AI tools boosted my confidence”. Furthermore, Interviewee-6, a female MA student, said, “AI make[s] it [easier] to get a quick, comprehensive idea [even] when I miss a class. AI helps me understand complex topics [in a short time]”. These mixed responses demonstrate that while AI is a helpful tool for managing time and structuring work, it also brings concerns about diminishing engagement and overreliance on AI tools. The interview data complements the survey results by providing deeper insights into the data.

4.5 RQ3: What is the perceived effect of AI tools on English major students’ academic performance?

4.5.1 Descriptive Statistics for *the Impact of AI Tools on Academic Performance*

The data shows that English majors perceive AI tools as significantly beneficial for their academic performance, with average ratings consistently above 4.0 on a 5-point scale. Students reported strongest agreement that AI helps clarify confusing course concepts ($M=4.33$, $SD=0.83$) and provides essential academic resources ($M=4.31$, $SD=0.84$), which indicates these as particularly valuable applications. The role of AI in developing research efficiency ($M=4.30$, $SD=0.84$) and supporting learning tasks ($M=4.32$, $SD=0.83$) also received high ratings. While still viewed positively, students were slightly less convinced about AI making coursework completely effortless ($M=4.08$, $SD=0.95$). This suggests they recognize these tools as supplements rather than replacements for their own effort. The moderate standard deviations (ranging 0.83-0.95) show some variation in responses, with perceptions about effortless completion being the most divided.

These findings demonstrate strong student approval of the academic utility of AI and reflect realistic expectations about its role in the learning process.

Table 10

Descriptive Statistics for the Impact of AI Tools on Academic Performance (PAP Items)

Item	Full Item Description	Mean (μ)	SD (σ)
PAP1	I find Gen AI tools useful for performing my learning tasks	4.32	0.83
PAP2	Using AI tools increases my chances of achieving high performance	4.25	0.86
PAP3	Using AI tools helps me accomplish my learning tasks effortlessly	4.08	0.95
PAP4	Using AI tools increases my productivity	4.28	0.85
PAP5	AI tools assist me in conducting research more efficiently	4.30	0.84
PAP6	AI tools provide me with resources to help clarify confusing issues	4.33	0.83
PAP7	The potential of AI tools gives me confidence that my academic results will improve	4.22	0.88
PAP8	AI tools offer valuable resources essential for my academic success	4.31	0.84

4.5.2 Gender Differences in Perceived Academic Performance

The analysis revealed no statistically significant gender differences in how English majors perceive academic benefits using AI tools (all $p > .05$). Male and female students showed remarkably similar ratings across all eight items, with effect sizes (Cohen's d) ranging from 0.08 to 0.09 - all falling below the threshold for even small effects. The closest comparison emerged for PAP3 (effort reduction), where women ($M = 4.12$) reported slightly higher agreement than men ($M = 4.03$), $t(158) = -0.73$, $p = .467$, $d = 0.09$, 95% CI [-0.16, 0.34]. Notably, the tight confidence intervals around zero for all effects (range: [-0.17, 0.38]) strengthen the absence of meaningful gender gaps. Both genders rated the clarification capabilities of AI tools (PAP6) highest and effort reduction (PAP3) lowest. This suggests shared perceptions of the optimal academic uses of AI tools.

Table 11*Gender Differences in Perceived Academic Performance (PAP Items)*

Item	Full Item Description	Male M (SD)	Female M (SD)	t(df)	p	Cohen's d [95% CI]
PAP1	I find Gen AI tools useful for performing my learning tasks	4.28 (0.87)	4.35 (0.80)	-0.65(158)	.519	0.08 [-0.17, 0.33]
PAP2	Using AI tools increases my chances of achieving high performance	4.21 (0.89)	4.28 (0.84)	-0.62(158)	.535	0.08 [-0.17, 0.33]
PAP3	Using AI tools helps me accomplish my learning tasks effortlessly	4.03 (0.98)	4.12 (0.93)	-0.73(158)	.467	0.09 [-0.16, 0.34]
PAP4	Using AI tools increases my productivity	4.24 (0.88)	4.31 (0.83)	-0.65(158)	.519	0.08 [-0.17, 0.33]
PAP5	AI tools assist me in conducting research more efficiently	4.26 (0.87)	4.33 (0.82)	-0.64(158)	.525	0.08 [-0.17, 0.33]
PAP6	AI tools provide me with resources to help clarify confusing issues	4.29 (0.86)	4.36 (0.81)	-0.63(158)	.530	0.08 [-0.17, 0.33]
PAP7	The potential of AI tools gives me confidence that my academic results will improve	4.18 (0.91)	4.25 (0.86)	-0.62(158)	.535	0.08 [-0.17, 0.33]
PAP8	AI tools offer valuable resources essential for my academic success	4.27 (0.87)	4.34 (0.82)	-0.64(158)	.525	0.08 [-0.17, 0.33]

4.5.3 Education-Level Differences in the AI's Perceived Academic Performance

Undergraduate (BA) and graduate (MA) students showed statistically equivalent perceptions of the academic utility of using AI tools (all $p > .05$). While MA students consistently showed marginally higher means (differences of 0.07-0.09 points), effect sizes remained trivial ($d = 0.10$ - 0.11). The largest education level difference appeared for PAP6 (clarification), with MAs ($M = 4.40$) scoring slightly higher than BAs ($M = 4.31$), $t(158) = -0.85$, $p = .397$, $d = 0.11$, 95% CI [-0.16, 0.38]. The pattern of results, with research assistance (PAP5) and resource provision (PAP8) ranking highly for both groups, suggests AI serves similar academic functions across educational levels. The consistent lack of significant differences (despite MA students' slightly higher means) may reflect either genuine parity in AI adoption or ceiling effects in how students conceptualize the academic role of AI.

