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# Students' AI Utilization and Their Evaluative Thinking Performance in English and Mathematics

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**ABSTRACT**

Artificial intelligence tools have become increasingly common in grade 7 classrooms. They allow students to access information more efficiently than previously possible. This study was conducted to determine the level of AI utilization and evaluative thinking performance. Specifically, this aimed to find out the respondents' assessment on the level of AI utilization, examine the respondents' level of evaluative thinking performance, and determine the significant relationship between the respondents' assessment of AI utilization and their evaluative thinking performance. The respondents were the 180 Grade 7 students in select districts of Misamis Oriental who were selected through a stratified random sampling technique. A descriptive – correlation method of research was employed and with a researcher made instrument using a structured survey questionnaire that assessed student's level of AI utilization and their evaluative thinking performance in the two subject areas. The statistical tools used in analyzing the data included, frequency, mean and Pearson r correlation. The results showed that the respondents assess their level of AI utilization
as slightly utilized both in English and Mathematics. Further, the respondents' level of evaluative thinking performance in English and Mathematics is very satisfactory except on Mathematics. However, there was an inverse relationship between the respondents' assessment of AI utilization and their evaluative thinking performance in English and Mathematics in which the higher the respondents' assessment of AI utilization, the lower is their evaluative thinking performance. It is concluded that the more students use AI their evaluative thinking performance decreases. It is recommended that the teachers should actively encourage students to tackle reading, analysis, and problem-solving tasks independently whenever appropriate.

**Keywords:** AI utilization, evaluative thinking performance

## INTRODUCTION

### *Background of the Study*

Artificial Intelligence (AI) tools have become part of many Grade 7 classrooms. This gives students easy access to information and new ways of learning. These tools can make learning more efficient. They also have raised questions about how they influence the development of evaluative thinking. Developing this skill requires students to examine evidence. It considers different viewpoints and makes informed

decisions through regular practice. AI is used to provide immediate answers. Students may have fewer opportunities to engage in this thinking processes on their own.

As AI continues to find its place in the classroom learning, many students are still learning how to use it effectively and responsibly. Without proper guidance, some may rely on AI more. Students may tend to not do their task on their own. In the study of Bhattari (2025), it is explained that utilization of AI may lead to cognitive offloading. It is where part of the thinking process is shifted to AI. Likewise, Balasoto et al. (2025) emphasized that reflective and critical thinking develop through active participation and continuous practice. Bauyot (2025) noted that evaluative thinking is strengthened when learners are encouraged to analyze information and make independent judgments. This perspective suggests that the concern may lies in technology itself. It is used to support teaching and learning. Helping students develop higher – order thinking is equally important as helping them acquire knowledge.

Developing students' critical thinking and problem-solving skills remains a major goal of the Department of Education in the Philippines. Even with this continued emphasis, many students still find it challenging to analyze problems and come up with solutions on their own (Camaso, 2024). Meanwhile, the increasing use of artificial intelligence (AI) has changed how students complete school-related tasks and access information (Gonzales, Perez, & Ramirez-Montoya, 2022). Although AI can make learning more convenient, relying on it too often may reduce students' chances to think through problems independently and form their own judgments (Gonzales & Mabalay, 2024). Research on AI in education has continued to grow, yet only a limited number of local studies have explored its use among Grade 7 students. This is an important gap, as Grade 7 is a crucial stage in which learners begin to strengthen their metacognitive skills and develop more advanced ways of thinking.

Despite availability of literature on AI education, significant gaps in local studies are found to be significant. One of these is studies respondents which are mostly senior high school or college students, undermining the Grade 7 students, where development of meta-cognitive habits are reinforced. In this stage also is the critical time to develop abstract thinking. This study addresses this gap by examining the relationship between AI utilization and evaluative thinking performance among Grade 7 students. Its finding may provide useful evidence for teachers, curriculum developers, and policymakers in designing learning experience where AI supports. This study highlights the importance of using AI in enhance learning. It preserves students' ability to reason, evaluate and make informed decisions independently.

***Literature and Related Studies***

This part reviews relevant literature and related studies from books, peer-reviewed journals, scholarly articles and other credible sources. It explores Artificial Intelligence (AI) utilization in English and Mathematics education. Also, looking into its applications, benefits and challenges. It also reviews evaluative thinking particularly creativity, problem-solving and reflective thinking. This provides the foundation for this study.

***AI Utilization***

Artificial Intelligence have changed how students learn English and Mathematics. Integration of applications like ChatGPT, Grammarly and AI-powered problem solvers greatly help make tasks efficiently. It supports personalized learning. It provides instant feedback. Improve students' engagement and performance. However, Gonzales et al. (2022) emphasized that excessive reliance on AI may reduce students' independent thinking and problem – solving skills. Santos (2025) and Opeña and Pontillas (2024) in their studies have a contrasting view. The findings emphasized that if AI is properly integrated in the classroom, it can facilitate the development of higher-order thinking and other 21st century skills.

Students start thinking harder and actually learn things in real life. It actually makes education more meaningful. But at the end of the day, nothing replaces teaching students how to figure things out for themselves. That is always going to be important.

***AI Utilization in English***

Artificial intelligence (AI) has become a familiar tool in English classrooms, where students often use it to paraphrase texts, understand unfamiliar vocabulary, and answer reading comprehension questions. While digital tools can significantly make learning more efficient, an over-reliance on them may reduce opportunities for students to think independently and express their own ideas (Braun & Shavelson, 2020; Camaso, 2024). Gonzales and Mabalay (2024) similarly warn that excessive AI use may weaken students' capacity to reflect, analyze, and think critically. Consequently, Pecson and Sarmiento (2024) emphasize that educators should encourage students to utilize AI as a supplementary learning support rather than a replacement for their own cognitive engagement.

