

The Use of Artificial Intelligence in Promoting Critical Thinking Skills among Students of Bachelor of Arts in English Language Studies at Mindanao State University – Sulu

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ABSTRACT. This descriptive-exploratory study investigated the extent to which Artificial Intelligence is used to enhance critical thinking skills among students registered in the Bachelor of Arts in English Language Studies degree program at Mindanao State University – Sulu. Using a quantitative research design, the study analyzed responses from 100 students across all year levels (first to fourth year) throughout the first term of the 2024–2025 school year. Participants were identified through purposive selection. The study used statistical methods, including the weighted mean and standard deviation, to evaluate the level of AI usage, with a focus on AI-driven tools and techniques, as well as the ethical and practical aspects of AI implementation. T-tests were conducted to identify any significant differences based on gender, while One-Way ANOVA was used to examine variations related to age, parental educational attainment, and household income. The Pearson product-moment correlation was also utilized to examine the relationships between the different subcategories of AI usage. The demographic data showed that most respondents were female, in their early 20s, and came from families where parents had only completed elementary education and earned ₱5,000 or less per month. The results indicated a general agreement among students on the positive role of AI in promoting critical thinking, particularly in the areas of AI tools and ethical considerations. While the null hypothesis claiming no significant differences in AI use based on demographic variables was accepted, the hypothesis concerning the absence of correlation among the AI subcategories was rejected. A notable correlation was found between the use of AI-driven tools and attention to ethical and practical considerations in fostering critical thinking.

KEYWORDS: *Artificial Intelligence, Critical Thinking Skills, Mindanao State University Sulu*

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Introduction

Artificial Intelligence (AI) tools like ChatGPT and other AI-driven platforms are rapidly transforming the educational landscape, offering innovative opportunities to support student learning (Fourtane, 2023). Among these benefits is the potential for AI to enhance students' critical thinking skills—a key skill that helps individuals interpret information, analyze claims, and make thoughtful, reasoned choices. The integration of Artificial Intelligence in higher education offers

students personalized and engaging learning experiences that are adapted to their unique needs, capabilities, and preferred learning styles (Chavez & Lamorinas, 2023). These personalized interactions shift students from passively receiving information to actively engaging in inquiry, analysis, and reflection—core components of critical thinking (N & S, 2023). Moreover, AI can support critical thinking by facilitating scientific argumentation, data analysis, and interactive simulations that challenge students to evaluate and interpret information critically rather than accept AI-generated content as factual (Carpio et al., 2024).

Students pursuing a Bachelor of Arts in English Language Studies at Mindanao State University-Sulu (MSU-Sulu) stand to benefit significantly from such AI-assisted technologies. These tools can play a pivotal role in sharpening their analytical and reflective capabilities, equipping them for an increasingly complex and technologically advanced world (Amante-Nochefranca et al., 2024; Calzada et al., 2025).

However, despite these promising developments, there are notable risks and challenges. Overdependence on AI tools may inhibit independent thinking and discourage students from engaging in deeper analysis (Calzada, 2024; Ali, 2020). Research has shown that younger students, in particular, may avoid critical thinking when AI provides quick solutions. To address this, educators must integrate AI through intentional pedagogical strategies that promote inquiry and active learning (Cabiles et al., 2025).

One of the key challenges at MSU-Sulu is the effective integration of AI technologies in a way that promotes both language learning and critical thinking. This calls for improved AI literacy among students and educators, including a firm grasp of how to utilize AI tools ethically and effectively (Lawasi et al., 2024). Ethical guidelines, transparency in AI deployment, and the development of well-crafted prompts are all essential for encouraging responsible and critical use of AI (García-Martínez et al., 2023).

Recent scholarship also stresses the importance of understanding the ethical, social, and cognitive dimensions of AI. Students must be trained to detect potential biases, hallucinations, and other limitations of AI systems, ensuring they use these tools as means of inquiry and introspection, not shortcuts (Garil et al., 2024; VChavez et al., 2024).

Several empirical studies support the positive role of AI in fostering critical thinking. Smith and Jones (2020) found that students who used AI-based tutoring systems improved more in critical thinking compared to those who received traditional instruction. Likewise, Brown et al. (2019) conducted a meta-analysis revealing a strong correlation between AI use and critical thinking development.

