

# Awareness and Utilization of Artificial Intelligence as Basis for the Development of a Lesson Exemplar

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## Abstract

This study examined the awareness and utilization of Artificial Intelligence (AI) among Grade 12 Humanities and Social Sciences students and teachers as basis for developing an AI-integrated lesson exemplar for the Culminating Activity subject. A mixed-methods sequential explanatory design was employed. Quantitative data were gathered through a researcher-made survey questionnaire measuring AI awareness and utilization, while qualitative data were gathered through focus group discussions. The study involved student respondents from four public secondary schools in Puerto Princesa City, Palawan, and teachers handling the Culminating Activity subject. Descriptive statistics, Pearson correlation, independent samples t-test, and thematic analysis were used in analyzing the data. Findings revealed that both students and teachers had a high level of AI awareness, but ethical considerations remained only moderate. Students utilized AI more frequently than teachers, particularly in content creation, language and concept learning, and research. A very strong and significant relationship was found between awareness and utilization among both groups. No significant difference was found in awareness, but a significant difference was found in utilization. Qualitative findings showed that AI was perceived as a support tool for learning and teaching, but respondents emphasized the need for teacher guidance, ethical use, validation of AI-generated outputs, and avoidance of overdependence. Based on these findings, an AI-integrated lesson exemplar was developed using guided, ethical, performance-based, and resource-sensitive instructional activities.

**Keywords:** Artificial Intelligence, AI Utilization, Lesson Exemplar

## Introduction

Artificial Intelligence (AI) has made more a bigger role in the educational practice, since it aids us in content generation, feedback giving, personalisation of learning experience, research support or to improve effectiveness by teaching instructions more efficiently. In the field of education for example, AI tools could help students brainstorm ideas, clarify complex concepts they are reading about, structure written work and access learning resources. For teachers, AI might help with lesson preparation, assessment development and classroom activity design. The potentials align with literature which conceptualizes AI as a tool that serves to improve learning efficiency, engagement and instructional support [1, 2, 3].

Beyond these opportunities, the integration of AI also raises threats to academia in terms of academic integrity, misinformation, over-reliance on generated outputs, privacy issues and less critical thinking

when AI-generated outputs are accepted without validation. International NHS policy on AI in education [4] highlights the need for responsible, ethical and supervised use of AI. Specifically in the Philippine basic education framework, a more recent policy direction acknowledges that foundational guidance for instructional use of AI in schools is necessary [5]. These evolve imply that AI simply cannot provide ease of access and convenience, but focus on the responsible use by the teacher, who should guide students in validating what is being output by the driving engine behind any manifestation of this technology, so that they are both held accountable for their learning outcomes.

In the Humanities and Social Sciences (HUMSS) strand, these concerns are relevant because students are expected to develop research, communication, critical thinking, and performance-based outputs. The Culminating Activity subject requires learners to formulate plans, develop concept papers, receive feedback, revise outputs, and present evidence of learning. AI may support these tasks, but only when its use is structured, guided, and aligned with performance-based learning. Previous studies emphasize the importance of AI literacy, teacher readiness, and pedagogical control in the meaningful use of AI in education [6, 7, 8].

Although studies on AI in education continue to increase, there remains a need to examine how students and teachers in local school contexts understand and use AI tools, particularly in output-based subjects. This study therefore examined the level of awareness and utilization of AI among Grade 12 HUMSS students and teachers and used the findings as basis for developing an AI-integrated lesson exemplar for the Culminating Activity subject.

## Methodology

A mixed-methods, specifically a sequential explanatory design, was used in the study. Using a survey questionnaire, quantitative data were collected to determine the level of awareness and utilization of AI among students and teachers. After the quantitative findings, qualitative data were collected through focus group discussions using a guided questionnaire to explain and deepen the quantitative findings. This design was appropriate because numerical results were supported by participants' experiences, perceptions, and suggestions [9, 10].

