

Article

## AI literacy: teaching students about ai and its ethical implications on academic writing in a second language

Alfabetización en IA: enseñar a los estudiantes sobre la IA y sus implicaciones éticas en la redacción académica en una segunda lengua.



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### Abstract

The following research work focused on the examination of Artificial Intelligence use in the academic work of students learning Language and Literature in a second language context. In this quasi-experimental design, 59 students from the ANAN Bilingual School of 10 and 12 grades were tested for the levels of their comprehension and ethical application of AI tools across three phases: pre-intervention, AI Literacy Intervention, and post-interventional reflection. The intervention included workshops on prompt engineering, ethics of using AI, and responsible integration of AI tools into academic writing. The data from the surveys, discussions,

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and practical assignments showed that students had differentiated opinions on the role of AI in doing academic work.

**Keywords:** AI Literacy, Ethics, Academic Writing.

## Resumen

Esta investigación exploró el uso de la Inteligencia Artificial en el trabajo académico de estudiantes que cursan Lengua y Literatura en un contexto de segunda lengua. Utilizando un diseño cuasi-experimental, el estudio involucró a 59 estudiantes de los grados 10.<sup>º</sup> y 12.<sup>º</sup> de la Escuela Bilingüe ANAN. La investigación evaluó la comprensión y la aplicación ética de herramientas de IA por parte de los estudiantes a lo largo de tres fases: preintervención, intervención sobre alfabetización en IA y reflexión posterior a la intervención. La intervención incluyó talleres sobre ingeniería de prompts, consideraciones éticas en el uso de la IA e integración responsable de herramientas de IA en la escritura académica. Los datos recopilados mediante encuestas, discusiones grupales y tareas prácticas revelaron perspectivas diversas entre los estudiantes sobre el papel de la IA en las tareas académicas.

**Palabras clave:** Alfabetización en IA, Ética, Redacción académica

## Introduction

It is universally known that the teaching-learning process is a highly cognitively demanding task in which teachers must consider different factors (Torres, 2023). Additionally, the fast development of technology and its wide applications to education adds extra complexity to the teaching-learning process. In this sense and considering the recent outbreak of Artificial Intelligence (AI) applications in our day-to-day life, it is essential for teachers and learners to become AI literate (Hollands & Breazeal, 2024). This means that during the learning process, teachers and learners must understand the role of AI in the classroom and evaluate its pros and cons to use it constructively.

In this order of ideas, Casal-Otero et al., (2023) claims that the education system needs to prepare students to live in a society where they must interact with AI. Therefore, AI literacy is an essential element worth incorporating into the learning experience. Even though AI tools such as ChatGPT and other generative AI in

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education, or educative AI, can provide students with an interactive learning experience, it is crucial to approach its applications in academic practices responsibly and ethically (Su & Yang, 2023). This last statement is pertinent to avoid students' malpractices, plagiarism, and low cognitively demanding tasks that result in ineffective learning experiences.

In recent years, and after the AI outbreak in education, international organizations such as UNESCO (2021) declared that countries are considering the relevance of integrating AI literacy in schools. Similarly, May (2023) depicted that by blending AI tools into the curriculum, institutions aim to empower students to use these technologies to their benefit, focusing on how they can be harnessed to improve the products of the assignments. For this reason, AI must be contemplated as a digital literacy component in the curriculum, merging the AI tools into existing competencies in subjects such as language and mathematics.

Nevertheless, after analyzing the multiple benefits of incorporating AI across the curriculum, it is essential to acknowledge that exposing learners to AI might become a valuable experience. However, this exposure alone does not give learners the necessary knowledge and skills to comprehend, employ, and ethically assess AI technologies. In this sense, as teachers and instructors, it is imperative to provide learners with acquaintance directed to an adequate use of AI. Instruct them about the benefits of the ethical uses these tools provide, the purpose of their use, the results or products learners want to obtain, and most importantly, it is the product of their own production or copying and pasting of someone else's ideas.

The previous statement emphasizes the importance of integrating AI literacy into the curriculum (Relmasira et al., 2023). Especially when instructing critical subjects such as Language and Literature, a subject in which learners must apply critical thinking skills to analyze literature and produce different types of text and writing styles. Consequently, integrating AI tools can spoil the learning process.

AI literacy can be defined as the capacity to engage with a tool to solve problems in a variety of contexts without trespassing its ethical applications. Even though this does not demand extensive knowledge or foundations of AI concepts, it should require the development of a solid foundation of AI limitations, applications, and ethical concerns obtained with its uses (Wang & Lester, 2023).

Consequently, learners do not require a vast understanding of the AI technical basis, but a reliable and constant reminder of the purposes of their benefits and the consequences of its misapplication.

According to the statements previously depicted, the proposed research aims to evaluate and enhance AI literacy in High School students aged between 15 and 18 years old, focusing on the use of AI integration in students' learning process of a subject taught in a second language. This research is based on three primary objectives:

- To assess the impact of AI literacy lessons on learners between 15 and 18 years and their acknowledgment of its ethical applications in Language and Literature subjects.

For this purpose, the following specific objectives:

- To integrate AI literacy lessons into the curriculum, blending them with the current subject content and evaluating its impact on AI literacy on high school students.
- To examine the effectiveness of the AI literacy lessons' impact on learners and their ethical behavior afterward through a survey.