Nevertheless, critics caution that AI might limit students' exposure to diverse perspectives and reduce creativity if used improperly. This makes it essential for educators to find the right balance between leveraging AI and promoting independent thought.

These insights inspired the present study, which investigates the use of AI technology in promoting critical thinking skills among students enrolled in the Bachelor of Arts in English Language Studies at MSU-Sulu. This research explores how AI tools, when implemented effectively, can shape the future of higher education and better prepare students to navigate the challenges of a world increasingly shaped by artificial intelligence.

Research Questions

This study assesses the influence of Artificial Intelligence on enhancing critical thinking skills among Bachelor of Arts in English Language Studies students at MSU-Sulu during the first semester of the 2024–2025 academic year.

In particular, this study intends to explore the following questions:

1. What is the demographic profile of the students in the Bachelor of Arts in English Language Studies at MSU-Sulu in relation to:
 - 1.1. Gender;
 - 1.2. Age;
 - 1.3. Parents' educational attainment; and
 - 1.4. Parents' average monthly income?
2. What is the extent of the use of Artificial Intelligence in promoting critical thinking skills among the students in terms of:
 - 2.1. AI-driven tools and techniques; and
 - 2.2. Ethical and practical considerations in implementing AI?
3. Is there a significant difference in the extent of the influence of Artificial Intelligence in promoting critical thinking skills among the students when data are categorized according to:
 - 3.1. Gender;
 - 3.2. Age;
 - 3.3. Parents' educational attainment; and
 - 3.4. Parents' average monthly income?
4. Is there a significant correlation among the subcategories under the extent of using Artificial Intelligence to promote critical thinking skills, specifically regarding AI-driven tools and techniques, as well as ethical and practical considerations in implementing AI?

Literature

To help this researcher conceptualize the research problems clearly and precisely, and to assess the relationship between the research problems and relevant academic principles, studies directly related to motivational strategies, teacher commitment, and the role of artificial intelligence (AI) in fostering student critical thinking are reviewed in this chapter.

Artificial intelligence has increasingly played a significant role in augmenting educational processes, particularly in enhancing critical thinking among students in various disciplines, including English Language Studies (Wang et al., 2019). AI's integration into education supports the development of both computational and higher-order thinking skills, offering personalized learning experiences that cater to diverse student needs, including those with special educational needs (Comeros et al., 2024). Technologies such as sophisticated chatbots and language models provide interactive and responsive environments that foster deeper engagement with learning resources, thus promoting analytical thinking (Savellon et al., 2024).

However, the effect of AI on critical thinking is twofold. On one hand, it allows automation of repetitive cognitive tasks, enabling students to concentrate on complex processes such as synthesis, evaluation, and problem-solving (Dagoy et al., 2024). This is particularly beneficial for non-native English speakers, as AI tools enhance reading comprehension, writing fluency, speaking ability, and vocabulary acquisition through targeted, language-rich interaction (Del Mundo et al., 2024). On the other hand, an overdependence on AI for direct answers may diminish students' capacity for independent reasoning, especially if not embedded within an educational culture that emphasizes critical evaluation of AI outputs. In this context, AI literacy becomes central to developing students' critical thinking, particularly among Bachelor of Arts students in English Language Studies. This literacy involves understanding AI's capabilities and limitations, and its ethical implications (Sugiarso et al., 2024). A critical skill in this area is prompt engineering—the ability to construct clear, precise queries to extract useful information—empowering students to use AI as a learning aid rather than a shortcut. Encouraging such literacy

helps promote responsible and reflective AI use, challenging students to assess how AI-generated content supports or hinders their academic growth (Cuilan et al., 2024).

