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TEACHERS' PERSPECTIVES ON THE USE OF GENERATIVE ARTIFICIAL INTELLIGENCE

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ABSTRACT

Introduction: This paper reports the results of a survey conducted with 1,188 teachers in Argentina regarding their perceptions of the use of Generative Artificial Intelligence (GAI) in the educational system. **Methodology:** An exploratory, descriptive, and interpretive methodology was employed, complemented by quantitative analysis techniques based on the application of a survey as a data collection instrument. The study examines how much teachers believe they know about GAI systems, their uses, how the topic es addressed within the educational institutions where they work, and its impact in their classrooms. **Results:** The findings suggest that teachers have limited knowledge about What GAI systems are, little understanding of their appropriate uses, almost not institutional discussion or guidance on the topic, and strong perceptions regarding the high impact that GAI will have in classrooms. **Discussion:** Teachers consider that educational institutions have not adequately addressed the topic and believe that the impact of GAI on classroom practices, as well as on assessment processes in the coming years, will be significant. **Conclusions:** The study highlights the

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need to discuss and address these issues within educational institutions and to provide training spaces on GAI for teachers across different educational levels.

Keywords**:** Generative Artificial Intelligence; teachers; ChatGPT; impact; perception; institutions.

1. INTRODUCTION

Generative Artificial Intelligence (GAI) has had an impact on the various spheres that comprise educational systems, not only on teachers and students but also on institutional policies and legislative frameworks. For its part, UNESCO (2019) committed to harnessing the potential of GAI technologies to advance towards Sustainable Development Goal 4: ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all; and to achieve the Education 2030 Agenda (Vicente-Yagüe-Jara et al., 2023). Advances in GAI require increasingly literate and skilled citizens in the appropriate use of these technologies.

The applications of AI in teaching are varied: it facilitates content creation by teachers, for example, in the design of classroom resources, assessments, lesson plans, and other activities, and it allows for the development of applications to assist students, such as personalized tutors in various subjects. In this sense, it is possible to find a wide variety of tools, programs, and resources available to students and teachers, whose possibilities, limitations, and modes of use require analysis (Vicente-Yagüe-Jara et al., 2023).

In this context, several studies were conducted in various countries to determine teachers' uses of and perceptions of GAI. In Chile, for example, Espejo Aubá (2024) analyzed the knowledge and perceptions of 41 teachers regarding GAI and Large Language Models (LLMs). This author implemented a 13-question survey and found that teachers expressed more enthusiasm than fear toward these technologies, although they acknowledged having only a superficial understanding of LLMs. They also revealed difficulty in distinguishing between GAI tools and other virtual environments. In Australia, Lee et al. (2024) conducted similar research, observing a lack of consensus among surveyed teachers regarding the use of GAI in secondary schools and ambiguity regarding the best ways to integrate it into classrooms. Another key finding of this research is that more than three-quarters of the respondents indicated they would like to receive support in using GAI.

In the United States, Han et al. (2024) conducted a workshop to gather the perspectives and opinions of teachers, parents, and students on integrating GAI into elementary education. The participants were mostly from California. Concerns about authorship and ownership of GAI-assisted writing projects produced by students were among the most significant findings. Teachers' and parents' concerns about content safety and accuracy were also discussed.

In China, Chan and Tsi (2024) report a survey of university students and professors from various higher education disciplines. The results indicate that students tend to be

more receptive to the use of GAI for their learning, while professors expressed concern about its negative impacts, such as over-reliance on technology and limited opportunities for developing holistic competencies.

In Australia, Chapman et al. (2026) surveyed 111 teachers, particularly from the capital, to explore their beliefs, skills, experiences, and concerns related to GAI. Overall, opinions were divided between enthusiasm for its potential to reduce workload and foster innovation, and concern about its risks to student autonomy, social-emotional learning, and the teacher's role.