## **Materials and methods**

For this study a group of 59 students from 10th and 12th grade from ANAN Bilingual High School were chosen. The chosen participants have different levels of proficiency in English, which is taught as a second language, to ensure diversity within the sample. This approach minimizes the possible biases that could appear in sampling methods based on proficiency levels, as well as ensures that results have a broader applicability.

The research employed a quasi-experimental design, consisting of 3 phases. The first "pre-interventional" phase consisted of an initial exploration of students' knowledge and preconceptions on AI and its use. This was done in the classroom through a teacher lead round table, where students discussed how they have been using AI and with what purposes; along with the topic of the ethics of using AI. Following this discussion, as a part of the initial phase, students were instructed to create a product using AI; 10th graders were asked to write a monologue and 12th graders were asked to create a college

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application essay that has the same characteristics as one produced beforehand by them.

In the second phase an “AI Literacy Intervention” was conducted on both groups. This consisted of a workshop directed at the targeted students for this study, lasting 4 sessions of 40 minutes each aimed at providing the students with a comprehensive understanding of the use of AI technology, the ethical component of AI, how to apply it when learning a second language and critical evaluation of AI-generated content.

The “Post-Interventional Reflection Phase” was the last part of this study, which included a short assessment of students’ new understanding of AI use; and a teacher lead discussion for students to reflect on the new knowledge acquired. Through this discussion students analyzed the ethical implications of using AI for their academic work, reflecting on their newly acquired knowledge. To complete this phase, a survey was carried out to the students who participated. This was designed to generate comprehensive responses comparing students’ prior knowledge and their transformed knowledge and new perspectives on AI Literacy.

The survey was, therefore, useful in the systematic documentation of the cognitive shifts and attitudinal changes made possible by the treatment, which allowed for the evaluation of that treatment’s success in boosting AI ‘literacy’ among high school students.

### **Pre- interventional, AI Literacy Intervention, and Post-Interventional Reflection phases for 10th graders Language and Literature Lessons.**

To the following paper and the reach of its aim, three different phases were planned and integrated into the regular curriculum of the subject of Language and Literature taught to learners of the tenth year of High School Education. During the first phase (pre-interventional), learners used AI to generate a monologue according to the teacher’s instructions. Afterward, during the AI Literacy Interventions Phase, students received AI literacy lessons, including prompts engineering and AI ethical applications and uses. Thus, the lesson plans designed for this aim blended the curricular unit content and AI literacy activities and exercises. Ultimately, a Post-Interventional Reflection Phase was conducted through a survey designed to evaluate the contrast between students’ prior knowledge and their acknowledgment of new perspectives on AI literacy and ethical implementations.

As part of the tenth-year curriculum blending, in the pre-interventional phase lesson, learners developed skills related to monologue writing styles and performance. During the first two periods of class, they reinforced basic concepts, watched informative videos, and focused on relevant monologue elements such as mood, actions, tone, and the message to convey, among others. After that, they watched and analyzed videos in which different styles of monologues' performances were shown. Finally, learners discussed the concepts previously introduced.

Subsequently, two more periods of the class were devoted to letting students choose an AI tool (e.g., ChatGPT, Claude, etc.) to generate a monologue on a topic of their preference. The main learning objective of the phase is to let students evaluate how to effectively incorporate AI tools into their monologue writing process by writing prompts for AI based on their monologues' style.

As it is depicted in the learning objective, even when AI was allowed to be used, learners had to incorporate the writing process steps into their tasks. After this assignment, students had to share evidence of their prompt design and results generated by the chosen AI. Ultimately, students analyzed the strengths and weaknesses of the generated content. This analysis concentrates on the distinction and discrepancy between the results learners wanted to obtain from AI and the results received by it. To finalize the pre-interventional phase, learners held a discussion about what steps of the writing process learners should use AI. As part of their active involvement in their learning process, learners evaluate their work by creating prompts for outlining and revising their monologues. Also, students guided themselves throughout the process employing a self-assessment checklist delivered by the teacher.

For the most part, the aim of the pre-intervention phase is to set a contrast in which learners might compare their background knowledge in the technical and ethical applications of AI versus the technical and ethical applications of AI after receiving AI literacy lessons.

**Table 1**

## Pre-interventional phase lesson plan

Week 6 Plan	<b>Learning objective:</b> Students will evaluate how to effectively incorporate AI tools into their monologue writing process by writing prompts for AI based on their monologues' style.
Unit 1	
Class hour(s): 4	

**Warm-up:**

Class discussion: How can we use AI for writing assignments?

**Main activities:**

- Monologue reinforcement

[https://drive.google.com/file/d/1463cXeJA6HkarcL8e\\_1HcTBZcCIBUlFZ/view?usp=drive\\_link](https://drive.google.com/file/d/1463cXeJA6HkarcL8e_1HcTBZcCIBUlFZ/view?usp=drive_link)

Edward Vera. (2015, July 30). *What is a monologue?* [Video]. YouTube. <https://www.youtube.com/watch?v=OfIgqK0FGMo>

- Watch the videos and brainstorm ideas about the elements a monologue should have
  - Pay attention to the actions, focus, mood, and other elements of drama
  - Does the monologue try to convey a message? What is it?
  - What's the actor doing? How does he interact with the audience? Why is he/she doing this?