To support this development, many schools have begun introducing ethical guidelines for AI usage in academic contexts. These include practices such as transparent disclosure of AI usage and encouraging thoughtful evaluation of AI responses (Inoferio et al., 2024). Such frameworks guide students in treating AI as a collaborative learning partner, capable of stimulating inquiry and analytical thinking—key competencies in mastering English Language Studies and engaging in scholarly research (Chavez et al., 2024). Despite the concerns surrounding AI's influence on student cognition, studies suggest that its careful and strategic integration into the curriculum can greatly enhance critical thinking skills (Murro et al., 2023). By designing AI-informed learning environments that prioritize interpretative thinking, ethical reflection, and student agency, educational institutions can prepare learners not only for academic success but also for future careers increasingly shaped by AI (Adalia et al., 2025). AI, therefore, should be positioned not as a replacement for intellectual effort, but as a tool that motivates intellectual curiosity and academic commitment, particularly in English language-related disciplines.

Moreover, global studies reinforce these findings. Jeyaraman et al. (2023) recognize ChatGPT's transformative potential in academia, medicine, and industry, while cautioning that it should augment—not supplant—human expertise. The authors emphasize that although AI tools have promising applications, they face notable limitations, such as their inability to engage in deep reasoning and their susceptibility to generating false information, highlighting the need for careful verification and ethical usage. Fournier (2023) adds that when students analyze AI-generated feedback, it strengthens their ability to think critically about their work, a process especially vital given employers' concerns that many graduates lack practical critical thinking skills. Supporting this, Smith and Jones (2020) found that students who engaged with AI-powered tutoring systems exhibited significant improvements in critical thinking compared to those receiving traditional instruction. Additionally, a meta-analysis by Brown et al. (2019) confirmed a positive correlation between AI usage and the development of critical thinking, reinforcing AI's role as a beneficial pedagogical tool when used appropriately.

Methodology

Research methodology serves as a foundational framework that directs the researcher throughout the entire process of a scientific inquiry, from the initial planning stages to the final completion (Harris, 1979). Accordingly, this chapter provides a concise overview of key components, including the research design, research locale, participants, research instruments, sampling method, procedures for data collection, measures of validity and reliability, and the statistical techniques used for data analysis.

1. Research Design

To establish a well-structured approach for data collection, this study adopted a descriptive-exploratory research design with a quantitative method to examine the role of Artificial Intelligence in enhancing critical thinking skills among students in the Bachelor of Arts in English Language Studies program. This approach was chosen because descriptive research helps in gathering, assessing, and confirming data. As noted by Krathwohl (1993), description is developed through creative inquiry and helps organize results in a manner that supports the development of explanations, which can later be tested or verified. Furthermore, a descriptive research design helps interpret and reveal conditions that exist or do not exist and provides the foundational knowledge and experiences necessary to support more detailed inquiry (Venson, 2004). Additionally, the exploratory component of the design allows for a deeper analysis and

understanding of student experiences, particularly in relation to how Artificial Intelligence supports the enhancement of critical thinking skills (Reyes et al., 2023).

2. Research Locale

The research was carried out at Mindanao State University – Sulu, focusing on students registered in the Bachelor of Arts in English Language Studies degree program within the College of Arts and Sciences in the first semester of the 2024–2025 academic term.

3. Respondents of the study

The participants in this study were approximately 400 students from the English Department at the MSU-Sulu System. A sample of 100 students, which constitutes 25% of the total population, was chosen using stratified sampling to ensure proportional representation across different year levels. The table below illustrates the distribution of the sample in this study.

Distribution of Samples Based on Year Level	
Year Level	Number of Teacher-Respondents
1st Year	25
2nd Year	25
3rd Year	25
4th Year	25
TOTAL	100

4. Sampling design

This study made use of a non-probability sampling technique, specifically purposive sampling. Due to considerations such as accessibility, availability, and time constraints, representative samples from first-year to fourth-year students enrolled in the Bachelor of Arts in English Language Studies program were purposively selected as respondents.

The use of purposive sampling ensured the collection of both the quality and quantity of data necessary for the purpose of fulfilling the study's objectives. This method allows researchers to select participants based on specific characteristics relevant to the research focus, such as their level of study and involvement with the subject matter. According to Rai and Thapa (2015) and Tongco (2007), purposive sampling is a non-probability method that enables the selection of individuals based on predefined criteria, including their expertise and willingness to participate. Additionally, Chavez and Del Prado (2023) emphasize that this sampling approach is grounded in the depth and applicability of the data that can be obtained from selected individuals.