*AI Utilization in Mathematics*

In the context of mathematics, AI can support students in understanding complex concepts and encourage deeper cognitive processing when deployed appropriately. According to Ozeren (2023), interactive AI features can effectively strengthen students' analytical skills. However, Souza and de Silveira (2023) emphasize that teachers continue to play a vital role in developing independent and evaluative thinking, a sentiment echoed by Orbigoso (2026), who notes that AI is most effective in mathematics when paired with teacher guidance. Despite these potential benefits, challenges remain; Roshid and Haider (2024) found early evidence indicating that some students utilize AI primarily as a shortcut to obtain answers rather than as an active tool for learning.

***Evaluative Thinking Performance***

Evaluative thinking is an important part of student learning, enabling individuals to develop a deep understanding of information, make sound judgments, and reflect on their own educational progress. This cognitive framework encompasses crucial skills such as creativity, problem-solving, and reflective thinking—all of which are recognized as core drivers of enhanced academic performance. Cole (2023) explains that cultivating evaluative thinking improves student decision-making by encouraging the rigorous use of evidence.

The impact of technology on this process yields diverse perspectives. On one hand, Li (2025) found that AI tools can actively support evaluative and reflective thinking, while Bhattari (2025) added that extensive interaction with AI can prompt students to think critically. On the other hand, a crucial tension exists regarding dependency; Pedrosa (2025) cautions that an excessive reliance on AI may ultimately weaken a student's capacity for independent thought. Musazade et al. (2025) added AI weakens evaluative skills if it is not properly guided. The literature suggests that AI is helpful when used responsibly. This encourages students to think, reflect, and learn actively.

***Creativity***

Creativity, as a part of evaluative thinking, refers to students' ability to come up with original ideas and carefully choose and improve the ones that are most useful in solving problems. It is not just about generating ideas, but also about whether they are relevant and practical. Studies show that creativity and evaluative thinking go hand in hand. Guo et al. (2022) and Gonzales (2020) both pointed out that good creative work needs both idea generation and evaluation. While Abdulla et al. (2021) explained that skills like problem finding and divergent thinking are closely tied to evaluative thinking.

Recent research also suggests that limiting over dependence on AI can help students become more creative and independent (Acosta-Enriquiz et al.,2025), while Chaparro-Banegas et al. (2024) emphasized the importance of teacher guidance in developing innovative thinking in AI-supported learning. In the local setting, Santos (2025) found that systems-thinking instruction can improve creativity among Filipino learners, while Camaso (2024) pointed out gaps in how creativity is taught, showing the need for more consistent support. highlighting the need for more consistent and supportive teaching approaches. The literature suggests that creativity develops best when students are given freedom to generate ideas but are also guided to reflect on and improve them through evaluative thinking.

***Problem-Solving***

Problem-solving is an important part of evaluative thinking because it involves identifying, analyzing and finding solutions to challenges. It is not just about getting the correct answer but also about understanding the process and choosing the best solution (Mehrabi et al. 2021). Braun and Shavelson (2020) added that performance-based tasks help students develop these skills by allowing them to apply what they learn in real-life situations.

Recent studies show that artificial intelligence can support problem-solving by giving feedback and personalized learning support Japus (2026). However, Stoeffer & Bolsivana (2020) explained that the effectiveness of AI still depends on proper guidance, and as too much reliance on it may reduce deep thinking and independence (Cruz-Ocampo et al., 2025). Lawasi and Rohman (2024) emphasized that students still need to critically evaluate AI-generated answers. Similarly, Rohwer and Seufert (2025) noted that AI integration must be guided by teachers to develop stronger thinking skills.

Local studies also highlight that students' readiness. This includes ethical use and teacher support, affect how students' use AI in learning (Asirit & Hua,.2023). The literature shows that problem-solving is a best developed when students actively engage in thinking, with AI used only as a support tool rather than a replacement for their own reasoning.

***Reflective Thinking***

Reflective thinking refers to meta-cognitive awareness, where learners monitor and evaluate how they learn. Epino and Chavez (2025) explained that reflective learning helps students become more aware of their thinking and learning processes. Similarly, Balasoto et al. (2025) found that reflective and critical thinking activities improve students' ability to analyze ideas and make sound judgments, while Bauyot (2025) noted that these skills help deepen learning experiences. Cipriano (2025) and Generalao (2025) added the learner-centered and active learning approaches strengthen higher-order thinking by encouraging students to reflect and engage meaningfully in tasks.

In relation to technology, Litvinova et al. (2025) emphasized that reflective teaching helps students critically evaluate AI tools and digital content, promoting independence. Ali, Garcia, and Vadsayera (2024) and Gonzales (2020) also found that combining AI with reflective learning strategies supports deeper understanding. However, Acosta-Enriquez et al. (2025) and Chaparro-Banegas et al. (2024) warned that excessive use of AI may weaken reflective thinking if not properly guided. In the Philippine context, Camaso (2024) stressed that reflective thinking is best developed when AI use is balanced with teacher guidance and structured learning activities.

Reflective thinking is strengthened through learner-centered instruction and is most effective when AI is used in a balanced and guided way that supports, rather than replaces, students' thinking processes.