Budding Entertainment. (2020, May 11). *Runaway Superstar ~ Comedy/Dramatic monologue for kids & teenagers by Kirsty Budding* [Video]. YouTube. <https://www.youtube.com/watch?v=CeJiEor7YsI>

WESTENDWENDIES. (2011, December 8). *Monologues for kids by Ruth Mae Roddy* [Video]. YouTube. <https://www.youtube.com/watch?v=eYCmWdUjAx8>

- AI tools to write a monologue
  - Choose an AI tool (e.g., ChatGPT, Claude, etc.) to generate a monologue on the same topic you want to talk about in your self-written monologues.
  - Upload to classroom: prompt, the AI-generated monologue, a short analysis of the strengths and weaknesses of the generated content
  - Discussion: In what parts of the writing process should we use AI?
- Practice activity:
  - Students create prompts for outlining, and revising their monologue
  - They use an AI tool to generate responses for each prompt
  - Students save evidence of their prompts and the AI-generated results

Assessment checklist: <https://docs.google.com/document/d/1iiMhZjmH-ghZ8uon2DVwev7kBlJCpo7-f7wvVmeVQc4/edit?usp=sharing>

**Closure (formative assessment):**

- Quickwrite: How did AI help you? Would you change something based on the AI's responses? Explain your answer

*Note. Content generated by the author*

As depicted in the previous statement, the aim of both phases is to set a distinction between the uses learners apply regarding AI and the ethical and even the interference in their learning process. Hetler (2023) explained that bots (e.g. ChatGPT) can reply to broad and

specific questions. AI can generate answers that educators consider extensive enough to receive a good grade. Nevertheless, after additional examination, it was concluded that the information was inaccurate. This claim illustrates how the use of artificial intelligence, and especially the unaware use of it, might carry a few disadvantages.

For this purpose, during the Literacy Intervention Phase, learners are oriented to evaluate how incorporating AI tools into their monologue writing process can help them improve their writing skills without interfering with their learning process. For instance, the class periods are devoted to incorporating AI tools into task performance according to ethical purposes, applying a non-intrusive methodology that respects the learning process.

In this sense, as part of the warm-up activity, the class held a discussion to reflect on the future uses of the chosen AI in learners' assignments. Questions such as: *"Is it ethical to use AI for writing assignments? What would be the correct/ethical use of AI in writing assignments? What wouldn't be an ethical use of AI in writing assignments?"* were formulated to evaluate the applications required and ethically applicable to the different stages of their work. Regardless, to illustrate and reinforce in a specific form the acceptable and non-acceptable applications of AI during the task assigned (writing a monologue), it was presented with a graphic organizer that students used as a support to guide them throughout the decision of whether they could apply or not AI (Appendix 1).

Afterward, the main core of the AI Literacy lesson was delivered. As Shah, P. (2023), claimed: To successfully employ AI systems, teachers and learners need to learn how to formulate effective prompts that generate the content they desire. In this order of ideas, an interactive presentation showed to students the main aspects of prompt engineering (Anexo 2). In this presentation, learners reinforced central ideas such as: *"How to use AI and its ethical considerations, Ethical Aspects of Using AI, What is a Prompt?, How Prompts Work, and How to Craft Effective AI Prompts"*.

However, it was imperative to structure the previous content in a simplified manner. For this, some slides described the step-by-step process for designing a prompt: Choose one goal or task, identify audience attributes and needs, use clear and precise language, and provide examples of desired outputs. Learners took notes and differentiated the stages of the writing process, and other parts of their task, in which AI tools are ethically applicable and in which

ones are not. Also, they drew a brainstorming map sketching the writing process and the steps of it in which they will apply AI tools.

Subsequently, after identifying the stages of the assignment in which AI was ethically applicable, learners proceeded to write their monologues, incorporating the writing process steps (pre-writing, drafting, revising, editing, publishing). As part of the transparency and evaluation of the use of AI, students shared all the prompts designed to generate responses from the AI chosen. Similarly, all the processes and tasks performed by learners were documented digitally to record the procedures developed during the assignment.

To conclude, as a final assessment of the process and all the lessons, a final survey was taken to the class (Post-Interventional Reflection Phase), evaluating the knowledge acquired and how the AI Literacy lessons change or not their vision of AI tools and their ethical applications in Language and Literature class. Furthermore, comparing and contrasting background knowledge and previous uses to the abilities and distinctions recently acquired as stated in earlier learning objectives.