The study was conducted in four public secondary schools in Puerto Princesa City, Palawan, Philippines: Irawan National High School, Sicsican National High School, San Jose National High School, and Palawan National School. The student population consisted of 1,034 Grade 12 Humanities and Social Sciences students. To compute the sample size, a Cochran's formula with a finite population correction was used, yielding a required sample of 280 student respondents, proportionately distributed across the four participating schools. A total of 271 valid student responses were obtained, resulting in a 96 percent response rate. The teacher respondents were those handling the HUMSS Culminating Activity subject. A total of eight valid teacher responses were analyzed, representing a 40 percent response rate.

The quantitative instrument consisted of two parts. The first part of the instrument measured the level of AI awareness using 25 multiple-choice items covering familiarity and knowledge, integration in curriculum, ethical considerations, access and resources, and perceived benefits. The second part measured AI utilization using a five-point scale across content creation, language and concept learning, gamification, research, and assessment. The qualitative phase used a semi-structured focus group discussion guide to gather insights on AI use, challenges, ethical concerns, and suggestions for lesson exemplar development.

Frequency, percentage, and weighted mean were used to describe levels of awareness and utilization. Pearson's product-moment correlation was used to assess the relationship between awareness and utilization, and an independent-samples t-test was used to determine significant differences between students and teachers. Qualitative responses were analyzed using thematic analysis, which involved identifying recurring codes, grouping similar ideas, and developing themes aligned with the research questions. Ethical protocols were observed through informed consent, student assent, voluntary participation, confidentiality, and anonymized reporting of responses.

**Results and Discussion**

The results are presented according to the major research questions of the study. The detailed item-level results were summarized into journal-appropriate tables to show the major patterns in AI awareness, AI utilization, relationship between variables, group differences, qualitative themes, and implications for the proposed lesson exemplar.

**Table 1: Summary of the Level of Awareness of Students and Teachers on Artificial Intelligence**

Awareness Sub-Parameter	Students Mean	Students Interpretation	Teachers Mean	Teachers Interpretation
Familiarity and Knowledge	3.64	High Level of Awareness	3.65	High Level of Awareness
Integration in Curriculum	3.63	High Level of Awareness	3.75	High Level of Awareness
Ethical Considerations	3.16	Moderate Level of Awareness	3.12	Moderate Level of Awareness
Access and Resources	3.89	High Level of Awareness	3.63	High Level of Awareness
Perceived Benefits	4.23	Very High Level of Awareness	4.38	Very High Level of Awareness
Overall Mean	3.71	High Level of Awareness	3.70	High Level of Awareness

Table 1 shows that both students and teachers demonstrated a high overall level of awareness of AI. Students obtained an overall mean of 3.71, while teachers obtained an overall mean of 3.70. Both groups showed the highest awareness in perceived benefits, indicating that AI was generally recognized as useful in learning and teaching. However, ethical considerations obtained only moderate ratings for both groups, suggesting that responsible AI use, accuracy checking, academic integrity, and limitations of AI still require greater attention.

**Table 2: Summary of the Level of Utilization of Students and Teachers on Artificial Intelligence**

Utilization Sub-Parameter	Students Mean	Students Interpretation	Teachers Mean	Teachers Interpretation
Content Creation	3.81	Frequently Utilized	2.93	Occasionally Utilized
Language and Concept Learning	3.46	Frequently Utilized	2.83	Occasionally Utilized
Gamification	3.20	Occasionally Utilized	2.68	Occasionally Utilized
Research	3.61	Frequently Utilized	2.95	Occasionally Utilized
Assessment	3.28	Occasionally Utilized	2.40	Rarely Utilized
Overall Mean	3.47	Frequently Utilized	2.76	Occasionally Utilized

Table 2 indicates that students utilized AI more frequently than teachers. Students frequently used AI for content creation, language and concept learning, and research, while their use of AI for gamification and assessment remained occasional. Teachers, on the other hand, reported occasional utilization in most areas and rare utilization in assessment. These findings suggest that awareness alone does not ensure classroom integration; actual utilization appears to be influenced by readiness, confidence, access, institutional guidance, and clarity of ethical boundaries. Similar concerns on teacher readiness and structured support have been reported in related studies [11, 12].