Regarding the impact of GAI on the evaluation, in Kizilcec et al. (2024) present the results of a survey conducted among university teachers and students in three countries (Australia, Cyprus, and the United States) regarding ChatGPT in higher education. Among the most notable results, it is mentioned that teachers are in favor of adapting assessments to leverage GAI capabilities and enhance critical thinking, while students express mixed opinions, highlighting concerns about the potential loss of creativity.

In Argentina, Andreoli et al. (2024) analyzed perceptions of GAI among higher education faculty at the University of Buenos Aires. Their findings highlight GAI's potential to reshape pedagogical practices, while also revealing concerns about ethical issues and academic integrity. More recently, Bravo et al. (2025) explored the beliefs of 375 professors regarding the use of GAI in educational contexts. They adapted a questionnaire to assess whether this technology is perceived as a threat or an opportunity, concluding that opportunities outweigh limitations.

Given the aforementioned background, it is relevant to continue exploring teachers' uses of GAI, particularly in Argentina, as there is a scarcity of research focusing on GAI literacy. Unlike the articles mentioned, this research analyzes the perception of GAI within the Argentine education system among 1,188 teachers, representing a larger population than the reported studies. Furthermore, it is not restricted to a specific institution or city, as these teachers work at different educational levels across the country.

The article is organized as follows. The first section details the objectives of the study and the survey used as the instrument. Next, the conceptual framework related to GAI literacy is presented, followed by a description of the research methodology. The results obtained are then detailed, including a discussion. Finally, the conclusions reached are stated.

2. OBJECTIVES

The objective of this study was to gain insight into the types of GAI resources used by teachers across various levels and disciplines in Argentina, with the aim of subsequently influencing teacher training and providing resources that can be used in teaching at different educational levels. To this end, a survey was created and distributed which, aligned with the focus of this research, addresses the following specific objectives:

- To find out what technological resources (traditional and non-traditional) the teachers knew, and which ones they used.
- To find out how much teachers felt a GAI system (such as ChatGPT) would affect education.
- To learn how educational institutions prepared to manage classes (including assessments) with the incorporation of GAI resources such as ChatGPT.

3. CONCEPTUAL FRAMEWORK: GAI LITERACY

GAI literacy has emerged as a fundamental competence, similar to traditional literacies such as digital literacy (Allen & Kendeou, 2024). Fundamental conceptual frameworks were developed before the advent of advanced tools like ChatGPT, which have significantly impacted interaction with GAI and the general public (Tadimalla & Maher, 2024). The rapid evolution and integration of GAI into everyday life and educational settings has transformed GAI literacy from a specialized technical skill into a fundamental socio-technical competence for 21st-century citizenship (Allen & Kendeou, 2024; Tadimalla & Maher, 2024). This competence transcends the mere understanding of codes or algorithms; it involves understanding how these systems work, but also critically evaluating their biases. According to the OECD (2026), GAI literacy represents the technical knowledge, durable skills, and future-ready attitudes needed to thrive in a GAI-influenced world.

Several studies on GAI literacy have been conducted in different countries and at different educational levels (Chiu et al., 2025; Zhou et al., 2025). According to these studies, most teachers lack knowledge about GAI. Their attitude toward incorporating these tools into teaching and learning remains ambiguous. While some feel anxious and stressed, others are more likely to appreciate the opportunities and risks that GIA offers for education (Yi & Siquan, 2025). In this context, it is necessary to understand teachers' perceptions of GAI use in Argentina, as this influences how they use it in their classrooms.

4. METHODOLOGY

This study adopts an exploratory, descriptive, and interpretive methodology (Hernández et al., 2014) complemented by quantitative analysis techniques. The aim was to understand how teachers use GAI-related resources in their respective disciplines. The integration of GAI in classrooms is a recent phenomenon and therefore requires further research in this area, as well as an investigation into the discussions that have arisen within the institutions where teachers carry out their teaching duties.