**Table 2** *AI Literacy Intervention lesson plan*

Week 6 Plan	<b>Learning objective:</b> Students will evaluate how incorporating AI tools into their monologue writing process can help them to improve their writing skills without interfering in their learning process.
Unit 1	
Class hour(s): 4	
<b>Warm-up:</b>	
	<ul style="list-style-type: none"><li>Discussion: Is it ethical to use AI for writing assignments? What would be the correct/ethical use of AI in writing assignments? What wouldn't be an ethical use of AI in writing assignments?</li></ul>
<b>Learning activities</b>	
	<ul style="list-style-type: none"><li>Review the poster: Should I use AI? generated by the author (Lorena Torres) Adapted from: Quick Guide Graphic for Students: Should I Use AI? (Kosta, 2023) <a href="https://drive.google.com/file/d/1ERbgivtxZsRDWtq5wjx_XDKk1PT2DkHY/view?usp=drive_link">https://drive.google.com/file/d/1ERbgivtxZsRDWtq5wjx_XDKk1PT2DkHY/view?usp=drive_link</a></li><li>How to create a prompt for AI generated by the author (Ricardo Jordán) [Diapositivas]. Gamma.app. <a href="https://gamma.app/docs/How-to-use-to-AI-and-its-ethical-considerations-nywrn405dqa4smj?mode=doc">https://gamma.app/docs/How-to-use-to-AI-and-its-ethical-considerations-nywrn405dqa4smj?mode=doc</a></li><li>Draw a map sketching the writing process and the steps of it in which you'll apply AI tools, add the AI tool's name and the prompts on the same topic they want to talk about in their monologues</li><li>Upload to classroom: prompt, the AI-generated ideas, all evidences of AI use in the writing process, and the final monologue (written by you)</li><li>In which parts of the writing process should we use AI?</li></ul>

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**Closure (formative assessment):**

- Final survey: <https://forms.gle/djsx8iiDLi7ciMv49>

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*Note. Content generated by the author*

### **Pre-interventional and AI Literacy Intervention phases for 12th graders Language and Literature Lessons**

As part of this research three phases were planned and integrated into the regular curriculum of the subject of Language and Literature taught to students of 12th grade. This was integrated at the end of the first unit, where students reviewed college application essays, as writing essays exercises and strengthened communication capacities, critical thinking, and writing skills; however, it can be one of the more arduous academic processes. In response students may write essays triggered by AI-generated writing prompts, examine alternative evaluations modeled by AI, and redraft their essays based on those models (World English Journal & Aljuaid, 2024).

Therefore, students were subjects of a structured three phase plan to delve into the effectiveness of AI tools when used for essay writing processes. Every phase was designed to explore, implement and evaluate the utilization of AI during academic writing tasks.

This process began in the “pre-interventional” phase, where students present their existing knowledge about the use of AI for the process of writing an academic essay. This class discussion was conducted with the objective of exploring the understanding that students had regarding the integration of AI for writing processes. The discussion delved into the preconceptions about AI, how students use AI for their academic work and potential misconceptions regarding the use of AI for essay writing.

During this prior knowledge exploration, students were asked “How can we use AI for essays?”, therefore they were prompted to share their previous experiences using AI tools for their academic work, especially for an essay writing process. Additionally, students were prompted to share questions and stances on the ethical side of using AI, thus conveying a deeper analysis of the AI use. This approach allowed for a registry of students’ position regarding AI use and their knowledge on how to integrate AI to their academic life.

The discussion showed that students find AI tools helpful when developing academic work. However, it also showed that students tend to make simple prompts including no detail of what they need

which leads to AI responses that can be vague or far from what they need, impacting students' work in a negative way. On the other hand, regarding the ethical side of using AI, the discussion showed that some students see AI tools as a way of doing the work without much effort, whereas others view AI as a way of corroborating information, or aid to their processes of academic work. Consequently, the dialogue reveals that students have a basic understanding of AI tools and their use and application.

Subsequently, students were asked to choose an AI tool (e.g., ChatGPT, Claude, etc.) in order to generate a college application essay that is as similar as possible as the one they wrote for their unit evaluation. Once they provided the chosen AI tool with the prompt they created and got the result, students were asked to compile this information on a document and write a short analysis of strengths and weaknesses of the generated content, keeping in mind the essay done by them.

This was done with the objective of students being able to critically evaluate the AI tool chosen, based on the result obtained by comparing it to the college application essay they have written; enabling them to identify key points in their own writing that AI tools cannot generate as easily (e.g. voice, authenticity and narrative).

Analysis done by the students showed that AI generated essays mostly lacked the personal narrative component of a college essay, which can only be done by each student individually. Moreover, analysis showed that AI tools can be useful due to their practicality and capability to rapidly produce content that can be customizable by every user. On the contrary, analysis revealed that while the content is customizable, human creativity is lost when using 100% of the AI generated content, therefore lacking authenticity and unique perspectives that a college application essay must have. Lastly, this showed that while the generated content had an impeccable structure, other qualities of the desired result depend completely on the prompt given to the AI.

To close the “pre-interventional” phase, students discussed what steps of the writing process should they use Ai tools. This discussion was done aiming at a deeper reflection from the students based on the results obtained, while applying what was learned through the unit.

Students conclude that AI could be used at key moments of the writing process, such as the outlining, stating that as part of their pre-

writing, before they create an outline, they need to at least have a clear idea of what they want their essay to look like and therefore have a brainstorm with all their ideas. Meaning that they'll give the AI tool they choose all their ideas just for organizational and structure purposes, in this way having a response that suits their needs. Furthermore, students determined that AI could also be useful in the revising part of the writing process, as the essay has already been written by them at this point, they could use AI to check important points such as structure, grammar and punctuation. Which can be easily done by AI, without taking away the personal touch they have put into their essays.