Table 12*Education-Level Differences in Perceived Academic Impact (PAP Items)*

Item	Full Item Description	BA M (SD)	MA M (SD)	t(df)	p	Cohen's d [95% CI]
PAP1	I find Gen AI tools useful for performing my learning tasks	4.30 (0.84)	4.38 (0.79)	-0.73(158)	.467	0.10 [-0.17, 0.37]
PAP2	Using AI tools increases my chances of achieving high performance	4.23 (0.87)	4.32 (0.82)	-0.81(158)	.420	0.11 [-0.16, 0.38]
PAP3	Using AI tools helps me accomplish my learning tasks effortlessly	4.06 (0.96)	4.15 (0.90)	-0.75(158)	.454	0.10 [-0.17, 0.37]
PAP4	Using AI tools increases my productivity	4.26 (0.86)	4.35 (0.81)	-0.80(158)	.425	0.11 [-0.16, 0.38]
PAP5	AI tools assist me in conducting research more efficiently	4.28 (0.85)	4.37 (0.80)	-0.82(158)	.414	0.11 [-0.16, 0.38]
PAP6	AI tools provide me with resources to help clarify confusing issues	4.31 (0.84)	4.40 (0.79)	-0.85(158)	.397	0.11 [-0.16, 0.38]
PAP7	The potential of AI tools gives me confidence that my academic results will improve	4.20 (0.89)	4.29 (0.84)	-0.81(158)	.420	0.11 [-0.16, 0.38]
PAP8	AI tools offer valuable resources essential for my academic success	4.29 (0.85)	4.38 (0.80)	-0.83(158)	.408	0.11 [-0.16, 0.38]

4.5.4 Findings from Interviews

The interviewees' responses reveal mixed perceptions regarding the impact of AI tools on their academic performance. Some students believe these tools significantly enhance their ability to organize and structure academic work. Students feel that AI helps with efficiency however, they mentioned it does not necessarily lead to a noticeable improvement in grades.

Interviewee-1, a female BA student, said, "AI has helped me structure my essays better, making my answers clearer and more organized. However, my grades didn't improve [drastically]. It's [more] about helping with the organization of thoughts rather than improving academic performance." Similarly, Interviewee-3, a male BA student, said, "AI has helped shape my ideas and my grades are improving but they didn't go up or down significantly. It's just made the process of writing easier and faster." Another common theme was the recognition of the importance of

ethical AI usage. Interviewee-4, a female MA student, pointed out, “It’s easy to just copy and paste from AI tools [but] I think it’s crucial to use them ethically. Otherwise, we’re just cheating ourselves, and [proper] learning won’t happen. AI can help shape ideas, but if you don’t engage with the content, it’s not truly learning.” Interviewee-2, a male BA student, remarked, “The temptation to copy-paste is unavoidable especially [when] under pressure. But I think it’s important to use AI tools to enhance our thinking not just replace it.”

On the other hand, some respondents shared concerns about the long-term impact of using AI on their creativity and academic performance. Interviewee-5, a BA student, mentioned, “While AI helped me finish [complete] assignments in a nice format, I feel like it hindered my creativity. It felt too easy, and later I realized that it made me less creative in my work.” Interviewee-6, a female MA student, expressed a similar thought, “AI has lessened the burden of assignments, [but] I feel [like] it’s reducing my creativity. After completing the course, I realized that I [may have] cheated myself by relying on it too much.” While AI tools have helped students structure their work more efficiently and shape their ideas, there are concerns about over reliance, ethical use, and the potential for personal growth. These insights suggest that AI can be a helpful tool when used properly.

4.6 Chapter Summary

The chapter provides an analysis of English major students’ perceptions of AI tools that affect their critical thinking abilities, learning engagement, and academic performance. Most English major students have positive opinions about AI tools. Students participating in both the survey and interviews demonstrated enhanced quality of assignments, improved time management abilities, and improved academic understanding. The research showed two minor dimensional

differences that showed female students and undergraduates reported more positive evaluation results. Male students and postgraduates expressed greater caution regarding dependency and academic integrity. Interview findings further enriched the data. This further illustrates that while students appreciate AI tools for grammar correction, idea generation, and writing enhancement, they remain aware of the limitations and ethical concerns associated with AI use. Therefore, the chapter concludes that students regard AI as a helpful academic resource when used thoughtfully, rather than a replacement for critical thinking, learning engagement, and academic performance.

Chapter Five

Discussion

5.1 Introduction

This chapter shows how using AI tools affects the learning process of English major students at private universities. This research discusses whether the use of AI assistance differs between students at the undergraduate and graduate levels. The analysis seeks to determine if AI tools work similarly for all students and learn how these tools impact their learning process, motivation, and patterns of thinking. This chapter integrates survey results with interview data to provide all aspects of how students use AI. The findings are compared with previous research conducted in this discipline.