Partial results are reported from a survey of teachers at different levels, in different regions, and across different areas of the Argentine education system. The questionnaire (detailed in the Annex) consists of 21 items and aimed to characterize how teachers use resources from the GAI. It was distributed from June 2023 to May 2024. A total of 1,188 responses were received from teachers across various educational levels and disciplines.

This paper presents the results of a selected set of questions from the questionnaire. The selection includes sociodemographic variables designed to characterize the profile of the surveyed teachers, such as years of teaching experience, age, place of residence, and educational level. Questions related to knowledge and use of GAI resources are also included, along with questions concerning the institutional treatment of the topic, the adaptation of classes, and the evaluation of the incorporation of these technologies. The following subsection describes the instrument, the target audience, and the dissemination mechanism.

4.1. Instrument Description

The questionnaire contains 17 mandatory items and is structured in five sections. The first section introduces the instrument, outlining the general objective, the target audience, and those responsible for the survey. The second section, titled “Basic Data,” describes the respondent's profile. It consists of eight items and inquires about the respondent's profile, specifically their teaching qualifications, years of teaching experience, age, place of residence, and educational level of their teaching experience. In addition, the study examines traditional and known IAG technological resources, as well as the technological resources that are actually used.

The third section is titled “Generative Artificial Intelligence (GAI): What It Is and Its Uses” and consists of four items. This section explores teachers' knowledge of GAI resources: how much they know about what these systems are and what they are used for. Furthermore, if they know what they are used for, they are asked how often they have used them. Finally, in this section, teachers who indicated they use GAI are asked to briefly describe their use of it.

The fourth section, titled “Generative Artificial Intelligence (GAI) and Educational Institutions,” consists of two Likert-scale items. This section asks about GAI in the educational institutions where teachers work. It aims to determine the level of knowledge teachers believe their educational institutions have regarding GAI and whether these resources in education have been discussed, debated, and reflected upon within the institution.

The fifth and final section, titled “Generative Artificial Intelligence in the Classroom (includes assessment),” comprises seven items that explore the presence of traditional technological resources and GAI in the classroom. Specifically, it asks about the level of impact teachers believe GAI will have in the classroom. If they selected that it will have some impact, they are asked to briefly describe how they believe this will occur. Subsequently, they are asked to determine how much teachers believe the adaptation of assessment methods to the use of GAI has been discussed within their institution. If the answer is yes, they are asked to briefly describe how this adaptation took place.

Finally, the survey explores the traditional technological and GAI resources that teachers have used in the classroom and in assessments. For assessments, teachers must select

from a list of resources that includes the option "other." The survey concludes with a final section designed to gather suggestions and feedback for improving the survey for future implementations.

The following subsection describes the recipients of the questionnaire and the means for its dissemination.

4.2. Target Audience of the Instrument and Dissemination Mechanism

The survey targeted teachers working at all levels of the Argentine education system (early childhood, primary, secondary, or higher education), in both private and public institutions. A Google Form was designed that allowed only one response per participant, thus preventing duplicate entries. It was shared via email with teachers throughout Argentina, through institutional social media, academic mailing lists, invitations sent to school administrators, and during a hybrid workshop focused on the same topic. Prior to distribution, the questionnaire was evaluated by various experts in education and in GAI. A pilot test was then conducted with 21 teachers: 7 from each educational level (primary, secondary, and higher education). This group of teachers was asked not only to answer the questionnaire but also to provide feedback on potential modifications to improve its clarity, length, and complexity. Based on the feedback received, minor adjustments were made, and finally, the questionnaire was distributed through all the channels mentioned in the previous paragraph.

The following subsection describes the techniques used for the analysis of the data obtained from the implementation of the questionnaire.