**Table 3.** AI Literacy Pre-Intervention lesson plan 12th grade

Week 5 Plan	<b>Learning objective:</b> Students will evaluate how to effectively incorporate AI tools into their essay writing process by writing prompts for AI based on their essays.
Unit: 1	
Class hour(s): 4	<b>Warm-up:</b> Class discussion: How can we use AI for essays? <b>Main activities:</b> 1. Parts of an essay and their function. 2. Choose an AI tool (e.g., ChatGPT, Claude, etc.) to generate an essay on the same topic they talked about in their college essay. 2. Upload to classroom: prompt, the AI-generated essay, a short analysis of the strengths and weaknesses of the generated content 3. Discussion: In what parts of the writing process should we use AI? <b>Closure (formative assessment):</b> Quickwrite: How did AI help you? Would you change something based on the AI's responses? Explain your answer

*Note. Content generated by the author*

Once students had reflected on the use of AI and in which parts of their writing process they could use it, the “Interventional Phase” started. This phase consisted of a comprehensive AI literacy workshop with set objectives on practical applications of AI and its ethical implications in an academic context. The main goal was to develop students’ capability to incorporate AI tools into their writing process and academic work in general, emphasizing its correct and ethical use, through the creation of detailed prompts for better results.

The workshop began by having a class discussion to examine what the applications and ethical implications, according to the students, when using AI to support their academic work. This small discussion was designed to introduce the students to the topic of the class and to have them explore their existing perspectives on the matter. Following this discussion, students were presented with an infographic that presented a decision-making model on using AI in the class; this provided students with a clear guidance on determining when they should implement AI tools into their work.

Subsequently, students were instructed with a prompt engineering presentation, as according to Bansal (2024) “A well-crafted prompt can significantly enhance the accuracy and relevance of the generated responses. By providing clear and specific instructions, you can guide the model towards the desired outcome.” Consequently, we can affirm that the results obtained from AI tools heavily rely on the quality of the prompt it's given, therefore in order to properly and effectively incorporate AI into their academic work students need to have knowledge on prompt engineering. This presentation presented key information on previously discussed topics such as: *Ethical aspects of using AI, what is a prompt? How do they work? And how to craft effective prompts*. Thus, using the student's previous reflections on the topic to deepen their knowledge.

The content presented to the students was tailored to their level, which is why information was presented in a concise and direct manner. This means that slides present information in a brief way that was accompanied by the teacher's explanation to ensure understanding, additionally some slides present a step-by-step process for the student to have a clear procedure to follow once they start to incorporate AI into their work. Students were prompted to take notes on key points and processes included in the presentation and were provided with the presentation.

Once this step was completed, students were presented with a practical exercise where they were instructed to select from a range of AI tools, such as but not limited to Chat GPT, Gemini, Claude. The selection process and criteria were deliberately left open to simulate a real world decision-making scenario in which students are faced with the opportunity to use AI and they need to choose the most suitable. Following the choosing of the AI tool, students were instructed to create prompts with specific details and following the guidelines given in class to create an outline for their essay based on their brainstorm. And then students needed to create a prompt for the AI to revise the final version of their essay, in this specific part

students were required to have the AI go as far as revise and point out their mistakes, but not to actually correct their mistakes; this was done with the objective that students are made aware of their own mistakes and reflect on how to correct them, rather than just having the AI do it for them.

To finalize the process of AI Literacy workshop, the “Post-Interventional Reflection Phase” was conducted, where students filled out a survey to inquire on the comprehension of the knowledge acquired throughout this process. Moreover, the survey also looked into the perspective shift or lack thereof, of students about the use of AI when carrying out academic work. This assessment tool enabled quantitative and qualitative evaluation of the intervention's effectiveness in developing both technical competency and ethical awareness among participants.