5. Data gathering procedure

During the data collection process, the researcher first obtained permission to administer the questionnaire from the Dean of the School of Graduate Studies at Sulu State College. This was followed by securing approval from the Dean of the College of Arts and Sciences and the Chairperson of the Department of Languages. To ensure accurate and complete responses, the researcher personally handled the distribution, administration, and retrieval of the questionnaires.

6. Research instrument

To collect pertinent data for the study, a standardized questionnaire served as the main research tool. This tool was derived from the study by Holmes et al. (2019), titled *Artificial Intelligence in Education: Promises and Implications for Teaching and Learning* (Center for Curriculum). Their instrument was designed to measure the levels of implication in individuals using artificial intelligence applications in academic instruction and intervention. The questionnaire was structured into two sections. Part I aimed to gather demographic details from the respondents, such

as gender, age, parents' educational background, and parents' average monthly income. Part II assessed the extent to which artificial intelligence was used to promote critical thinking skills in the context of academic learning.

7. Validity and reliability

The research utilized a standardized instrument originally developed by Holmes et al. (2019) in their study *Artificial Intelligence in Education: Promises and Implications for Teaching and Learning* (Center for Curriculum Redesign). This tool has been employed in related research, with its reliability and validity confirmed through prior use.

8. Statistical treatment of data

To generate the primary empirical data for this study, the following statistical tools were employed:

i. Frequency and Percentage. Frequency and percentage were used to determine the demographic profile of the students, specifically their gender, age, parents' educational attainment, and parents' average monthly income.

ii. Weighted Mean and Standard Deviation. The weighted mean and standard deviation were employed to assess the extent of Artificial Intelligence use in promoting critical thinking skills among the students of the Bachelor of Arts in English Language Studies at MSU-Sulu. This was specifically in terms of AI-driven tools and techniques, as well as ethical and practical considerations in implementing AI.

iii. T-test and One-way Analysis of Variance (ANOVA). A T-test for independent samples was used to determine significant differences in the extent of AI use in promoting critical thinking skills when the data were grouped according to gender. Additionally, One-way Analysis of Variance (ANOVA) was used to determine significant differences when the data were grouped according to age, parents' educational attainment, and parents' average monthly income.

iv. Pearson Product-Moment Correlation. The Pearson product-moment correlation was applied to determine the significant correlation among the sub-categories under the extent of Artificial Intelligence use in promoting critical thinking skills. These sub-categories included AI-driven tools and techniques, and ethical and practical considerations in implementing AI.

Scale used

Point	Scale Value	Interpretation
5	4.50 – 5.00	Strongly Agree
4	3.50 – 4.49	Agree
3	2.50 – 3.49	Moderately Agree
2	1.50 – 2.49	Disagree
1	1.00 – 1.49	Strongly Disagree

Results and Discussion

This chapter presents the analysis, interpretation, and discussion of the results drawn from the data collected in this research. It outlines the extent to which Artificial Intelligence is used in promoting critical thinking skills among the students of the Bachelor of Arts in English Language Studies at Mindanao State University-Sulu. Additionally, this chapter includes an examination of the demographic profiles of the student-respondents, focusing on gender, age, parents' educational attainment, and parents' monthly income. The chapter also highlights the students' perceptions of the extent to which Artificial Intelligence promotes critical thinking skills, along with the

identification of any significant correlations and differences in these perceptions based on the respondents' demographic characteristics.

1. What is the demographic profile of the students of Bachelor of Arts in English Language Studies in MSU-Sulu in terms of 1.1 Gender, 1.2 Age, 1.3 Parent's educational Attainment and 1.4 Parent's monthly income?

Demographic Profile of the Respondents in terms of Gender

Table 1.1 Demographic Profile in terms of Gender

Gender	Number of respondents	Percent
Male	24	24.0%
Female	76	76.0%
Total	100	100%

Table 1.1 presents the background characteristics of the student-respondents based on gender. It reveals that, out of 100 participants, 24 (24.0%) are male, and 76 (76.0%) are female. This shows that the majority of the student-respondents in this study are female, indicating that female students make up the larger proportion of respondents at Mindanao State University-Sulu.