***Theoretical Framework***

This study used Vygotsky's Socio-Cultural Theory. This theory explains that learning develops through

the mediation of cultural tools and social guidance. This framework is particularly relevant to the study, as AI functions as an important tool in Grade 7 students' learning in English and Mathematics. According to studies, AI supports basic problem-solving. It also encourages evaluative and higher-order thinking. It provides guidance, scaffolds, and access to information. AI utilization helps students engaged in analysis, reflection and critical judgment. These reflect the importance of Vygotsky's principle. Cognitive growth is enhanced through interaction with tools and social support. AI utilization promotes the development of critical and evaluative thinking skills among students.

Vygotsky's idea of scaffolding explains the roles of AI. The responsible use of these tools extends learners' Zone of Proximal Development (ZPD). It enables complex task completion. However, AI utilization and habitual over-reliance minimize independent reasoning. It may hinder evaluative thinking across creativity, problem-solving, and reflective thinking domains.

The framework shows that AI utilization increases students' evaluative thinking performance. Guided utilization enhances ZPD expansion and skill internalization. Excessive dependence limits active analysis and meta-cognition essential to DepEd 21st Century competencies.

AI-supported English learning by enhancing reading comprehension and writing skills. Analytical depth utilizing adaptive leveling and real-time feedback to mediate the meaning-making process. Through the lens of Vygotsky, these tools function as a symbolic mediator that structures learner engagement within the Zone of Proximal Development allowing students to internalize advance decoding and evaluation strategies.

Furthermore, AI utilization is a socially mediated cognitive process. In writing for example, AI tools helped provide writing activities by providing real time suggestions, organizational prompts and linguistic corrections. These are parts of the scaffold highlighted in Vygotsky's framework. Moreover, it helps students improve their writing, communicate more effectively and become more independent learners. These skills are among of the 21st century.

AI has become useful tool in Mathematics. It reflects the ideas of Vygotsky's Sociocultural Theory through the Zone of Proximal Development (ZPD). It pprovides timely feedback, step-by-step guidance and explanation. These help students understand difficult mathematical concepts. AI supports learning while encouraging students to build their own reasoning. It also helps develop problem-solving instead of becoming independent to technology.

Evaluative thinking performance evolves through mediated activity within the Zone of Proximal Development. AI functions as scaffolds for cognitive growth. Integrating the five components of AI; learning, reasoning, problem-solving, perception and language processing, the technology provides a multi-dimensional framework for intellectual development.

AI catalyzes creativity through exploratory prompting. It sharpens problem-solving via adaptive reasoning. It has the ability to simulate perception and facilitate interactive learning. It fosters reflective thinking. It provides transitional learning from external to self-regulation.

AI mediated ZPD ensures successful integration of higher-order skills. Measuring evaluative thinking requires a dual approach. It combines standardized test performance with authentic performance assessments and provides objective benchmarks for core cognitive skills.

***Conceptual Framework***

The first variable is AI utilization in terms of English and Mathematics. The second variable is evaluative thinking performance. Evaluative thinking performance includes creativity, problem-solving, and reflective thinking. This framework articulates the relationship between AI utilization and evaluative thin-

king performance among Grade 7 students.

Students' ability for information analysis is called evaluative thinking performance. The students must be prepared consider, assess the evidence, and self-regulate the way in which they consider. To enjoy originality, troubleshooting and thoughtful reflection, it uses an indispensable reflective structure.

One of the evaluative thinking skills is assessed in this study is creativity. It is the students' ability to come up with original and innovative ideas. It is the ways to process problems from varying perspectives. It helps develop divergent thinking and exploring multiple perspectives. These require developed flexibility and adaptability especially in doing complex tasks.

Problem-solving is another aspect of evaluative thinking. It is how students are able to analyze complex issues. This include identifying cause and effect, evaluate potential solutions and implement effective strategies. This emphasizes important competence like logical reasoning, analytical skills, and decision-making.

Nonetheless, another important indicator is reflective thinking which pertains to students' meta-cognitive abilities. It enables students to monitor, evaluate, and regulate their own learning processes and cognitive strategies. It is important for continual improvement, the process of developing deeper understanding and long-term retention. Reflective thinkers can critically review their approaches, they easily recognize errors, and adjust their methods.

AI utilization in English and Mathematics are is considered a factor that enhance students' evaluative thinking performance. The indicators like creativity, problem-solving and reflective thinking are measures as the higher order thinking are developed.

***Statement of the Problem***

This study sought to determine the levels of AI utilization and evaluative thinking performance among Grade 7 students in selected districts of Misamis Oriental for the School Year 2025 – 2026.

It specifically answers the following questions;

1. How do the respondents assess their level of AI utilization in terms of English and Mathematics?
2. What is the respondents' level of evaluative thinking performance in English and Mathematics based on; creativity problem-solving, and reflective thinking?
3. Is there a significant relationship between the respondents' assessment of AI utilization and their evaluative thinking performance in English and Mathematics?

***Scope and Limitations of the Study***

The study will determine the level of AI utilization and evaluative thinking performance of the Grade 7 students in English and Mathematics in select districts of Misamis Oriental Division for the School Year 2025-2026. The respondents comprised of one hundred eighty (180) Grade 7 students in the selected districts of the aforesaid division. Variable 1 is limited to AI utilization in English and Mathematics. Moreover, Variable 2 is limited to evaluative thinking performance in terms of creativity, problem solving, and reflective thinking.

The study is limited to this specific age group and context; its findings should not be generalized to Senior High School or college students, whose learning dynamics and cognitive development may differ. A quantitative, correlational design is employed, utilizing surveys and school records to identify statistical relationships. Other influential factors, such as motivation, home environment, and teacher quality, are intentionally excluded to maintain focus on the variables of interest.