4.3. Data Analysis

The internal consistency of the Likert-scale questions was measured using Cronbach's alpha coefficient. This coefficient estimates the reliability of an instrument, assuming that the items measure the same construct and are highly correlated. The alpha coefficient was calculated using SPSS 15.0 software. A coefficient of 0.673 was obtained, placing it within the acceptable range. Different software tools were used for data analysis, depending on the type of response provided. Percentages were calculated only for mutually exclusive responses, while the remaining responses were analyzed using other methods, such as natural language processing (NLP) for open-ended responses. The percentages of the variables characterizing the respondents were calculated by rounding. To avoid errors due to rounding, the percentages are accompanied by the absolute frequency.

The Python NLTK library was used to create word clouds, allowing for simple tasks such as the removal of stop words —words that are not representative and may appear in numerous texts, such as prepositions, articles, and pronouns. Additionally, a topic analysis was performed using the BERTopic library (Grootendorst, 2022), which creates dense clusters to easily identify interpretable themes and simultaneously extract

important words from the descriptions of the discovered themes. Furthermore, a spreadsheet was used to create the bar charts, and Python was used for the remaining graphs, such as Sankey diagrams.

The following section presents the results of the responses obtained to the items of interest for this work.

5. RESULTS

Section 5.1 details the characteristics of the survey participants. Section 5.2 analyzes the resources that teachers report knowing and using. Then, section 5.3 presents the teachers' perspectives on what GAI resources are and how to use them. Finally, section 5.4 presents the results on how teachers believe the topic is addressed in the educational institutions where they work.

5.1. Characteristics of the Surveyed Teachers

Table 1 presents the results for age and teaching experience, variables corresponding to the respondents' profile. Due to their variability, ages were categorized according to the three quartiles. Thus, the youngest category includes people aged 22 to 38; the middle category, those aged 39 to 53; and the oldest category includes people aged 54 and older, up to 80. This variable has a mean age of 46 years, with a minimum age of 22 years and a maximum of 80 years. Quartiles Q1 and Q3 show that 25% of the sample (Q1) is 39 years old or younger, and 75% of the sample (Q3) is 54 years old or younger. This indicates that the middle half of the sample (between Q1 and Q3) is approximately between 39 and 54 years old.

Teaching experience refers to the number of years participants have been teaching. This category has a maximum value of 51 years and an average of 17 years as a teacher. The first and third quartiles (Q1 and Q3) for this variable show that the middle half of the participants have between 10 and 25 years of teaching experience. This means that 75% of respondents have 25 years or less of teaching experience. Finally, while 10% of participants have 5 years or less of experience, 90% have 32 years or less of experience.

Table 1. *Sample statistics of the age and teaching experience variables*

Variable	No.	Average	Standard Deviation	Min	Max	Q1	Q3	P (10)	P (90)
Age	1180	46	10.05	22	80	39	54	33	60
Teaching Experience	1180	47	10.21	0	51	10	25	5	32

Source: Elaborated by the authors.

Regarding place of residence, 65% of respondents teach in the province of Buenos Aires, while the remainder teach in other provinces of Argentina. In terms of educational level, 22% (n=262) report teaching at the non-university higher education level, 51% (n=606) at the university level, 41% (n=495) at the secondary level, 10% (n=124) at the primary

level, and 8% (n=99) indicate they teach at another level. This last category is not exclusive; that is, a single teacher may teach at (and select) several levels simultaneously.

5.2. Technological resources teachers Know or Use

Figure 1 summarizes the results regarding known technological resources and those used by teachers. The graph should be visualized considering the following: for a series of technological resources (listed on the vertical axis), two main data points are presented: a) a blue dot indicating the number of teachers who report knowing about the resource, and b) a light blue dot showing the number of teachers who report using that resource in their classes. The horizontal axis indicates the number of teachers who reported knowing about or using each resource. In this way, it is possible to compare how widely known a resource is and to what extent it is put into practice in the classroom.