Demographic Profile of the Respondents in terms of Age

Table 1.2 Demographic Profile in terms of Age

Age	Number of respondents	Percent
25 years old and below	91	91.0%
26-35 years old	8	8.0%
36-45 years old	1	1.0%
46 years old and above	0	0.0%
Total	100	100%

Table 1.2 displays the age-related demographic profile of the student-respondents. From the table, it can be seen indicating that from the total of 100 student-respondents, 91 (91.0%) are 25 years old or younger, 8 (8.0%) fall between 26–35 years old, and 1 (1.0%) is between 36–45 years old. None (0.0%) are 46 years old or above. This study reveals that the greater portion of the student-respondents are within the age bracket of 25 years or younger, suggesting that most participants belong to the younger age group.

Demographic Profile of the Respondents in terms of Parent's Educational Attainment

Table 1.3 Demographic Profile in terms of Parent's Educational Attainment

Parent's Educational Attainment	Number of respondents	Percent	Parent's Educational Attainment
Elementary level	63	63.0%	Elementary level
Bachelor's Degree	34	34.0%	Bachelor's Degree
Master's Degree	2	2.0%	Master's Degree

Doctorate Degree	1	1.0%	Doctorate Degree
Total	100	100%	Total

Table 1.3 illustrates the demographic profile of the student-respondents regarding their parents' educational attainment. From the table, it can be observed that out of 100 student-respondents, 63 (63.0%) have parents with an Elementary Level education, 34 (34.0%) have parents with a Bachelor's degree, 2 (2.0%) have parents with a Master's degree, and 1 (1.0%) has parents with a Doctorate degree. This study reveals that the majority of student-respondents have parents whose highest level of education is at the Elementary level.

Demographic Profile of the Respondents in terms of Parent's Monthly Income

Table 1.4 Demographic Profile in terms of Parent's Monthly Income

Parent's Monthly Income	Number of respondents	Percent
5,000 and below	66	66.0%
5,001 – 10,000	28	28.0%
10,001 – 20,000	5	5.0%
20,001 and above	1	1.0%
Total	100	100%

Table 1.4 displays the demographic profile of student-respondents based on their parents' monthly income. From this table, it is evident that out of 100 student-respondents, 66 (66.0%) have parent's monthly income of 5,000 and below, 28 (28.0%) have 5,001 – 10,000, 5 (5.0%) have 10,001 – 20,000 and 1 (1.0%) have 20,001 and above. This study shows that more than one-half of the total number of student-respondents have parent's monthly income of 5,000 and below.

2. What is the extent of the use of Artificial Intelligence in promoting critical thinking skills among the students of Bachelor of Arts in English Language Studies in MSU-Sulu in terms of 2.1 AI-driven tools and techniques, 2.2 Ethical and practical considerations in implementing AI?

2.1 In the context of AI-driven tools and techniques

	Statements	Mean	S.D	Rating
1	AI-based language tools help me better understand complex linguistic concepts.	4.21	.686	Agree
2	Natural Language Processing (NLP) tools improve my analytical skills in interpreting texts.	4.04	.602	Agree
3	AI-driven feedback on my assignments helps me identify weaknesses in my arguments.	3.81	.813	Agree
4	Using AI-assisted writing tools has enhanced my ability to write coherent arguments.	3.81	.761	Agree
5	AI-powered language platforms have positively impacted my grammatical accuracy.	3.87	.861	Agree
6	Adaptive learning platforms with AI encourage me to think critically by presenting challenging questions.	3.76	.806	Agree

7	AI tools in language studies make learning more interactive and engaging.	3.84	.861	Agree
8	Automated essay scoring systems have helped me improve my writing quality.	3.80	.865	Agree
9	The use of AI in language analysis has made me more attentive to details in texts.	3.81	.873	Agree
10	AI applications have helped me improve my logical reasoning when analyzing literary pieces.	3.90	.882	Agree
Total Weighted Mean		3.89	.58523	Agree

LEGEND

SCALE	RANGE	INTERPRETATION
5	4.50 – 5.00	Strongly Agree
4	3.50 – 4.49	Agree
3	2.50 – 3.49	Moderately Agree
2	1.50 – 2.49	Disagree
1	1.00 – 1.49	Strongly Disagree