## METHODOLOGY

### *Research Design*

This study made use of descriptive-correlational method of research. This method was appropriate for examining the significant relationship in students' evaluative thinking performance based on their levels of AI utilization. This design would identify the interrelationships among the variables, with AI utilization as the first variable and evaluative thinking performance as the second variable. By systematically describing the characteristics and levels of each variable, this research study provided a clear ides of how AI utilization influences evaluative thinking performance.

### *Study Setting*

This study was conducted in four public secondary schools in Western Misamis Oriental, Philippines. This includes Laguindingan National High School, Matangad National High School, Alubijid National Comprehensive High School and Initao National Comprehensive High School. These schools were chosen because they vary in terms of school size, student population, available resources and access to digital technology. Such differences provide a meaningful setting for examining how AI is used in English and Mathematics. At the same time relates to the development of students' critical thinking skills. The varied school learning environments, it offers a broader perspective on both the opportunities and challenges of integrating AI in public secondary education.

### *Research Respondents*

There were one hundred eighty (180) respondents of this study. They were Grade 7 students from selected districts of Misamis Oriental for School Year 2025-2026. These students were currently enrolled in the said schools where the study conducted. This respondents were students from Alubijid National Comprehensive High School, Initao National Comprehensive High School, Laguindingan National High School, and Matangad National High School.

### *Sampling Technique*

To arrive at the desired number of respondents, Slovin's formula was used. There were about one hundred eighty (180) respondents of this study. It was based on a population of 1225. The margin of error is 7%. Stratified sampling technique was utilized. This used to get the appropriate number of respondents by school. This was done by dividing the computed sample size by its corresponding population.

As the respondent selected, the identified students were invited to participate in the survey during the data collection period. The following are the criteria for selection; only those who were officially enrolled in Grade 7 and were present during the data collection. Also, those who voluntarily agreed to participate were included in the study. This structured approach to sampling enhanced the representation of the sample. It also minimized selection bias. Furthermore, it strengthened the validity and reliability of the study's findings.

### *Research Instrument*

This questionnaire was developed as the sole data-gathering tool for this study. The instrument was carefully designed based on the study's objectives and a thorough review of related literature to measure the levels of AI utilization and evaluative thinking performance among Grade 7 students from the four western schools of Misamis Oriental. The researcher made this tool because there is no ready made standardized instrument. The questions were adequately fit the specific framework and variable of the study.

This questionnaire was divided into two parts. Part I measures students' AI utilization in English and Mathematics. This used two sets of indicators. Each set contain ten statements that described how students

used AI in different academic tasks. Responses were measured using a four-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (4). The level of AI utilization is determined by the mean score. The mean score was computed for each subject area, as well as the overall mean. A higher mean score indicates greater use of AI. Lower scores indicate less frequent use. The variables were patterned and modified from different sources reflected in the literature and related studies.

Part II assessed students' evaluative thinking performance in English and Mathematics. It uses a 60-item test that was also a researcher-made. The test covered three domains: creativity, problem-solving, and reflective thinking. In English; items 1-10 cover creativity, items 11-20 problem-solving, and items 21-30 for reflective thinking. In Mathematics, items 31-40 cover creativity, items 41-50 for problem–solving, and items 51-60 for reflective thinking. Each domain was represented by 10 items. Based on the construct, it provides a balanced assessment of students' evaluative thinking skills in both subject areas. This ensures unbiased self-reported measures. The instrument used objective assessment items to evaluate higher-order thinking skills across both subject areas. The creativity components measured students' ability to generate original ideas. It also measures understanding tasks from multiple perspectives. It also measures how students apply innovative solutions to subject-specific test scenarios. The problem-solving component assessed students' ability to systematically analyze problems. It also measures how students develop and implement strategies. Also, how students consider alternative approaches, learn from errors and reach effective resolutions to a problem. The reflective thinking component measures meta-cognition skills. This includes self-monitoring, processing feedback, identifying mistakes, and adjusting strategies for continuous improvement.

The evaluative thinking performance test used a combination of multiple-choice and rubric-scored items. Each correct answer in the multiple - choice section was given one point. Responses to the rubric-scored items were evaluated using a standardized scoring guide. Students' total scores on the 30-item evaluative thinking test in Mathematics and English were interpreted the Department of Education's performance levels. Scores of 25-30 (90-100%) were classified as Outstanding, 19-24 (85-89%) as Very Satisfactory, 13-18 (80-84%) as Satisfactory, 7-12 (75-79%) as Fairly Satisfactory and 0-6 (below 75%) as Did Not Meet Expectations. These categories provided a consistent basis for interpreting students' level of evaluative thinking. It is also used to determine whether they achieved the expected level of performance. Using this performance-based approach allowed the study to capture students' ability to evaluate information. This is also used to measure if they know how to justify their answers and apply higher – order thinking skills in both Mathematics and English. The resulting scores also served as the basis for examining the relationship between AI utilization and students' evaluative thinking performance.

***Validity and Reliability of the Instrument***

This research instrument was researcher-made, it went through validation and reliability testing to ensure that the data collected would be accurate and credible. A group of experts review the questionnaire. The panel of experts were two DepEd regional supervisors and one education professor. They carefully checked the questionnaire to verify clarity, relevance, and suitability. They ensured that AI utilization and evaluative thinking performance were correctly measured. Their comments and feedback helped improve the instrument. Also, the alignment of the objectives of the study and appropriateness for the responses were also checked.

A pilot test was conducted. There were 30 Grade 7 students participated in the pilot test. They had similar characteristics to those of the final respondents. Being part of the pilot test, they were not the participants

in the actual study. The pilot test was administered in Laguindingan National High School last January 19, 2026. It was conducted by the researcher.