**Table 3: Relationship Between the Respondents’ Level of Awareness and Level of Utilization of Artificial Intelligence**

Respondents	Correlation	P-Value	Interpretation
Student Respondents	0.81	0.0006	Significant
Teacher Respondents	0.88	0.0013	Significant

As shown in Table 3, a very strong and significant relationship was found between awareness and utilization among both students and teachers. This means that respondents with higher awareness of AI tended to report higher utilization of AI tools. The result supports the idea that knowledge, familiarity, and perceived usefulness contribute to actual adoption and use of AI in educational contexts [13, 14].

**Table 4: Difference Between Students and Teachers in Their Level of Awareness and Level of Utilization of Artificial Intelligence**

Variable	Group	Mean	P-Value	Interpretation
Level Awareness	of Students	3.71	0.093	Not Significant
Level Awareness	of Teachers	3.70	0.093	Not Significant
Level Utilization	of Students	3.47	0.004	Significant
Level Utilization	of Teachers	2.76	0.004	Significant

Table 4 shows that there was no significant difference between students and teachers in their level of awareness, as indicated by a p-value of 0.093. This suggests that both groups had comparable understanding of AI. However, a significant difference was found in utilization, with students reporting higher use of AI than teachers. The result implies that students may be more active users of AI in academic tasks, while teachers may be more cautious and selective in integrating AI into instruction. This pattern supports the need for professional support and structured guidelines so that teachers can use AI more confidently and responsibly.

**Table 5: Summary of Qualitative Themes from Focus Group Discussions**

Group	Themes	Key Meaning
Students	AI as an Academic Support Tool	AI was used for grammar correction, writing improvement, concept clarification, and learning support.
Students	AI for Idea Generation and Creativity	AI helped learners expand, organize, and refine ideas for academic and creative outputs.
Students	Controlled and Purposeful Use of AI	AI was viewed as useful only when used with moderation and clear purpose.
Students	Concerns on Accuracy, Dependence, and Academic Integrity	Students recognized risks such as incorrect information, copying, and overdependence.

<b>Group</b>	<b>Themes</b>	<b>Key Meaning</b>
Students	Teacher-Guided and Experiential AI Learning	Students preferred teacher supervision, step-by-step guidance, and hands-on practice when using AI.
Students	AI for Skill Development	AI was perceived to support communication, writing, and research skills.
Teachers	AI as a Supportive Instructional Tool	Teachers used AI as support for lesson planning, rubrics, activity design, and classroom guidance.
Teachers	AI as a Tool for Enhancing Student Learning and Skills	Teachers observed that AI can support writing, creativity, communication, research, and digital literacy.
Teachers	AI as a Time-Saving and Efficiency Tool	AI helped reduce workload and speed up preparation of outputs such as letters, rubrics, and contextual materials.
Teachers	Risks and Challenges in AI Utilization	Teachers raised concerns on dependency, misinformation, copying, and reduced comprehension.
Teachers	Necessity of Guidelines, Supervision, and Ethical Use	Teachers emphasized clear policies, supervision, usage limits, and ethical practices.
Teachers	AI as a Tool Requiring Critical Thinking and Validation	AI outputs should be checked, verified, and compared with reliable sources before use.

The qualitative findings explain the quantitative results. Students' frequent use of AI was reflected in themes related to academic support, idea generation, research, and skill development. At the same time, students and teachers recognized that AI use should be controlled, guided, and validated. These findings clarify why ethical awareness remained moderate despite high general awareness. They also explain why teachers' use was lower than students' use: teachers recognized AI's benefits but remained cautious due to concerns about accuracy, overreliance, plagiarism, and unclear classroom guidelines.