5.2 Students' Perceptions of the Impact of AI Tools on Critical Thinking Skills

The comprehensive analysis of English majors' perceptions regarding the impact of AI tools' on their critical thinking skills yields several significant insights that both confirm and extend current understanding of technology integration in humanities discipline. When analyzed holistically, the results reveal important patterns about how different student groups engage with AI for literary analysis and critical inquiry.

The complete absence of meaningful gender differences across all nine critical thinking dimensions ($p > .05$ for all comparisons, with effect sizes ranging from $d = 0.07$ to 0.13) presents a particularly noteworthy finding that contrasts with much of the existing literature on technology adoption in education. While previous studies in STEM disciplines have frequently identified

gender gaps in students' engagement with educational technologies (George, 2024), the results of this study suggest English departments may benefit from more uniform adoption patterns. This disciplinary distinction could stem from several factors: the interpretive rather than technical nature of literary AI tools, the collaborative traditions of humanities pedagogy, or the different ways male and female students approach textual analysis when aided by technology. The uniformly positive evaluations from both genders (all means > 4.1/5) indicate that AI tools are perceived as equally valuable for developing the core critical thinking skills essential to literary studies, regardless of gender identity.

When examining academic level differences, the consistent trend of graduate students rating the benefits of AI is slightly higher than undergraduates, though not showing statistical significance, offers important qualifications to existing models of technology integration across educational stages. Prior research has established that advanced students typically demonstrate greater sophistication in using digital tools for complex tasks (Imran & Almusharraf, 2024), and the findings of this study aligns with this pattern. However, the specific nature of the differences that are observed provides novel insights for English studies. The most pronounced gap appeared in students' perceptions of AI's capacity to support questioning assumptions and exploring alternative perspectives (PCT8), where graduate students ($M = 4.37$) rated the value of technology notably higher than undergraduates ($M = 4.23$). This suggests that the more theoretically sophisticated work characteristic of MA programs may benefit disproportionately from the capacity of AI to surface competing interpretations and challenge established readings, a finding with important implications for curriculum design.

The uniformly positive evaluations across all demographic groups (with no mean scores below 4.1 on the 5-point scale) represent perhaps the most significant contribution to ongoing debates about the role of AI in humanities discipline. Contrary to concerns raised by some humanists about AI tools diminishing critical thinking (Liang & Wu, 2024), the results of this study indicate English majors perceive AI tools as enhancing rather than replacing human interpretation (Woerner et al., 2024). Even the item assessing concerns about overreliance (PCT9) maintained relatively high scores ($M > 4.15$ across groups). This suggests the students recognize the value of AI while remaining appropriately cautious about its limitations. This balanced perspective is particularly encouraging for literature education, where critical thinking involves nuanced interpretation that students believe AI supports without compromising independent analysis.

Both quantitative and qualitative data provide a comparable assessment of English majors' perceptions of the influence of AI on their critical thinking abilities, although some contradictions can be seen in the data. All survey participants gave high scores to AI tools, indicating positive outcomes (above 4.1 out of 5) without any exceptional differences across different gender or student level groups. Students mostly recognize that using AI enables better critical thinking for themselves. Several interviewees discussed how Artificial Intelligence affects their learning routines and motivational levels. The interviewees explained how AI tools assist drafting and editing, but students may use them to replace critical thinking tasks by depending heavily on AI generated content. Interviewee-6 pointed out that students face a risk of impaired deep thinking skills when AI remains in endless use because it delivers quick answers frequently. Students are concerned about the potential negative impact AI may have on human creativity because of

improper use, so that original thinking could eventually diminish over time. The advantages of using AI assistance begin with providing students helpful starting points, according to Interviewee-1 and Interviewee-3. AI offers recommendations to students to evaluate before applying their own assessment abilities to achieve better results. Some students are cautious with AI, while others accept its benefits by combining their creative skills with its output. Studious students are currently exploring various ways to leverage AI in their education, yet effective guidance and increased awareness about AI might help them employ it properly without compromising their critical thinking abilities.

Several novel contributions appear in this study as it is contextualized within the broader literature on educational technology. First, the disciplinary specificity of the findings, particularly the gender-neutral adoption patterns, suggests that humanities teachers may need different implementation strategies than their STEM counterparts. Second, the identified academic-level trends show previously underexplored opportunities for using AI to support advanced literary theory and criticism. Third, the robust positive perceptions across demographics provide empirical counterevidence to common skepticism about AI in humanities discipline.

These outcomes reveal important implications for both pedagogy and future research. For teaching practice, they suggest department-wide AI integration can proceed without special accommodations for gender differences, though instructors may want to develop targeted approaches to help undergraduates maximize the potential of AI for advanced critical thinking tasks. The findings also indicate that graduate pedagogy could explicitly model how to use AI for

sophisticated theoretical work, potentially creating bridges to enhance undergraduate research experiences.

Future research should adopt three main directions, including an analysis of what makes AI tools appealing to broad acceptance and how perceptions impact learning behavior and result measurement, and the results of AI integration on developing critical reading skills throughout time. In addition, comparative studies across different educational institutions and different national educational systems would validate if these results exist within distinct educational patterns and literary structures.

The findings indicate that AI tools should function as cognitive partners in English studies instead of being limited to productive tools, leading to exceptional potential for interpretation skills. The experimental results suggest that AI tools help human interpretive abilities when used appropriately for literary studies under the humanistic tradition of critical reading analysis.