The responses gathered during the pilot test were analyzed. The use of Cronbach's Alpha determines whether the instruments internally consistent. The analysis yielded a Cronbach's Alpha coefficient of 0.85. This indicates that the items measured the intended variables with good consistency. Together with the results of the expert validation, pilot testing, and statistical review, these findings showed that the instrument was both reliable and valid. This provide confidence that it was appropriate for collecting accurate and meaningful data for the study.

***Statistical Treatment of Data***

Having collected and recorded the data gathered, the following statistical tools were used:

Descriptive statistics such as Mean and Standard Deviation were used for Problems 1 and 2 to describe the variables.

Further, Pearson-Product Moment Correlation were utilized to determine the significant relationships between AI utilization and evaluative thinking performance. This test determines whether a relationship exists between the two variables and to assess its strength and direction. It indicates whether the relationship is positive, negative, or negligible. A significant level of 0.05 was used as the basis for decision-making. If the p-value is less than 0.05; the null hypothesis is rejected, indicating a significant relationship between the variables. If the p-value is greater than 0.05, the null hypothesis is accepted, indicating no significant relationships. Through this process, the study was able to clearly determine whether AI utilization is related to students' evaluative thinking performance.

***Ethical Considerations***

This study upholds the highest ethical standards to protect the rights, dignity and welfare of all respondents while examining how AI utilization influenced evaluative thinking performance among Grade 7 students. Every step of the research was guided by responsibility, respect for respondents' autonomy, and a commitment to maintain the integrity of the research process.

Prior to participation, informed and parental consent were sought through a clear explanation of the study's purpose, methods, potential risks, and benefits. Written consent was obtained from all respondents, with additional parental or guardian consent and student assent for minors. Respondents selected were based on criteria aligned with the study objectives. Participation was ensured voluntarily, without coercion or bias related to gender, social background, or academic standing.

The researcher holds no conflict of interest and was trained in research ethics and methodology. The study was conducted under a qualified supervisor to ensure all ethical principles guided the research from planning to dissemination.

This narrative approach reflected a commitment to respect respondents' voices, ensuring transparency and fostering an ethical research environment appropriate for investigating AI utilization and the roles of critical thinking performance among students.

## RESULTS AND DISCUSSION

This part presents the result and discussion of the study on the utilization of AI and evaluative thinking performance among Grade 7 students in select districts of Misamis Oriental. The data are presented in tabular form following the problems stated earlier.

***Results***

**Problem 1: How do the respondents assess their level of AI utilization in terms of English and Math-**

**ematics?**

**Table 1**

**Summary of the Respondents' Assessment Level of AI Utilization**

| Variable | Mean | SD | Interpretation |
|---|---|---|---|
| English | 2.31 | 0.88 | Slightly Utilized |
| Mathematics | 2.16 | 0.87 | Slightly Utilized |
| **Overall** | **2.15** | **0.87** | **Slightly Utilized** |
| | | | |

***Legend*:** 3.26 – 4.00 At All Times / Highly Utilized 1.76 – 2.50 Sometimes / Slightly Utilized
2.51 – 3.25 Most of the Time / Utilized 1.00 – 1.75 Never / Not Utilized

Table 1 presents the summary of the respondents' level of AI utilization in English and Mathematics, with an overall mean of **2.15 (SD=0.87).** It is described as **Sometimes** and is interpreted as **Slightly Utilized**. This means that students occasionally use AI in both subjects and mainly view it as a support tool rather than their main source of learning.

This implies that students use AI in much the same way in both English and Mathematics. Students do not rely on AI to complete their work. This shows that students see AI as a learning tool. It does not replace their learning.

The finding is consistent with Orbigoso and Pontillas (2026), owho emphasized that technology is most effective when its use is guided and aligned with the learning objectives. A similar point was raised by Japus (2026), which explained that AI can help students develop important 21st century skills. These above includes critical thinking and communication, when it is used appropriately in the classroom.

The consistency of these studies and the present findings suggests that students are using AI in a responsible and balanced manner across different subjects. This highlights the value of continued teacher guidance. This is to ensure AI remains a tool for learning. Students continue to build their own understanding and thinking skills.

In comparison, English obtained a slightly higher mean of **2.31 (SD=0.88)**, interpreted as **Slightly Utilized**. Rather than using technology to bypass the learning process, students appear to leverage AI as a scaffolding tool to support their language development. This observation aligns with Opena (2024), who found that AI serves as an effective aid for understanding unfamiliar vocabulary and complex concepts. Likewise, Hassen (2025) emphasized that AI achieves its greatest utility when it complements a student's efforts rather than replacing their independent critical thinking.

In contrast, Mathematics recorded the lowest mean score (M = 2.16, SD = 0.87), described as **Sometimes** and interpreted as **Slightly Utilized**. This indicates that students use AI less frequently in Mathematics than in English.

This shows that while AI can help explain solution steps, check formulas and simplify difficult concepts, students seem to use it only when they need extra support. For most math tasks, they still prefer to solve problems on their own and rely on their reasoning before seeking AI for help.

This finding matches the work of Lawasi and Rohman (2024). They stressed that AI works best in Mathematics when it helps students understand mathematical procedures instead of thinking for them. Chapparo- Banegas et al. (2024) found that students gain a better understanding of step-by-step process when AI is used to support learning.

Viewed together, these findings suggests that students are using AI as guide instead of depending on it to solve mathematical problems. This underscores the need for teachers to continue encouraging responsible AI use so that students strengthen their mathematical reasoning while benefiting from the support that AI can provide.