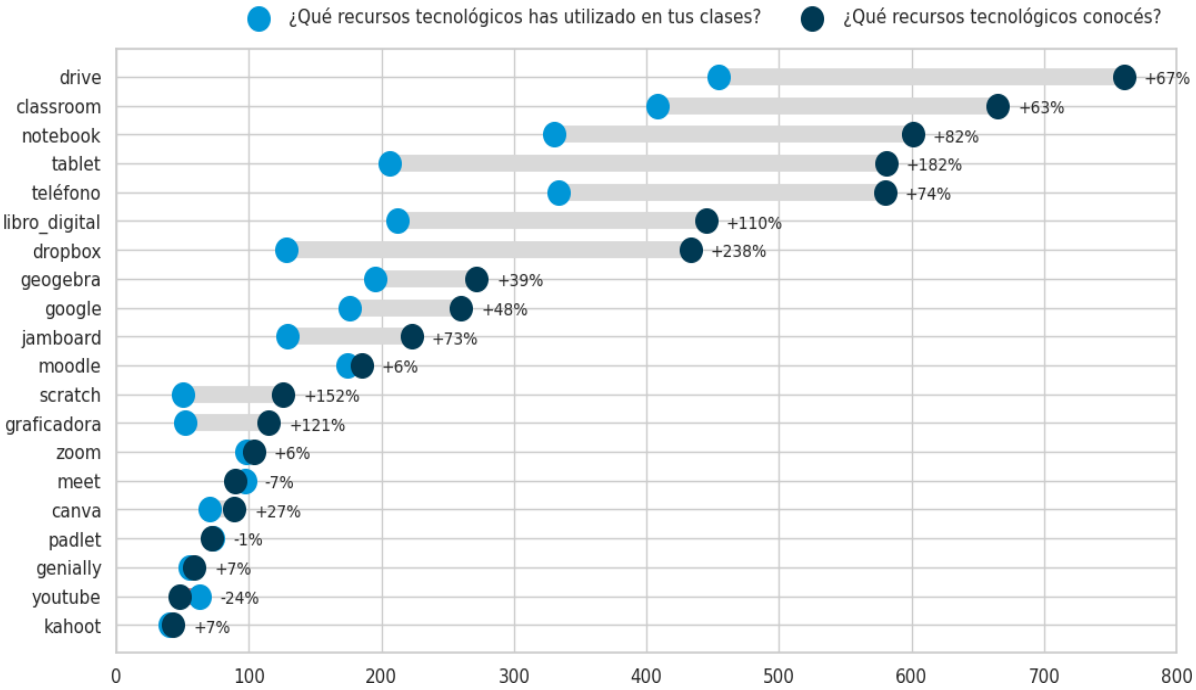
The analysis of the results summarized in Figure 1 concludes that Google Drive and Google Classroom are the two most well-known resources. Furthermore, many teachers familiar with them report implementing them in their classrooms, as evidenced by their relatively high usage. Even so, a gap exists between "knowing" and "using" these tools, revealing that not all teachers who are aware of them actually apply them. Other everyday devices, such as laptops, tablets, and phones, also demonstrate a high level of awareness. However, their use in the classroom is lower than the level of familiarity with them. This suggests that, although these technologies are commonly used, they are not always formally integrated into teaching practices.

While all teachers reported being familiar with Zoom and Google Meet, their level of knowledge was lower than their familiarity with Drive or Classroom. Furthermore, it was noted that almost all those familiar with Zoom and Google Meet reported using them, thus narrowing the gap between awareness and actual use. This could be linked to the need for videoconferencing tools, especially in distance learning or hybrid classroom settings.

In the case of Dropbox, there is a significant difference between the number of teachers who are aware of the resource and those who actually use it. This could be due to the existence of similar alternatives (for example, Google Drive) which, being integrated with other Google services, are easier to adopt. Scratch and Moodle are two resources that, although recognized in the educational field, are underutilized in the classroom. For Scratch, there is a notable gap between awareness and classroom use, while almost all those who indicated they were familiar with Moodle reported using it in their classes. Resources such as YouTube and Kahoot are mentioned by fewer teachers compared to other resources. In these cases, the gap between awareness and use is very small. Finally, not all teachers who claim to be familiar with GeoGebra actually use it in their

classes. This result is striking given its widespread recognition and geometric and algebraic potential in the field of mathematics.