**Table 4.** AI Literacy Intervention lesson plan 12th grade

Week 5 Plan Unit: 1 Class hour(s): 4	<p><b>Learning objective:</b> Students will analyze ethical implications and appropriate applications of AI tools in academic work by evaluating decision-making frameworks and creating specific prompts.</p> <p><b>Warm-up:</b></p> <p>Class discussion: How can AI be helpful in your academic work? What ethical implications does it have?</p> <p><b>Main activities:</b></p> <p>1. Review the poster: Should I use AI?</p> <p>Torres, L. (2023.). <i>Should I use AI?</i> [PDF]. <a href="https://drive.google.com/file/d/1ERbgivtxZsRDWtq5wjj_XDKk1PT2DkHY/view?usp=drive_link">https://drive.google.com/file/d/1ERbgivtxZsRDWtq5wjj_XDKk1PT2DkHY/view?usp=drive_link</a></p> <p>Adapted from: Quick Guide Graphic for Students: Should I Use AI? (Kosta, 2023)</p> <p>2. How to create a prompt for AI. Content generated by the author Ricardo Jordán [Slides]. Gamma.app. <a href="https://gamma.app/docs/How-to-use-to-AI-and-its-ethical-considerations-nywrrn405dqa4smj?mode=doc">https://gamma.app/docs/How-to-use-to-AI-and-its-ethical-considerations-nywrrn405dqa4smj?mode=doc</a></p> <p>5. Practice activity:</p> <ul style="list-style-type: none"><li>• Use AI for outlining, and revising their essay</li><li>• Select an AI tool</li><li>• Create a suitable prompt applying what was reviewed in class</li><li>• Students save evidence of their prompts and the AI-generated results and upload them to classroom</li></ul> <p><b>Closure (formative assessment):</b></p> <p>Final survey: <a href="https://forms.gle/djsx8iiDLi7ciMv49">https://forms.gle/djsx8iiDLi7ciMv49</a></p>
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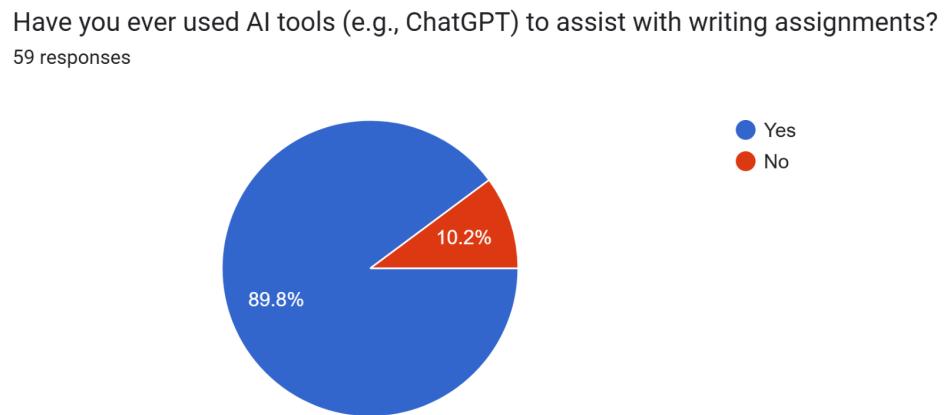
## Results

The conclusions of this research will be depicted according to the objectives established in the introductory section of this paper. Firstly, by illustrating the responses given by learners to each one of the questions formulated in the final survey individually. Secondly, the findings will be grouped into main areas to analyze and visualize the results globally. Ultimately, unified final thoughts summarize the findings of the paper.

As stated above, the following analysis examines the responses of 10th and 12th-grade students (aged 15-18) regarding the impact of AI literacy lessons on their understanding of AI applications and ethical considerations in Language and Literature subjects. Regarding question 1:

Have you ever used AI tools (e.g., ChatGPT) to assist with writing assignments?

**Figure 1.** Results of the final survey



A significant majority of students reported using AI tools for assignments, demonstrating an extended and growing integration of AI in educational practices, in this case, in writing assignments. Which leads us to the next question: If yes, how often do you use AI tools?

2. If yes, how often do you use AI tools?

According to the compound of responses gathered, learners admitted to occasionally using an AI tool to perform a written task, about 55%. For some students, 35% frequently apply AI tools when working on written tasks. Finally, just 10% of learners rarely make

use of these tools. However, the students who use AI occasionally suggested they consider it as a supplementary tool rather than a constant resource, consulting and brainstorming ideas, checking their work, complementing information, investigating some data, asking for help, and checking understanding. Essentially, learners seek AI assistance when encountering a highly demanding task.

Considering the previous responses and the uses that learners have been making of AI; the following question was formulated:

3. What do you believe are the ethical concerns of using AI to generate written content for school assignments?

To visualize and analyze learners' responses, these were grouped as follows:

**Plagiarism:** 70% of students highlighted the risk of copying AI-generated content directly without attribution. Consider citing a respectful way of using others' work. Also, plagiarism might affect their grades if detectors confirm it.

**Over-reliance on AI:** 30% of learners are worried about their critical thinking and writing skills. If AI tools generate all their writing content, the skills and abilities involved during the learning process will be affected, limiting their learning process.

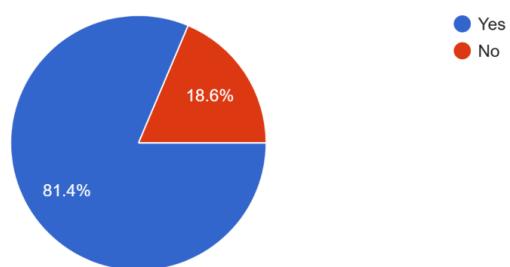
The previous views show that learners have a fine understanding of AI's limitations and potential misuse, emphasizing the need for lessons on responsible use of it.

4. Do you think AI-generated content should be cited in student assignments? Why or why not?

**Figure 2** Results of the final survey

Do you think AI-generated content should be cited in student assignments?

59 responses



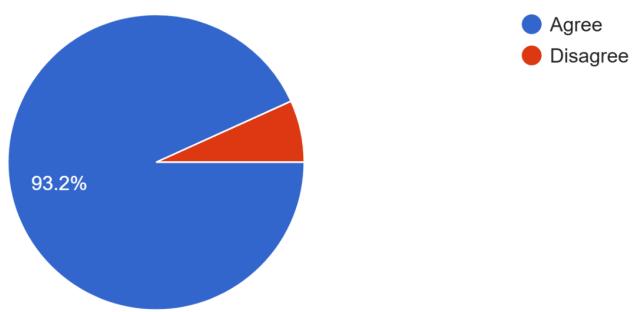
As shown in the previous chart, learners' awareness of the importance of citing others' work is significantly high. 81.4% of the survey responses consider citing the AI-generated content as accurate practice. On the other hand, 18.6% of students don't consider it necessary to do it. However, as part of the analysis of their point of view, students were asked to justify their responses, resulting in:

Citing AI tools ensures transparency and academic honesty (60%), inquiring that the content generated comes from existing websites and the information given belongs to other authors. Also, recognizes AI as a tool contributing to the work (40%), emphasizing that this content is not their ideas, and this kind of academic honesty helps to differentiate between original and AI-generated. In this sense, the high percentage of students advocating for citation highlights a shift toward recognizing AI as a valid and necessary academic resource.