**Problem2: What is the respondents' level of evaluative thinking performance in English and Mathematics based on creativity, problem-solving, and reflective thinking?**

**Table 2**
**Summary of the Respondents' Evaluative Thinking Performance in English**

| Variable | Mean | SD | Interpretation |
|---|---|---|---|
| Creativity | 7.41 | 2.16 | Very Satisfactory |
| Problem Solving | 8.94 | 1.58 | Very Satisfactory |
| Reflective Thinking | 9.07 | 1.54 | Outstanding |
| **Overall** | **8.47** | **1.76** | **Very Satisfactory** |

***Legend*:** (9-10) 90-100 - Outstanding (3-4) 75-79 - Fairly Satisfactory
(7-8) 85-89 - Very Satisfactory (0-2) Below 75 - Did not Meet Expectation
(5-6) 80-84 - Satisfactory

Table 2 summarizes the respondents' evaluative thinking performance in English; creativity, problem-solving, and reflective thinking. The overall mean score of **8.47 (SD=1.76)** is interpreted as **Very Satisfactory,** though variability exist among the dimensions. It means generally strong higher-order thinking skills through structured classroom tasks.

As observed, students develop critical thinking skills through structured classroom tasks.

The findings are consistent with those of Stoeffer, Rosen and Bolsinova (2020), who found that structured learning activities that involved problem -solving helps students strengthen their higher order thinking skills. Gonzales (2020), said the same that reflective instruction the key to getting students to really evaluate their thoughts and learning experiences, which in turn fosters some seriously sharp critical thinking skills.

When the findings are put together, both highlight students generally are into evaluative thinking. However, there are still some room for improvement in some areas. Teachers should ensure that students develop these skills in a way that is more well balanced.

Reflective thinking obtained the highest mean score of **9.07 (SD=1.54)** interpreted as **Outstanding**. This indicates that students have strong reflective thinking.

It suggests that they can evaluate their work and assess their thinking. These meta cognitive skills enable them to pinpoint their strengths, figure out what they need to improve and make smart decisions about their learning.

At present, students who routinely take action in order to think about their own learning process acquire knowledge of new abstractions and often acquire better understanding of their own reflective form. They can assess their progress, pinpoint areas where they are struggling and work on improving those weaknesses.

Gou et al. (2022), came up with a similar idea that reflective and active learning improve cognitive engagement.

In contrast, creativity obtained the lowest mean score (M = 7.41, SD = 2.16), although it was still rated **Very Satisfactory**. This indicates that while students generally demonstrate creativity in Mathematics, their ability to generate original ideas and explore different solutions varies from one student to another. The findings suggest that students would benefit from more open-ended learning activities that promote imagination, idea generation, and creative problem-solving. This supports the study of Abdullah, Alabbasi, and Hafsyan (2021), who found that creativity develops when students are regularly engaged in tasks that encourage divergent thinking.

Similarly, Acosta-Enriquez et al. (2025) found that students' confidence in their own abilities also plays an important role in developing creativity.

At the same time, creativity emerged as the least developed dimension, suggesting that students would benefit from additional support and learning activities that encourage original thinking.

**Table 3**

**Summary of the Respondents' Evaluative Thinking Performance in Mathematics**

| Variable | Mean | SD | Interpretation |
|---|---|---|---|
| Creativity | 4.09 | 1.94 | Fairly Satisfactory |
| Problem Solving | 6.08 | 2.17 | Satisfactory |
| Reflective Thinking | 8.71 | 2.01 | Very Satisfactory |
| **Overall** | **6.29** | **2.04** | **Satisfactory** |

***Legend*:** (9-10) 90-100 - Outstanding (3-4) 75-79 - Fairly Satisfactory
(7-8) 85-89 - Very Satisfactory (0-2) Below 75 - Did not Meet Expectation
(5-6) 80-84 - Satisfactory

Table 3 presents the summary of respondents' evaluative thinking performance in Mathematics across creativity, problem-solving, and reflective thinking with an overall mean of **6.29 (SD = 2.04)** interpreted as **Satisfactory**. This means that students generally show adequate critical thinking skills in Mathematics, although creativity still needs further improvement.

This implies that students perform better in reflective thinking and routine problem-solving. As observed, classroom activities often involve guided practice and structured learning tasks. However, creativity appears lower because students are less exposed to open-ended activities that encourage flexible thinking and exploration of different solutions.

This is supported by Litvinova et al. (2025), who emphasized that creativity and critical thinking improve through meaningful and guided learning experiences. Hassen (2025) also found that exposing students to a variety of learning experiences helps them develop new and creative ways of thinking. This suggests that teachers should provide meaningful and well-planned activities that strengthen critical thinking. Students should be encouraged not only to follow procedures and reflect on their work but also to explore ideas and develop creative solutions.

Reflective thinking obtained the highest mean score (M = 8.71, SD = 2.01), interpreted as **Very Satisfactory**. This indicates that students generally demonstrate strong reflective thinking skills and are able to evaluate and improve their problem-solving strategies. Classroom observations showed that students often reviewed their answers, explained their solutions, and considered their teachers' feedback. These practices helped them recognize mistakes, refine their strategies, and gain a deeper understanding of their learning. This finding is consistent with Cole (2023), who emphasized that reflective thinking

promotes deeper understanding and strengthens higher-order thinking skills. Similarly, Gonzales (2020) noted that students become better problem-solvers when they regularly reflect on their learning. Together, these findings suggest that guided reflection and self-evaluation play an important role in developing reflective thinking.