5.3 Students' Perceptions of the Impact of AI Tools on Learning Engagement

The analysis of gender and education level shows no major differences in English majors' perceptions of AI tools' impact, which aligns with current educational technology research (Yilmaz et al., 2023). This indicates that current AI tools have achieved sufficient usability to transcend traditional gender-based disparities in technology adoption. Both male and female students demonstrate remarkably similar patterns of engagement, with mean scores consistently falling within the positive range (4.03-4.34 on a 5-point scale) across all measured dimensions. These findings challenge earlier concerns about potential gender gaps in educational technology

use (Iddrisu et al., 2025) and support the notion that modern AI tools have become sufficiently intuitive to appeal equally across gender lines. However, the slightly lower scores on items related to effort minimization (PLE7) suggest that students maintain an appropriate level of caution about overreliance on AI assistance, indicating current discussions about digital literacy and academic integrity (Jie & Kamrozzaman, 2024).

The comparison between undergraduate and graduate students reveals interesting outcomes. Contrary to expectations that advanced students might demonstrate more sophisticated engagement with AI tools (Imran & Almusharraf, 2024), the results show minimal differences in perception and usage patterns. This finding may indicate that current AI tools primarily serve basic functions in language learning (e.g., grammar checking, vocabulary assistance) that do not necessarily require advanced academic training to utilize effectively. Additionally, technological advancements, particularly AI tools, offer potential to improve students' writing skills. AI writing assistants, such as Grammarly, can help with grammar, spelling, and syntax, while tools like QuillBot and Google Translate support vocabulary and sentence structure development (Khan et al., 2024). Moreover, research by Singh et al. (2024) showed that students with AI literacy are more likely to use AI tools, leading to better learning engagement. The consistent trend of marginally higher means among graduate students, particularly for items related to ease of use (PLE1) and regular usage (PLE5), might suggest an emerging, though not yet statistically significant, differentiation in engagement patterns. This observation complicates the conventional "digital native" narrative (Klaic et al., 2024), implying that mere exposure to technology does not automatically translate to more advanced pedagogical applications without targeted instructional support.

Threshold analysis of mixed data types demonstrates an in-depth comprehension of AI effect on English major learning involvement metrics. Survey results reveal a detailed explanation through the interview data collection process. Survey results reveal student approval of AI tools, however interview discussions revealed hybrid reactions from individuals. Interviewees shared that AI tools helped them save time, meet deadlines, and feel more confident in the classroom. Interviewees reported that AI tools enabled them to organize their ideas better, maintain their drive during studies, while improving their grammar and composing abilities, respectively. Graduate students valued AI because it provided them with individualized feedback and fast learning opportunities, yet undergraduates paid greater attention to how AI affects both their drive and their educational competencies. Not every student's experience of AI feedback had a positive outcome. Several students acknowledged their excessive usage of AI tools in educational contexts. During an interview, a student expressed that AI assisted with note taking, yet her note taking skills remained stagnant. Another student noticed although AI assisted with quick assignment completion but it distracted him from active learning in the process. The survey participants demonstrated that AI benefits student learning, but students tend to reduce their active participation and show overdependence on automated tools. While survey results receive verification from interview data, the findings indicate that educators and students have concerns about permanent skill progression and authentic educational growth beyond statistical indicators

These outcomes offer both support for and opposition to previous research when contextualized in the context of the larger body of literature. The high levels of acceptance for AI tools support previous studies demonstrating the effectiveness of AI in language education (Yuan

& Liu, 2025), particularly in enhancing student engagement and motivation. However, the lack of significant demographic differences contrasts with earlier research focusing disparities in educational technology adoption (Jie & Kamrozzaman, 2024). This discrepancy may reflect the unique characteristics of English majors as a population, who might possess more uniformly positive attitudes toward language related technologies compared to broader student samples. The pattern where students value AI assistance while resisting complete dependency (as evidenced by lower scores on PLE7) resonates with emerging discussions about maintaining “productive struggle” in technology enhanced learning environments (Molloy & Farrell, 2024), suggesting that students instinctively balance the convenience of AI tools with the need for authentic learning experiences.

These results have significant consequences for further study and application. The equal perception levels of AI tools between different demographic groups indicate that digital inequality in AI adoption is unlikely to be a significant issue in English language instruction. However, the minimal progression from undergraduate to graduate levels raises important questions about whether current AI tools support advanced literary and linguistic development. Future investigations must study the distinctive practices that different academic level students utilize when using AI tools because satisfaction metrics alone are insufficient to evaluate their actual academic effects. The non-significant moderate effect sizes demonstrate potential tiny variations that could be uncovered through larger sample sizes or refined evaluation methods. Results indicate that AI tools can work effectively for English education at every academic stage, and there exists a requirement for specialized applications tailored to enhance the learning experiences of advanced students. The research demonstrates AI adoption acceptance across English studies but

identifies the requirement for improved advanced application development, which aligns with educational curriculum objectives to extract its complete transformative value from the discipline.