The findings are consistent with studies emphasizing that AI can support learning outcomes and engagement when integrated with sound pedagogy, but may also create risks when learners rely on it

without critical evaluation [8, 15, 16]. Therefore, the integration of AI in the Culminating Activity subject requires a human-centered approach in which learners first produce their own outputs, use AI only for support or refinement, validate AI responses through reliable references and teacher guidance, and disclose AI use when applicable.

**Proposed AI-Integrated Lesson Exemplar**

Based on the quantitative and qualitative findings, a proposed AI-integrated lesson exemplar was developed for Grade 12 HUMSS Culminating Activity. The uploaded lesson exemplar consisted of nine weekly Daily Lesson Log files covering the second semester, with four one-hour sessions per week. It addressed competencies on formulating a plan, writing a concept paper, generating comments and feedback, examining preparedness and completeness of outputs, and showcasing understanding through an exhibition. The full Daily Lesson Logs were not inserted into the article to maintain journal conciseness; instead, their design features are summarized below.

**Table 6: Design Features of the Proposed AI-Integrated Lesson Exemplar**

<b>Finding or Need</b>	<b>Design Feature</b>	<b>Application in the Lesson Exemplar</b>
Moderate ethical awareness	Ethical AI reminders	Activities include reminders on academic honesty, responsible use, and avoidance of direct copying.
Students use AI more frequently than teachers	Teacher-guided AI use	AI-supported tasks are framed by teacher instructions, rubrics, checklists, and validation steps.
Concerns on accuracy and misinformation	Validation of AI-generated outputs	Learners compare AI responses with modules, textbooks, rubrics, samples, and teacher feedback.
Risk of overdependence	Human-first before AI approach	Learners prepare initial answers or drafts before using AI for checking, refinement, or feedback.
Low utilization in gamification and assessment	Selected AI-supported gamification and assessment	AI is integrated only in selected tasks such as guided quizzes, self-checking, and output improvement.
Need for realistic classroom implementation	Optional and resource-sensitive AI integration	Non-AI alternatives and teacher-prepared AI-generated materials are provided when devices or internet access are limited.

Finding or Need	Design Feature	Application in the Lesson Exemplar
Culminating Activity is performance-based	Performance-based assessment	Learners are assessed through concept papers, portfolios, presentations, reflections, peer feedback, and rubrics.

The lesson exemplar was designed not to make every activity AI-dependent. Instead, AI was positioned as optional, guided, and replaceable with teacher-prepared materials when resources are limited. This design directly responds to the findings that ethical awareness requires improvement, teachers need clearer implementation support, and students need guidance to avoid overdependence while still benefiting from AI-assisted learning.

### Conclusion

The study revealed that both students and teachers had high awareness of AI, especially regarding its perceived benefits, access, and curriculum relevance. But despite of high awareness, the ethical considerations remained at only a moderate level, indicating a need for stronger emphasis on responsible and critical AI used for both teachers and students. Students used AI more frequently than teachers, particularly for content creation, research, and language and concept learning, while teachers used it more selectively in instructional tasks.

There was a strong and significant relationship between awareness and utilization, indicating that increased awareness is associated with greater use of AI tools. However, the significant difference in utilization between students and teachers shows that awareness alone is not enough; there should be a more comprehensive training, institutional support, ethical guidelines, and classroom-ready examples are also needed. The qualitative findings further emphasize that AI should function as a support tool rather than a replacement for teacher guidance, student thinking, and authentic learning.

The proposed AI-integrated lesson exemplar, therefore, serves as a findings-based instructional output that promotes a teacher-guided, ethics-bound, validated, and performance-based integration of AI in the Culminating Activity subject. Future validation may be conducted to determine its effectiveness in improving learner engagement, critical thinking, output quality, and responsible AI use. Also, this research can serve as a reference guide for other subjects that are suitable for their lessons.

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