Table 2.1 presents the extent of the use of Artificial Intelligence in promoting critical thinking skills among students of the Bachelor of Arts in English Language Studies at MSU-Sulu, specifically in the context of AI-driven tools and techniques. The category obtained a total **weighted mean of 3.89**, with a **standard deviation of 0.58523**, which is interpreted as “Agree.” This suggests that the students generally perceive AI tools and techniques as effective in enhancing their critical thinking skills. The findings imply that the integration of AI tools into language studies is not only beneficial but also positively received by the students. Notably, the respondents agreed with the following statements: AI-based language tools help them better understand complex linguistic concepts; AI-driven feedback on assignments helps identify weaknesses in their arguments; adaptive learning platforms powered by AI encourage critical thinking by presenting challenging questions; AI tools increase the interactivity and appeal of language learning; and the use of AI in language analysis enhances their attention to detail when reading texts.

2.2 In the context of Ethical and practical considerations in implementing AI

	Statements	Mean	S.D	Rating
1	I am concerned that AI tools may lead to over-reliance and hinder independent thinking.	4.06	.839	Agree
2	I believe that AI in language studies should complement, not replace, human feedback.	3.78	.991	Agree
3	The use of AI in assignments raises concerns about privacy and data security.	3.88	.913	Agree
4	AI tools sometimes reflect biases that impact my learning experience.	3.83	.817	Agree
5	I feel confident distinguishing AI-assisted insights from my own critical thinking.	3.76	.900	Agree
6	AI feedback feels objective and reliable in helping me improve my work.	3.84	.801	Agree

7	I believe that the benefits of AI in language studies outweigh potential ethical risks.	3.79	.880	Agree
8	I trust that AI tools provide accurate interpretations of texts and language.	3.62	.940	Agree
9	I feel the need for clearer guidelines on how to ethically use AI in my studies.	3.90	.835	Agree
10	Excessive reliance on AI tools could hinder my capacity to independently assess and critically evaluate information.	3.85	.968	Agree
Total Weighted Mean		3.83	.63289	Agree

LEGEND

SCALE	RANGE	INTERPRETATION
5	4.50 – 5.00	Strongly Agree
4	3.50 – 4.49	Agree
3	2.50 – 3.49	Moderately Agree
2	1.50 – 2.49	Disagree
1	1.00 – 1.49	Strongly Disagree

Table 2.2 shows the extent of the use of Artificial Intelligence in promoting critical thinking skills among the students of Bachelor of Arts in English Language Studies in MSU-Sulu in the context of Ethical and practical considerations in implementing AI. This category received a total weighted mean score of 3.83 with a standard deviation of 0.63289, which falls under the "Agree" category. This suggests that the student-respondents in this study generally acknowledge and affirm that the ethical and practical aspects of AI are adequately addressed within their curriculum. This implies that the recognition of ethical and practical considerations by students at MSU-Sulu underscores the importance of integrating discussions and training on AI ethics into the academic curriculum. As AI technology becomes increasingly prevalent in education, students must not only learn to use these tools effectively but also understand the broader implications of AI, including privacy, bias, and accountability.

Notably, student-respondents rated the following items, among others as "Agree": "I am concerned that AI tools may lead to over-reliance and hinder independent thinking.", "The use of AI in assignments raises concerns about privacy and data security.", "I feel confident distinguishing AI-assisted insights from my own critical thinking." and "Excessive reliance on AI tools could hinder my capacity to independently assess and critically evaluate information."1. Is there a significant difference in the extent of motivational strategies towards the faculty members of Sulu State College when data are grouped according to gender, age, civil status, educational attainment, and length of service?

3. Is there any significant difference in the extent of the use of Artificial Intelligence in promoting critical thinking skills among the students of Bachelor of Arts in English Language Studies in MSU-Sulu when data are categorized according to age, gender, parent's educational attainment and parent's monthly income?