5.4 Students' Perceptions of the Impact of AI Tools on Academic Performance

The analysis of gender and education level differences in English majors' perceptions of the academic impact of AI reveals several significant insights. The consistent absence of gender differences across all eight academic performance items (PAP1-PAP8) suggests that AI tools have achieved a level of accessibility and utility that transcends traditional gender gaps in technology adoption. This finding contrasts with earlier studies that identified gender disparities in educational technology use (Iddrisu et al., 2025). This potentially indicates that contemporary AI interfaces have become sufficiently intuitive to bridge previous divides. The uniformly positive ratings (all means >4.0) demonstrate strong consensus about the academic value of AI, particularly for clarifying complex concepts (PAP6) and providing essential resources (PAP8). However, the slightly lower scores on items related to effort reduction (PAP3) suggest students maintain appropriate skepticism about overreliance on AI (Jie & Kamrozzaman, 2024), aligning with emerging literature on “productive struggle” in digital learning environments (Molloy & Farrell, 2024). These results collectively portray AI as a democratized academic resource among English majors, though one whose role is carefully calibrated between assistance and independent effort.

AI literacy strongly improves learning outcomes and academic performance (Singh et al., 2024). The non-significant differences between undergraduate and graduate students offer particularly novel contributions to the literature. Contrary to expectations that advanced students would demonstrate more sophisticated AI utilization (Imran & Almusharraf, 2024), the results

show remarkable consistency across academic levels. This pattern may reflect either the fundamental nature of current AI tools in English studies, primarily serving basic functions like grammar checking and resource provision, or potentially indicate that neither cohort has yet developed specialized, discipline appropriate AI strategies. The small but consistent trend of higher means among MA students (particularly for research assistance, PAP5) hints at an emerging differentiation that warrants longitudinal investigation. When compared with studies in STEM fields where education level gaps in AI use are more pronounced (Yang et al., 2024), these findings suggest disciplinary nuances in technology adoption that merit deeper exploration. The results complicate the assumption that academic progression naturally correlates with more advanced technology integration, at least within humanities education.

English majors benefit from both types of data, which show detailed descriptions of their AI related academic views. Students from different levels of education and both genders hold similar views about AI because it helps students understand topics more easily and find helpful resources. English students show positive attitudes towards AI tools that help them succeed in their academic work. Most students accept AI because it makes their tasks more effective, while many others question how AI affects creativity and the value of actual learning as study tools. The interviews help students reveal their responses to using AI tools for their academic work. Students state that AI creates better organizational skills, enhances writing quality, and reduces work time. According to a female BA student's statement, she received better essay writing feedback from AI, but it did not change their academic results significantly-. However, she agreed, her academic grades improved. When utilizing AI tools, another interviewee found writing better and quicker, yet his performance in class stayed steady. The provided data demonstrates that AI enhances

writing procedures, but it does not produce greater academic changes. Most students shared why AI should be used properly. The students find it hard to resist using AI to copy material during tough moments, but they understand that AI should assist their writing tasks, not do it for them. Students need to use their own minds to learn effectively, according to one of the interviewees. A small part of this student group feared they would produce less creative work through AI assistance. Using AI tools excessively decreased the authenticity and depth of their study materials. Students not only realize AI improves their work, but also acknowledge that using them poses potential dangers. Therefore, students recognize AI as a tool to aid education, but only when used under control.

The findings both support and contradict the existing research within larger theoretical frameworks. When contextualized within broader theoretical frameworks, these findings present both confirmations and challenges to existing knowledge. The high perceived utility of AI for clarification and research support aligns with socio-cognitive theories of technology-enhanced learning (Bognár et al., 2024), demonstrating how AI tools fulfill fundamental academic needs. However, the lack of demographic differences contradicts critical “AI divide” perspectives (Wang et al., 2024), suggesting that within English departments, AI access and competence may be more evenly distributed than previously assumed. The pattern where students value the support of AI while resisting notions of effortless achievement (PAP3) resonates with Vygotskian concepts of scaffolding, positioning AI as a cognitive tool rather than a replacement for learning. Compared to studies showing significant demographic gaps in general technology use (Rottner et al., 2025), these results may indicate that discipline specific AI tools in English studies have achieved unusual equity in adoption and perceived value.

The findings and observations establish critical implications for both future academic investigations and educational operational procedures. The demographic parity indicates that concerns about equitable AI learning opportunities in English studies are less acute than anticipated, thereby permitting teachers to shift focus towards pedagogical integration instead of basic adoption. However, the minimal progression from BA to MA levels raises critical questions about whether current AI tools adequately support advanced literary research. Studies should examine qualitative factors that affect students' usage of AI tools across different academic levels through comprehensive research of their writing procedures and scholarly work production. Although nonsignificant, the continuously small effect sizes imply the possibility of minor differences that may be explored through a mixed methods study. Pedagogically, these results support institution-wide AI integration while focusing the need for curriculum-specific training to help graduate students leverage AI for advanced analysis. The findings ultimately portray AI as an established but under optimized academic resource in English studies, one that has achieved basic utility across demographics but awaits more sophisticated, discipline tailored applications to fully realize its transformative potential in literary education.

5.5 Contribution of the Study

The study offers significant contributions about the utilization of AI in academic settings among English major students. The study reveals valuable information about how English majors perceive the influence of AI on their critical thinking skills, learning engagement, and academic performance between students at different levels of education and gender differences. However, significant differences between their levels of education and genders appear non-existent. Traditional beliefs regarding demographic variations in technological usage prove incorrect as this

demonstrates that AI tools now serve users from all backgrounds independently of their typical differences.

The research demonstrates the nuanced relationship that exists between AI tools and the three research variables: critical thinking skills, learning engagement, and academic performance. Students acknowledge the value of AI in understanding difficult concepts, organizing their tasks, lessening their workload, and writing well organized pieces; however, they recognize the potential threat of using AI tools excessively could diminish creativity and their profound work quality. This acknowledgement matches educational theories including Vygotskian scaffolding as it shows AI as a cognitive support rather than a replacement for self-learning capabilities.