In contrast, creativity received the lowest mean score (M = 4.09, SD = 1.94), interpreted as **Fairly Satisfactory**. This indicates that many students still find it challenging to generate original ideas and explore different ways of solving mathematical problems. Classroom observations revealed that most activities focused on following fixed procedures, giving students fewer opportunities to justify their answers, investigate alternative strategies, or think creatively. As a result, many students relied on familiar methods instead of exploring new approaches. These findings support the study of Cruz-Ocampo et al., which emphasized the importance of inquiry-based and open-ended learning activities in developing students' creativity and higher-order thinking skills.

Also, Gonzales (2020) stresses the need to intentional support to enhance creativity. Both findings suggest the integration of creativity into mathematics instruction. This will ensure more balanced development of critical thinking skills across dimensions. Teachers should provide more brainstorming, inquiry-based, and open-ended mathematical tasks to help students develop flexible and creative problem- solving skills.

**Table 4**
**Summary of the Overall Respondents' Level of Evaluative Thinking Performance**

| Variable | Mean | SD | Interpretation |
|---|---|---|---|
| English | 8.47 | 1.76 | Very Satisfactory |
| Mathematics | 6.29 | 2.04 | Satisfactory |
| **Overall** | **7.38** | **2.00** | **Very Satisfactory** |

***Legend*:** (9-10) 90-100 - Outstanding (3-4) 75-79 - Fairly Satisfactory
(7-8) 85-89 - Very Satisfactory (0-2) Below 75 - Did not Meet Expectation
(5-6) 80-84 - Satisfactory

Table 4 presents the respondents' overall **evaluative thinking performance in English and Mathematics**, with an overall mean of **7.38 (SD = 2.00)** interpreted as **Very Satisfactory**. It means that students are pretty adept at evaluative thinking, analyzing information, reflecting on ideas and making judgement that are not totally off the mark.

This implies that the more students are exposed to analysis, reflection and reasoning in various subjects, the better their evaluative thinking skills become. As observed, students tend to show more evaluative thinking in English than in Math. It is because language – based activities often get them explain their thoughts, reflect on information and back up their answers. Math tasks can be really hard and demand some serious reasoning and strategy – picking, which can be tough for students.

Melchor et al. (2023), seem to agree with this assessment that evaluative thinking improves through guided and structured learning experiences. Mehrabi, Boshrabadi and Hosseini (2021) revealed something interesting when students are given tasks with a clear structure, it actually helps them develop better evaluative judgement and problem-solving skills.

English scores were notably high, with a mean score of **8.47 (SD = 1.76).** That is considered Very **Satisfactory**. This means that students are doing a great job analyzing, evaluating and reflecting on ideas in English. They are showing their skills in this area.

As students gain experience with reflective activities, they become more confident in expressing their ideas through both writing and speaking. They are better able to explain their thinking, organize their ideas, and communicate their understanding clearly. This finding is consistent with Pecson and Sarmiento (2024), who reported that reflective and critical thinking activities strengthen students' ability to examine evidence and draw well-reasoned conclusions. Similarly, Musazade, Mezei, and Wang (2025) emphasized that well-structured learning environments play an important role in developing students' analytical and reasoning skills. Together, these findings suggest that students learn more effectively when learning tasks are clear, purposeful, and well guided.

In contrast, Mathematics obtained the lowest mean score (M = 6.29, SD = 2.04), interpreted as **Satisfactory**. This indicates that while students can solve routine mathematical problems, they still experience difficulty with tasks that require deeper analysis and reasoning. The findings suggest that evaluative thinking in Mathematics can be strengthened by giving students more opportunities to explain their solutions, justify their reasoning, and engage in higher-order thinking.

This aligns with Bhattarai (2025), which emphasized that guided reasoning and reflective thinking improve assessment higher - order thinking skills. Similarly, Pedrosa Prats (2025) found that when assessments focus on critical thinking, students become more careful in checking and understanding information.

Both findings suggest that students find it harder to apply evaluative thinking in Mathematics. This maybe because activities focus on fixed procedures and correct answers. As a result, learners tend to rely on familiar methods instead of analyzing and explaining different strategies during problem-solving. Teachers should provide more reflective discussions and open-ended problem-solving activities to help students strengthen evaluative thinking skills in Mathematics.

**Problem 3: Is there a significant relationship between the respondents' assessment of AI utilization and their evaluative thinking performance in English and Mathematics?**

**Table 5**
**Result of the test on Relationship Between the Respondents' AI Utilization and their Evaluative Thinking Performance in English and Mathematics**

| | **Evaluative Thinking Performance** | | | |
|---|---|---|---|---|
| **AI Utilization** | Creativity<br>r-value<br>p-value | Problem Solving<br>r-value<br>p-value | Reflective Thinking<br>r-value<br>p-value | Overall |
| English | r= 1.0****<br>p= 0.0<br>(S) | r= -0.08*<br>p= 0.27<br>(NS) | r= - 0.14*<br>p= 0.065<br>(NS) | r= - 0.26*<br>p= 0.00<br>(S) |
| Mathematics | r= - 0.258*<br>p= <.001<br>(S) | r= -0.229*<br>p= 0.002<br>(S) | r= - 0.135*<br>p= 0.071<br>(NS) | r= - 0.21*<br>p= 0.005<br>(NS) |

*Legend*:
Correlation is significant (S); Not Significant (NS) at the 0.05 level (2-tailed)
**** 0.71-0.99 (Very Strong S); ***0.51-0.70 (Strong S); **0.31-0.50 (Weak S); *0.01 – 0.30 (Very

Weak S)

Table 5 shows a **very weak but statistically significant negative or inverse** relationship between AI utilization and thinking performance in both English and Mathematics, with an overall mean score of **(r=-0.24, p=0.003).** The findings suggest that increased AI use is associated with a slight decline in students' evaluative thinking. Although the relationship is statistically significant, its effect is minimal and is unlikely to have a major impact on students' everyday learning. This indicates that AI alone does not determine students' ability to think critically. Their capacity to analyze information, reflect on ideas, and make sound judgments continues to depend largely on meaningful classroom experiences, active participation, and teacher guidance rather than on AI tools alone.