5. Should teachers allow students to use AI tools during the writing process? In which parts of the writing process should we use AI?

**Figure 3.** Results of the final survey

Should teachers allow students to use AI tools during the writing process?  
59 responses

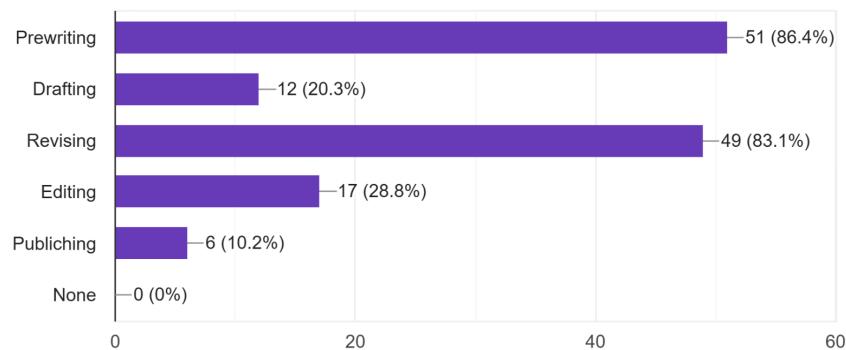


As shown in the previous chart, 93% of learners agreed that teachers must allow the use of AI in writing assignments. Opposite to this majority, 6.8% disagree with this practice.

**Figure 4.** Results of the final survey

In which parts of the writing process should we use AI? You can choose more than one option.

59 responses

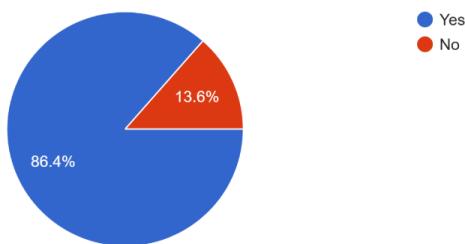


Justifying the percentages above, most learners support the integration of AI into specific writing stages, such as the prewriting stage of the writing process (86.4%), and post-writing tasks, such as revising (83.1%). Nevertheless, students align with concerns about preserving originality during the drafting and editing stages of the writing process, just 20.3% and 28.8% of students agree on the use of AI in these stages of the writing process, respectively.

In a similar sequence of ideas, responses to the question: Do you think using AI to brainstorm or outline ideas is more ethical than using AI to write full paragraphs? 86.4% of learners agreed with the query stated. On the other flank, 13.6% disagree. In this sense, students were asked to depict the guidelines they think should be included. Students emphasized the importance of teaching ethical AI use, including honesty in disclosing where AI was applied and avoiding over-reliance. Many responses like: “Be honest in which parts you use AI and don’t let the AI do your work” and “Guidelines should include rules, it is not about copying and pasting, but trying to understand the subject in a different way” highlighted the need to promote values like academic integrity, transparency, and originality, showcasing their awareness of ethical concerns in AI applications.

**Figure 5.** Results of the final survey

Should there be guidelines for students on how to ethically use AI for writing assignments?  
59 responses



Hence, they concluded there must be guidelines for students to learn how to ethically implement AI tools among the variety of tasks related to writing assignments and assessments (86.4%). This percentage maintains homogeneous responses among the data gathered, showing an unbent concurrence throughout the survey results. Nevertheless, by asking them their perspectives on what guidelines should be established for the ethical and effective use of AI tools in academic contexts, the responses were clear and gather as follow: Responsible and Ethical Use of AI (25%), correct use of prompts (20%), specifying AI usage boundaries (18%), emphasizing originality and critical Thinking (15%), teaching academic integrity (12%), consequences of misuse (5%), and visual and practical examples (5%).

Previous results, resuming the alliance with plagiarism and Over-reliance on AI results from question 3 (What do you believe are the ethical concerns of using AI to generate written content for school assignments?), consolidating learners' awareness and concern about ethics.

#### 6. How can students ensure that their work remains authentic if they use AI tools?

Responses to this query as: "They have to rewrite with their own words and ideas the texts that the AI gives us." and "Reading the text and rewriting it with their own words." suggested that paraphrasing and rewriting AI-generated content helps to maintain the AI-generated content authentic, demonstrating awareness in avoiding plagiarism. Others with similar ideas stated: "Cite the page or AI as one of the most ethical practices." "Explain in which parts they use AI tools." and "Citing the AI with its prompt if it's used in the work." suggested the success of AI literacy lessons in fostering transparency

in the AI tools implementation. Furthermore, responses like: “Maybe by giving it your kind of vocabulary, adding your ideas.” and “Including in the essay something they have experienced or learned.” proposed the addition of personal insights and examples, as well as citing AI contributions and limiting AI use to idea generation and editing processes. This can be taken as an understanding of the importance of blending AI tools with individual creativity, displaying an understanding of strategies to maintain authenticity, and reflecting the effectiveness of AI literacy lessons.