Figure 1. *Relationship between the resources that the teacher knows and those being used in class*



Source: Elaborated by the authors.

5.3. Teachers' Perspective on What GAI Resources are and What to Use Them for

In the third section of the questionnaire, teachers were asked about their perceived knowledge of GAI resources. The results indicate that at the primary level, the "Some" option (50% of respondents working at that level) and "None" (40% of respondents working at that level) predominate. The majority report having low levels of knowledge about GAI resources. On the other hand, few teachers demonstrate high levels of knowledge, as the "A lot" and "Expert" categories are almost entirely absent.

At the secondary level, the largest groups are comprised of teachers who claim to have “Some” knowledge about GAI (56% of respondents working at that level), and those who know “Nothing” (29% of respondents working at that level). This indicates that a large proportion of secondary school teachers acknowledge having limited or no knowledge of what GAI resources are. Only 12% of respondents working at the secondary level indicated that they knew “Quite a bit” about these resources, while 3% answered “A lot.”

At the non-university higher education level (tertiary), approximately half of the teachers responded that they knew “Something” about GAI (approximately 57%), and a quarter indicated that they knew “Nothing” (25% of the teachers working at this level).

Only 14% of the teachers working at this level stated that they knew “Quite a bit,” and 4% indicated “A lot.”

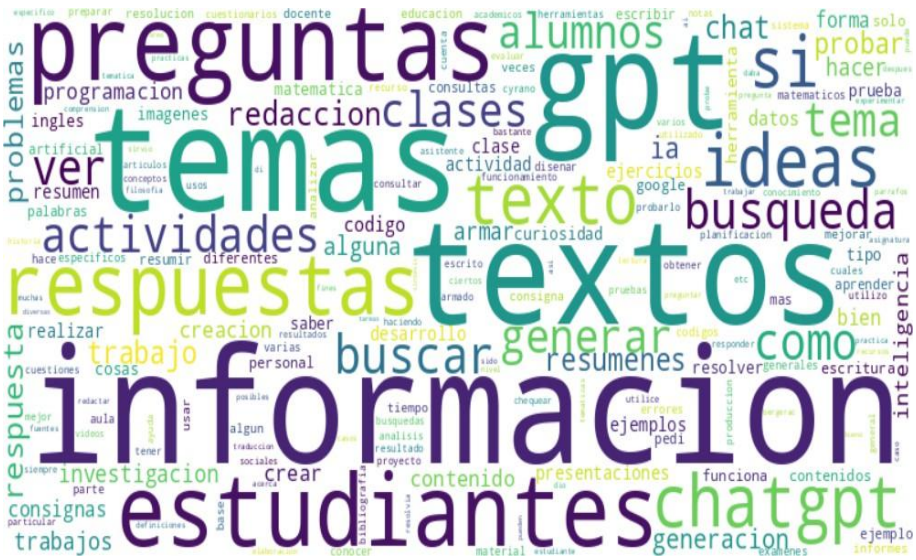
At the university level, 63% of teachers selected the "Some" option and 16% selected the "Quite a bit" option. Meanwhile, 16% of teachers at this level stated they knew "Nothing" about what GAI is. At the same level, 1% consider themselves "Experts" and 4% claim to know "A lot." In the "other level" category, the "Some" option was the most frequently selected (49% of teachers), followed by the "Nothing" option (33% of teachers) (See Annex 2).

Teachers were then asked how much they felt they knew about the purpose of GAI. At the primary level, the most frequent responses were “Some” (49% of teachers at that level) and “None” (39%), similar to the results obtained for the item regarding what GAI resources are. At the secondary level, the most frequently selected options were “Some” knowledge about the purpose of GAI (55% of teachers at that level), “None” (23% of teachers at that level), and “Quite a lot” (18%). This indicates that a large proportion of secondary school teachers believe they have some knowledge about the usefulness of GAI. Only 4% of teachers chose the “A lot” option.