3.1 According to Gender

Variables	Grouping	Mean	S.D	Mean Difference	t	Sig.	Description
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AI-driven tools and techniques	Male	3.8292	.64030	-.07346	-.534	.594	Not Significant
	Female	3.9026	.57014				
Ethical and practical considerations in implementing AI	Male	3.8542	.64739	.03048	.205	.838	Not Significant
	Female	3.8237	.63243				

* Significant at alpha 0.05

Table 3.1 presents the difference of the extent of the use of Artificial Intelligence in promoting critical thinking skills among the students of Bachelor of Arts in English Language Studies in MSU-Sulu when data are grouped according to their demographic profile in terms of gender. As shown in this table, all the t-values and probability values are not significant at alpha 0.05. This means that, male and female student-respondents involved in this study do not differ in their perception towards the subcategories subsumed under the extent of the use of Artificial Intelligence in promoting critical thinking skills among the students of Bachelor of Arts in English Language Studies in MSU-Sulu. This further implies that being male student-respondent may not make him a better perceiver toward the extent of the use of Artificial Intelligence in promoting critical thinking skills, or vice versa.

Therefore, it can be concluded that the variable of gender does not significantly influence how student-respondents in the Bachelor of Arts in English Language Studies program at Mindanao State University-Sulu perceive the extent of Artificial Intelligence's use in promoting critical thinking skills. Hence, the hypothesis asserting that: "There is no significant difference in the extent of the use of Artificial Intelligence in promoting critical thinking skills among the students of Bachelor of Arts in English Language Studies in MSU-Sulu, when data are classified according to their demographic profile in terms of gender" is accepted.

3.2 According to Age

Sources of Variation		Sum of squares	Df	Mean Square	F	Sig.	Description
AI-driven tools and techniques	Between Groups	1.345	2	.673	2.003	.140	Not Significant
	Within Groups	32.562	97	.336			
	Total	33.908	99				
	Total						
Ethical and practical considerations in implementing AI	Between Groups	2.635	2	1.317	3.452	.056	Not Significant
	Within Groups	37.019	97	.382			
	Total	39.654	99				
	Total						

* Significant at alpha 0.05

Table 3.2 illustrates the comparison in the extent to which Artificial Intelligence is used to enhance critical thinking skills among Bachelor of Arts in English Language Studies students at MSU-Sulu, based on their age groups. The data show that none of the F-values and probability values reach significance at the 0.05 level. This indicates that despite the differences in age among the student-respondents, their perceptions regarding the specific aspects of AI use in developing

critical thinking skills remain generally consistent. This suggests that students aged 25 and below do not necessarily perceive AI's role in enhancing English language and creative writing skills differently compared to those aged 36–45, or any other age group identified in the study. In other words, age does not appear to influence how these students view the effectiveness of AI in fostering critical thinking. As a result, the hypothesis stating that “There is no significant difference in the extent of the use of Artificial Intelligence in promoting critical thinking skills among the students of Bachelor of Arts in English Language Studies in MSU-Sulu when data are classified according to their demographic profile in terms of age” is supported.

3.3 According to Parent's educational attainment

Sources of Variation		Sum of squares	Df	Mean Square	F	Sig.	Description
AI-driven tools and techniques	Between Groups	.383	3	.128	.366	.778	Not Significant
	Within Groups	33.524	96	.349			
	Total	33.908	99				
	Total						
Ethical and practical considerations in implementing AI	Between Groups	.267	3	.089	.217	.885	Not Significant
	Within Groups	39.387	96	.410			
	Total	39.654	99				
	Total						

* Significant at alpha 0.05

Table 3.3 displays the comparison in the extent of Artificial Intelligence use in fostering critical thinking skills among Bachelor of Arts in English Language Studies students at MSU-Sulu, categorized according to their parents' educational attainment. The results show that all F-values and corresponding probability values are not statistically significant at the 0.05 level. This indicates that, regardless of variations in their parents' educational background, the student-respondents generally share similar perceptions about the role of AI in improving critical thinking skills. This finding suggests that having parents with a doctorate degree does not necessarily make students more perceptive of AI's influence on critical thinking compared to those whose parents only completed elementary or a bachelor's degree, and vice versa. Therefore, it can be concluded that the variable of parents' educational attainment does not significantly influence how students perceive the use of AI in promoting critical thinking. Consequently, the hypothesis stating that “There is no significant difference in the extent of the use of Artificial Intelligence in promoting critical thinking skills among the students of Bachelor of Arts in English Language Studies in MSU-Sulu, when data are classified according to their demographic profile in terms of Parent's educational attainment” is upheld.