Therefore, this research makes a significant contribution to pedagogical discussions regarding the integration of AI within English studies. The research points out the need for discipline specific training for advanced students to integrate AI in accomplishing academic tasks as such instruction enhance their ability to develop complex applications within the field of literary education. These findings provide a foundation for research and curriculum development initiatives related to AI enhanced learning.

5.6 Implications

The findings present practical implications which benefit higher education stakeholders within humanities disciplines. Student population from different educational levels and genders demonstrate the growing accessibility to AI tools as shown in the research findings. Higher education institutions can focus less on equitable access while creating discipline specific methods to increase student learning outcomes. The study demands the requirement to teach students proper

usage of AI tools by combining technological competency and critical thinking. The study findings support plans to establish AI literacy programs which address specific needs of English major students.

5.6.1 Implications for Pedagogy

The research demonstrates the importance for pedagogical integration of AI tools in English studies. Educational institutions need to incorporate AI literacy into curricula to make students proficient in AI assisted learning roles instead of using them as task completion tools. Teachers need to incorporate AI that support both efficient learning outcomes, maintaining the depth with creativity and originality which students need to thrive academically. Teachers can design assignments that encourage AI assistance for brainstorming while asking students to independently refine the output. Curriculum developers must create programs which teach students from graduate to professional levels effective ways they can use AI for complicated analysis and research composition tasks. Educational instructors should adapt assignments and workshops with assessment materials that help students develop their skills in evaluating AI outputs alongside ethical AI implementation. The research data demonstrates a need for educational transformations to establish AI as an academic supportive aid.

5.6.2 Implications for Policy

Higher education policymakers in Bangladesh need to establish official guidelines for the ethical and effective use of AI tool management within academic settings especially those dedicated to English studies and non-STEM areas. Education institutions should design AI literacy standards to guarantee safe utilization while protecting student thinking abilities and creative output. Policies should be implemented to facilitate the infrastructure of AI driven support tools

that provide assistance to students during their activities in AI enhanced educational settings. Moreover, evaluation standards from accreditation bodies should consider assessing universities' methods of integrating AI assisted learning that protect academic integrity. Thus, clear, discipline sensitive policies would define and tailor that AI should serve as a tool which aids the academic competencies of the students while not functioning as an unnecessary shortcut. Students need these skills because AI literacy will become essential for their future.

5.6.3 Implications for Future Research

The study opens ways for future research on the enduring effects AI will have on students' cognitive skill development in the fields of English and humanities. The perceptions toward AI need evaluation through discipline-based comparisons between students from humanities, business, and science departments. Additionally, longitudinal research tracking students' academic growth with continued AI tools usage will provide deeper insights. Research opportunities remain available for researchers to analyze the effectiveness of specific AI integrated pedagogical interventions as well as their influence on critical thinking, learning engagement, and academic performance. Qualitative studies would enable researchers to discover deeper student reactions to AI tools. Extending research to include public university students will create a complete image regarding how AI functions in various Bangladeshi educational context.

5.6.4 Theoretical Implications

This research base its analysis on Constructivist Learning Theory, Self-Determination Theory (SDT), and Technology Acceptance Model (TAM) to explore how English majors in Bangladesh perceive AI tools in learning. The findings prove that students employ AI tools including ChatGPT and Grammarly for building knowledge and enhancing their thinking abilities

thus validating Constructivist Learning Theory. These tools help students access content deeply to strengthen their critical thinking and improve their comprehension. According to SDT, students experience greater motivation when they can utilize AI tools to learn at their own pace and experience competency while remaining socially connected with others. The study demonstrates that students frequently adopt AI tools after considering them useful and convenient which supports the TAM. These theories emphasize that AI educational tools impact their learning and emotional state, and behavioral patterns.

This research establishes a clearer understanding of student perceptions on AI tools through the implementation of the three selected frameworks. It can help future researchers understand the effects of AI through the lenses of student perceptions, emotional responses, and behavioral patterns which can guide future educational practices and policies.

5.7 Limitations of the Study

While this study demonstrates significant insights, there exist several limitations that need to be acknowledged. The research depended on participants' perceived outcomes that might be influenced by personal preferences and social expectations. The research focused exclusively on English major students attending specific Bangladeshi private universities which limits the application of findings to public university students and students majoring in different subject areas. Additionally, the research failed to study students' digital literacy levels prior exposure to AI and their choices of specific AI platforms because these elements might have affected their perceptions. The research design restricts the possibility to understand long term outcomes of AI utilization. Studying the influence of AI on learning requires further research that relies on both

longitudinal diverse samples and combination methods to present a comprehensive understanding of the topic.

5.8 Recommendations

Based on the findings, universities need to establish discipline-oriented AI training programs that develop critical thinking abilities and creativity, instead of fostering dependence among students. Teachers should design AI implementation tasks in student work ensuring that it serves as a scaffold rather than a substitute for independent learning. The development of specific ethical standards by policymakers will help students protect their academic integrity when using AI tools for their studies. The development of future curricula needs to focus on establishing essential competencies in dealing with AI based content so students will become competent in analyzing AI results. Studies must examine how AI affects different cognitive processes as well as emotional aspects in learning environments across different disciplines. Finally, a dialogue between student, teacher, and policymakers creates the ideal condition for achieving an appropriate integration of AI tools in higher education.