At the non-university higher education level (tertiary), half of the teachers stated they knew “Something” (50%), while “Quite a bit” (23%) and “Nothing” (21%) followed to a lesser extent. Finally, 6% of the teachers indicated they knew “A lot” about the usefulness of GAI. At the university level, a high number of teachers fell into the “Something” category (56%), and a significant group also fell into the “Quite a lot” category (23%). Meanwhile, 13% of the teachers said they knew “Nothing,” and 7% of the teachers indicated they knew “A lot” about the usefulness of GAI. It is worth noting that at this level, 1% consider themselves “Experts.” (See Annex 2).

For those who responded affirmatively to the use of GAI in the classroom, teachers were asked about the specific uses they made of it. To analyze this, a word cloud (Figure 2) was generated using the text provided by the respondents. The cloud displays the most frequently occurring words in the responses in larger font sizes, and those appearing less frequently in smaller font sizes. Words with a frequency greater than three were also included. Some of the most frequently mentioned words by the teachers were: information, texts, topics, students, questions, answers, ideas, search, find, and generate. These words are associated with the tasks for which the surveyed teachers reported using GAI: searching for information, summarizing texts, generating images, correcting writing, creating social media posts, and generating activities and exercises, among others.

Figure 2. *Uses of GAI mentioned by the surveyed teachers*

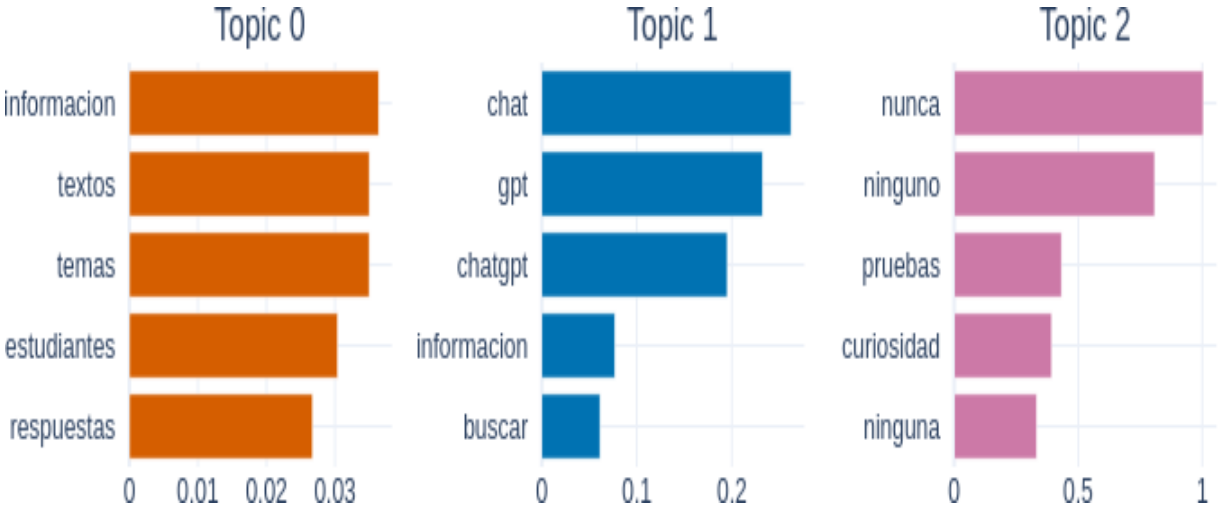


Source: Elaborated by the authors.

Regarding the extent to which teachers have used GAI tools, the results show that the "None" option is predominant in four of the five educational levels. The university level is the only one in which the "Some" option predominates (45%) (see Annex 2).