These findings are consistent with Baluyot (2025), who emphasized that technology improves learning outcomes only when combined with guided instruction and opportunities for critical thinking. Similarly, Bhattarai (2025) warned that insufficient teacher guidance may lead students to rely too heavily on AI, reducing opportunities to develop independent thinking. Together, these studies suggest that AI is most effective when used as a learning support rather than a substitute for students' own reasoning.

In English, AI use shows a **very weak negative relationship** with evaluative thinking (**r= -0.26, p=0.00).** This means minimal practical influence on students' thinking skills.

It implies that the findings is unlikely due to chance. The weak strength of the relationship between the AI use does not strongly affect evaluative thinking performance. As observed, students develop evaluative thinking more through reading, writing, and classroom discussions. These are also developed when they are asked to explain and reflect on ideas.

This finding is supported by Santos (2025) who explained that reflective and teacher-guided learning activities significantly strengthen students' critical and evaluative thinking skills. Likewise, Musazade et al. (2025) noted that thinking skills improve when learners actively engage with ideas.

Both findings suggest that frequent use of AI tools can limit students' opportunities to think deeply and solve problems on their own. This highlights that language -based activities are more effective in developing evaluative thinking than reliance on AI tools.

Moreover, AI utilization shows a **strong positive relationship** with creativity in English **(r=1.0, p=0.0)**. This means that higher AI use is associated with higher creative output.

It implies that AI use has little to no meaningful effect on students' evaluative thinking in English. As observed, students may use AI to generate ideas and organize their writing. This supports creative expression.

This result is supported by Ali et al. (2024), who found that AI supports creativity by helping students explore, expand, and refine ideas during learning tasks. Similarly, Similarly, Camaso (2024) emphasized that AI is most effective as a learning support rather than a replacement for the learning process. Together, these findings suggest that other factors, such as effective teaching strategies and active student engagement, have a greater influence on students' evaluative thinking than AI use alone.

Moreover, AI utilization showed a very weak and non-significant relationship with problem-solving and reflective thinking in English ($r = -0.08$, $p = 0.27$; $r = -0.14$, $p = 0.065$, respectively). These results indicate that AI has little influence on students' ability to solve problems or engage in reflective thinking. Instead, these skills appear to develop primarily through teacher guidance, regular practice, and active participation in classroom learning. This suggests that while AI can support learning, it cannot replace the experiences that help students build deeper reasoning and reflective thinking skills.

Reflective thinking is another area where AI's influence is limited, with **very weak** and **not significant**

(r=-0.14, p=0.065) correlation.

This implies that AI is not doing much to help students think deeply and that is where traditional learning strategies come in, the ones that encourage deeper thinking. As observed, skills like these mostly developed through good old fashioned teacher guidance, practice and active participation in learning activities.

This actually aligns with what Rohwer and Seufert (2025) found that problem-solving and reflective thinking get better when students actively evaluating and justifying their answers. Also, Musazade et al. (2025), found that teaching methods and student engagement, may play a bigger role in mathematics learning.

Both findings suggest that deeper thinking develops through reasoning, explanation and reflection rather than AI generated responses alone.

In Mathematics, there is also a **very weak negative relationship** between AI use and evaluative thinking **(r= -0.21, p=0.005)**. This means a minimal

This means a minimal influence on students' thinking performance.

This implies that mathematical thinking is shaped more by guided instruction and problem-solving activities than by AI use.

This is supported by Mehrabi, Boshrabadi, and Hosseini (2021), who explained that problem-solving and higher-order thinking develop best through structured tasks and guided learning experiences.

Findings suggest that AI is most effective when it supports rather than replaces students' reasoning and analytical processes. Although a statistically significant relationship was found. All effects are very weak. This means AI has only a minimal role in students' evaluative thinking. Hence, AI is most effective as a supportive learning tool when combined with active learning strategies and effective teacher guidance.

### *Conclusion*

The study concludes that the Grade 7 learners slightly utilized AI both in English and Mathematics. While students' evaluative thinking performance was very satisfactory particularly in English. However, a significant, inverse relationship exists between respondents' AI utilization and their evaluative thinking performance. The more students use AI their evaluative thinking performance decreases.

### *Recommendations*

Based on these findings, the following recommendations are proposed:

1. Teachers are encouraged to design mathematical tasks that explicitly require students to explain their reasoning, illustrate complete step-by-step solutions, and justify their answers. These deliberate learning experiences can help fortify students' evaluative thinking, encouraging them to trust their own cognitive abilities and view AI strictly as a supplemental learning support.
2. Teachers should actively encourage students to tackle reading, analysis, and problem-solving tasks independently whenever appropriate. Limiting immediate AI reliance ensures students get the authentic practice they need to sharpen their critical thinking, strengthen their mathematical reasoning, and develop long-term evaluative skills.
3. Students must be guided to approach AI tools with responsibility and intention. While AI is a powerful learning aid, it should always complement—rather than replace—a student's own critical thought, analysis, and problem-solving efforts. Teachers can cultivate this balance by continuously

emphasizing the value of independent thought and fostering active, hands-on engagement within the classroom.

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