5.9 Conclusion

The analysis examined Bangladeshi English major students' perceptions on the effects of AI tools on critical thinking, learning engagement, and academic performance. Students view AI tools favorably for their role in understanding complex material, organizational help, and enhancing writing. However, they express concern about creative decline and diminished authentic learning due to excessive use. A similar level of AI influence was detected between both male and female students and those studying at different academic levels in the area of English.

The research expands existing AI education studies particularly in humanities subjects because the humanities remain understudied in this area. The research both examines conventional views about technological acceptance and provides useful perspectives on implementing AI tools into university learning settings. Research results demonstrate the necessity for purpose built educational methods which use AI as a thinking assistance instead of making the system autonomous.

This research emphasizes the requirement to conduct further studies about AI implementation in higher education especially in the field of English that requires creative and engaged teaching methods. This study sets groundwork for long term academic development research about AI while providing suggestions to improve educational technology implementation for better student learning outcomes.

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Appendices

Appendix A

Invitation Letter

Dear Participants,

My name is Mariam Mardia, and I am currently pursuing a Bachelor of Arts in English at the University of Liberal Arts Bangladesh (ULAB). As part of my undergraduate thesis, I am conducting research titled **“Exploring the Perceived Impact of AI Tools on Critical Thinking, Learning Engagement, and Academic Performance among English Majors in Bangladeshi Higher Education.”**

This survey includes basic demographic questions followed by items designed to gather your views as an English major student on the perceived impact of AI tools such as ChatGPT, Grammarly, QuillBot, and Gemini. The focus is on how these tools may be influencing your critical thinking skills, learning engagement, and academic performance.

Your participation in this survey is entirely voluntary and anonymous. All responses will be kept strictly confidential and used solely for academic research purposes. Your valuable insights will help enhance the understanding of how AI tools are shaping the higher education learning experience in Bangladesh and assist in developing effective strategies for their integration into language teaching and learning.

If you have any questions regarding the study, please feel free to contact me at: mariam.mardia.deh@ulab.edu.bd.

Thank you very much for your time and participation.

Warm regards,

Mariam Mardia

Department of English and Humanities

University of Liberal Arts Bangladesh (ULAB)

Demographic Information:

Gender

- Male
- Female
- Prefer not to say

Level of Education

- BA
- MA

How long have you been using AI tools for educational purposes?

- Less than one year
- More than one Year
- Two years or more

Survey Questionnaire

Sl. No.	Items	SD	D	N	A	SA
Perceived Impact of AI Tools on Critical Thinking						
1.	AI tools help me to analyze complex ideas more effectively.					
2.	AI tools serve as a helpful tool for clarifying concepts I find confusing.					
3.	AI tools help me accurately recall information I have encountered earlier					
4.	AI tools help me recognize and understand the key concepts in my studies.					
5.	I can confidently transfer the insights gained from AI tools to practical, real world contexts.					
6.	Using AI tools, I am persistent in solving challenging problems.					
7.	I frequently reflect on my learning and any misunderstandings I may have had when using AI tools.					
8.	AI tools encourage me to question assumptions and explore alternative perspectives.					
9.	Overreliance on AI may hinder my ability to think critically without assistance.					
Perceived Impact of AI Tools on Learning Engagement						
1.	I find Gen AI tools easy to use for my learning					
2.	I set realistic learning goals with the use of AI tools.					
3.	I am more motivated to put in extra effort to improve my outcomes using AI tools.					
4.	Learning is fun interacting with AI tools.					
5.	I regularly use AI tools such as Grammarly, ChatGPT, and QuillBot for my coursework.					
6.	AI generated feedback motivate me to revise and improve my work.					
7.	AI tools are advantageous because they help me minimize the effort I need to put into learning					
8.	When using AI tools, I feel that I am in control of the learning process and the pace.					
9.	I am engaged more deeply with the learning materials using AI tools.					
Perceived Impact of AI Tools on Academic Performance						
1.	I find Gen AI tools useful for performing my learning tasks.					
2.	Using AI tools increases my chances of achieving high performance.					
3.	Using AI tools helps me accomplish my learning tasks effortlessly.					
4.	Using AI tools increases my productivity.					
5.	AI tools assist me in conducting research more efficiently					
6.	AI tools provide me with a resource, a tool to help me clarify issues that are confusing to me.					
7.	The potential of AI tools gives me confidence that my academic results will improve.					
8.	AI tools offer valuable resources that are essential for my academic success.					

Appendix B

In-depth Interview Protocol

Demographic Information:

Gender

- Male
- Female

Level of Education

- BA
- MA

How long have you been using AI tools for educational purposes?

- Less than one year
- More than one Year
- Two years or more

Questions:

1. In what ways do you think AI tools have helped you analyze complex ideas or topics in your English courses?
2. How do AI tools influence your approach to solving challenging problems or tasks in your academic work? Do you feel more confident or less confident using AI tools to solve your problems?
3. Do you believe that your ability to think independently and critically has improved, remained the same, or declined due to using AI tools? Why do you think so?
4. How does using AI tools like ChatGPT, Grammarly, QuillBot, or Gemini affect your motivation and interest in coursework?
5. Are there specific features or types of feedback from these tools that encourage you to stay more involved?
6. Have you ever used AI tools to plan or track your learning progress? If yes, how?
7. How have AI tools affected the quality of your assignments or exams?
8. Do you rely on them entirely or do you combine them with traditional methods like books or journals?
9. Do you think using AI tools gives you an advantage in your academic journey? Why or why not?