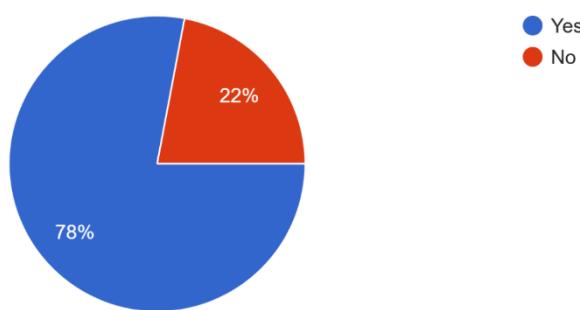
7. After receiving the AI workshop, would you continue using AI in your written assignments? If yes, explain why and in which cases students would use AI tools?

Finally, leaving aside AI tools and specific implementations, learners were asked to interiorize and evaluate the future uses of AI tools in their writing assignments and in which cases they considered ethical and correct to apply these tools. Query requested after receiving the information provided throughout workshops and applicable activities. The results highlighted most learners continuing to implement AI tools in their written assignments (78%), contrasting to the remaining 22% of them claiming to avoid the use of such instruments.

**Figure 6** Results of the final survey

After receiving the AI workshop, Would you continue using AI in your written assignments?

59 responses



Nonetheless, students perceive AI as a supportive tool to enhance the quality and structure of their work, especially in areas where they encounter difficulties. Evidence of these reflections can be grouped and categorized as follows:

Selective and Ethical Use of AI (25%): learners value AI tools as a complementary resource for brainstorming, revising, or organizing ideas rather than relying on them to complete assignments. Enhancing Writing and Language Skills (20%): Results showed that typical applications included grammar checks, vocabulary enhancement, and paragraph structuring. These responses highlight the AI's role in fostering text structure and coherence. Assisting the Research Process (15%): Learners recognized AI tools as a powerful resource for research, particularly in finding relevant information. Limiting AI Usage to Learning Support (15%): many students prefer using AI as an assistance resource rather than a solution, limiting their implementation to brainstorming, outlining, and editing stages of the writing process in their writing assignments. Concerns About Over-Reliance on AI (10%): learners noted that excessive dependence on AI could interfere with critical thinking and learning skills. Thus, it interferes with the learning process itself. Multidisciplinary Applications (10%): This demonstrates learners' awareness of AI's adaptability to different subjects. Emphasis on Efficiency and Accessibility (5%): Students highlighted AI's capacity to make academic tasks more efficient.

## Discussion

Summarizing the previous results, we might conclude that AI literacy lessons proved to be a key stage in providing students with the skills to navigate the growing digital world. By nurturing ethical practices and promoting critical thinking, these lessons ensure that students can manage AI tools to enhance their learning while sustaining academic integrity. In this sense, the learner subjects of this research obtain similar benefits to the student subjects of study of the authors Lee et al. (2021), in which their learners reflected on their behaviors and their impacts on others and extended these reflections identifying how and why AI applications can be unfair to themselves and others.

As mentioned above, the findings were grouped into main areas to analyze and visualize the results globally. The survey results were gathered in three main areas, highlighting the effectiveness, impact, and acknowledgment of AI literacy lessons on learners between 15 and 18 years and its ethical applications in Language and Literature subjects. The key takeaways include:

To enhance the learning process, students acknowledge AI tools as valuable resources for brainstorming ideas, revising, grammar checks, and coherence improvements. Processes in which their learning experience and the product of their writing can be improved and transform the writing process into an effective and organized task. This analysis demonstrates the significant role of AI tools in enhancing students' learning experience instead of interrupting the learning process.

In a similar order of ideas, learners conclude that balancing the integration of AI tools is paramount. Most students favor the application of AI tools to specific writing stages of the writing process such as idea generation, editing, and proofreading (revising). This insight provides a concern about how AI tools can affect their learning process. Thus, learners focus on the enhancement of their skills rather than their replacement. They highlighted the importance of personal effort and creativity, ensuring that AI tools complement their learning instead of replacing critical thinking and originality.

Finally, to empower ethical behaviors. Learners recognized the importance of transparency when using AI, supporting proper citation of the AI tool used, originality in their work by adding examples and paraphrasing, and responsible usage as specified above. This reflects the success of AI literacy lessons in fostering responsible and ethical practices.

To conclude, the AI literacy lessons significantly impacted students' understanding of AI applications and ethical considerations in Language and Literature subjects. They fostered a balanced perspective, emphasizing AI as a tool to enhance learning while promoting intellectual and ethical responsibility. "The incorporation of AI technologies such as ChatGPT into the educational milieu introduces a nuanced spectrum of challenges, notably the potential for student overreliance and the specter of addiction to these digital tools." (Yu, 2024). However, further refinement of ethical guidelines and continuous teacher support will be crucial to ensure endurable and effective AI use in educational contexts.

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