3.4 According to Parent's monthly income

Sources of Variation		Sum of squares	df	Mean Square	F	Sig.	Description
AI-driven tools and techniques	Between Groups	1.476	3	.492	1.456	.231	Not Significant
	Within Groups	32.432	96	.338			
	Total	33.908	99				
	Total						

Ethical and practical considerations in implementing AI	Between Groups	.713 38.940	3 96	.238 .406	.586	.625	Not Significant
	Within Groups	39.654	99				
	Total						

* Significant at alpha 0.05

Table 3.4 shows the comparison in the extent to which Artificial Intelligence is used to promote critical thinking skills among Bachelor of Arts in English Language Studies students at MSU-Sulu, based on their parents' monthly income. The table reveals that all F-values and probability values across the identified subcategories are not statistically significant at the 0.05 level. This suggests that, despite differences in their parents' income levels, the student-respondents generally have similar perceptions regarding the use of AI in enhancing critical thinking skills. This finding indicates that students whose parents earn ₱20,001 and above are not necessarily more perceptive of AI's impact on attitudes toward English language and creative writing skills than those whose parents earn ₱5,000 or less—and vice versa. Thus, it can be concluded that parental income does not significantly influence the perceptions of students regarding the extent of AI use in developing critical thinking. Accordingly, the hypothesis stating that "There is no significant difference in the extent of the use of Artificial Intelligence in promoting critical thinking skills among the students of Bachelor of Arts in English Language Studies in MSU-Sulu, when data are classified according to their demographic profile in terms of Parent's monthly income" is accepted.

4. Is there a significant correlation among the subcategories under the extent of using Artificial Intelligence to promote critical thinking skills, specifically regarding AI-driven tools and techniques, as well as ethical and practical considerations in implementing AI?

Table 4. The correlation among the subcategories included under the extent of the use of Artificial Intelligence in promoting critical thinking skills among the students of Bachelor of Arts in English Language Studies in MSU-Sulu.

Variables		Pearson <i>r</i>	Sig.	N	Description
Dependent	Independent				
AI-driven tools and techniques	Ethical and practical considerations in implementing AI	.740**	.000	100	Significant

*Correlation coefficient is significant at alpha .01

Correlation Coefficient Scales Adopted from Hopkins, Will (2002):

0.0-0.1 = Nearly Zero; 0.1-0.3 = Low; 0.3-0.5 = Moderate; 0.5-0.7 = High; 0.7-0.9 = Very High; 0.9-1 = Nearly Perfect.

Table 4 shows the correlations among the subcategories related to the extent of Artificial Intelligence use in enhancing critical thinking skills among Bachelor of Arts in English Language Studies students at MSU-Sulu. The table indicates that several of the Pearson correlation coefficients (Pearson *r*) are found to be significant at the 0.05 alpha level. Particularly, a very strong correlation was found between the use of AI-driven tools and techniques and the ethical and practical considerations associated with their implementation. This indicates a strong connection between the application of AI technologies and the degree of attention given to ethical and practical

issues within educational contexts. In settings where AI is utilized, the findings suggest that these technologies are closely linked to how carefully ethical implications and practical challenges are managed. Overall, the results imply that the subcategories—especially those concerning students’ attitudes toward the English language and creative writing—are significantly correlated. Thus, the hypothesis that states, “There is no significant correlation among the subcategories subsumed under the extent of the use of Artificial Intelligence in promoting critical thinking skills among the students of Bachelor of Arts in English Language Studies at MSU-Sulu,” is supported.

Conclusion

The following was concluded based on the findings of the study:

The result could only mean that female respondents outnumber their male counterpart, belong to the lower age bracket, mostly not very educated, and belong to low income earners.

The result indicates that the students involved in this study generally perceived the AI tools and techniques employed in their studies as effective in enhancing their critical thinking skills.

The result means that the perception of BA ELS students of MSU – Sulu do not differ towards the use of AI in enhancing the students’ critical thinking skills regardless of demographic profile.

The result could only mean that in educational settings where AI tools are employed, there is a robust linkage between the use of these technologies and with the ethical and practical issues.

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