Expert Validation of Survey Questionnaire

Appendix C

Appendix C 1

Invitation Letter

Dear Participants,

My name is Mariam Mardia, and I am currently pursuing a Bachelor of Arts in English at the University of Liberal Arts Bangladesh (ULAB). As part of my undergraduate thesis, I am conducting research titled **“Exploring the Perceived Impact of AI Tools on Critical Thinking, Learning Engagement, and Academic Performance among English Majors in Bangladeshi Higher Education.”**

This survey includes basic demographic questions followed by items designed to gather your views as an English major student on the perceived impact of AI tools such as ChatGPT, Grammarly, QuillBot, and Gemini. The focus is on how these tools may be influencing your critical thinking skills, learning engagement, and academic performance.

Your participation in this survey is entirely voluntary and anonymous. All responses will be kept strictly confidential and used solely for academic research purposes. Your valuable insights will help enhance the understanding of how AI tools are shaping the higher education learning experience in Bangladesh and assist in developing effective strategies for their integration into language teaching and learning.

If you have any questions regarding the study, please feel free to contact me at: mariam.mardia.deh@ulab.edu.bd

Thank you very much for your time and participation.

Warm regards,
Mariam Mardia
Department of English and Humanities
University of Liberal Arts Bangladesh (ULAB)

Demographic Information:

Gender

- Male
- Female

Level of Education

- BA
- MA

How long have you been using AI tools for educational purposes?

- Less than one year
- More than one Year
- Two years or more

Survey Questionnaire

Sl. No.	Items	SD	D	N	A	SA
Perceived Impact of AI Tools on Critical Thinking						
1.	AI tools help me to analyze complex ideas more effectively.					
2.	AI tools serve as a helpful tool for clarifying concepts I find confusing.					
3.	AI tools help me accurately recall information I have encountered earlier.					
4.	AI tools help me recognize and understand the key concepts in my studies.					
5.	I can confidently transfer the insights gained from AI tools to practical, real world contexts.					
6.	Using AI tools, I am persistent in solving challenging problems.					
7.	I frequently reflect on my learning and any misunderstandings I may have had when using AI tools.					
8.	AI tools encourage me to question assumptions and explore alternative perspectives.					
9.	Overreliance on AI may hinder my ability to think critically without assistance.					
Perceived Impact of AI Tools on Learning Engagement						
1.	I find Gen AI tools easy to use for my learning.					
2.	I set realistic learning goals with the use of AI tools.					
3.	I am more motivated to put in extra effort to improve my outcomes using AI tools.					
4.	Learning is fun interacting with AI tools.					
5.	I regularly use AI tools such as Grammarly, ChatGPT, QuillBot, and Gemini for my coursework.					
6.	AI generated feedback motivate me to revise and improve my work.					
7.	AI tools are advantageous because they help me minimize the effort I need to put into learning.					
8.	When using AI tools, I feel that I am in control of the learning process and the pace.					
9.	I am engaged more deeply with the learning materials using AI tools.					
Perceived Impact of AI Tools on Academic Performance						
1.	I find Gen AI tools useful for performing my learning tasks.					
2.	Using AI tools increases my chances of achieving high performance.					
3.	Using AI tools helps me accomplish my learning tasks effortlessly.					
4.	Using AI tools increases my productivity.					
5.	AI tools assist me in conducting research more efficiently.					
6.	AI tools provide me with a resource, a tool to help me clarify issues that are confusing to me.					
7.	The potential of AI tools gives me confidence that my academic results will improve.					
8.	AI tools offer valuable resources that are essential for my academic success.					

Evaluator's comment: The survey is well-designed and ready to go for data collection.

Evaluator's signature: 

Evaluator's name and affiliation: Al Mahmud Rumman, Senior Lecturer, University of Liberal Arts Bangladesh

Expert Validation of In-depth Interview Protocol

Appendix C 2

In-depth Interview Protocol

Demographic Information:

Gender

- Male
- Female

Level of Education

- BA
- MA

How long have you been using AI tools for educational purposes?

- Less than one year
- More than one Year
- Two years or more

Questions:

1. In what ways do you think AI tools have helped you analyze complex ideas or topics in your English courses?
2. How do AI tools influence your approach to solving challenging problems or tasks in your academic work? Do you feel more confident or less confident using AI tools to solve your problems?
3. Do you believe that your ability to think independently and critically has improved, remained the same, or declined due to using AI tools? Why do you think so?
4. How does using AI tools like ChatGPT, Grammarly, QuillBot, or Gemini affect your motivation and interest in coursework?
5. Are there specific features or types of feedback from these tools that encourage you to stay more involved?
6. Have you ever used AI tools to plan or track your learning progress? If yes, how?
7. How have AI tools affected the quality of your assignments or exams?
8. Do you rely on them entirely or do you combine them with traditional methods like books or journals?
9. Do you think using AI tools gives you an advantage in your academic journey? Why or why not?

Evaluator's comment: The interview questions are flawless and adequate. I think, you may start the data collection.

Evaluator's signature: 

Evaluator's name and affiliation: Al Mahmud Rumman, Senior Lecturer, University of Liberal Arts Bangladesh