It is interesting to describe in more detail the teachers' explicit use of GAI. Since the responses were in free text, BERTopic was used for their analysis. In this case, the responses to the item about how they had used GAI were automatically grouped into three groups or topics. Figure 3 shows the salient words of each topic, while Figure 4 visualizes the responses and their themes in a two-dimensional space, which allows for a clearer appreciation of the volume and distance between the themes.

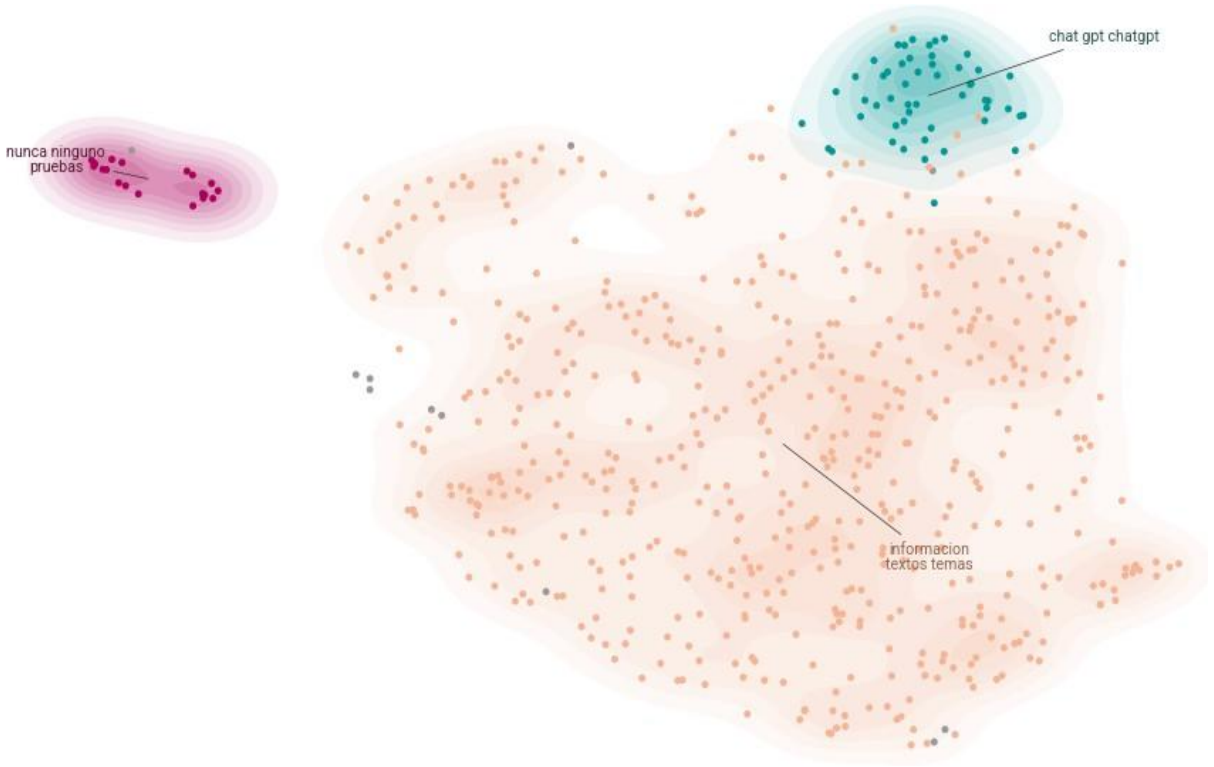
Figure 3. *Topic-by-topic analysis of teachers' responses regarding the use of GAI*



Source: Elaborated by the authors.

This analysis suggests that the responses fall into three groups. The first group refers to the use of GAI as a tool for consulting texts and studying topics in general. The second group includes responses that associate ChatGPT with searching for information more specifically, revealing a misconception of chatbot functionality. Finally, a clearly distinguishable group comprises all the responses from surveyed teachers who have not used GAI or have only used it for tests or out of simple curiosity.

Figure 4. *Visualization of the topics found regarding the use of GAI*



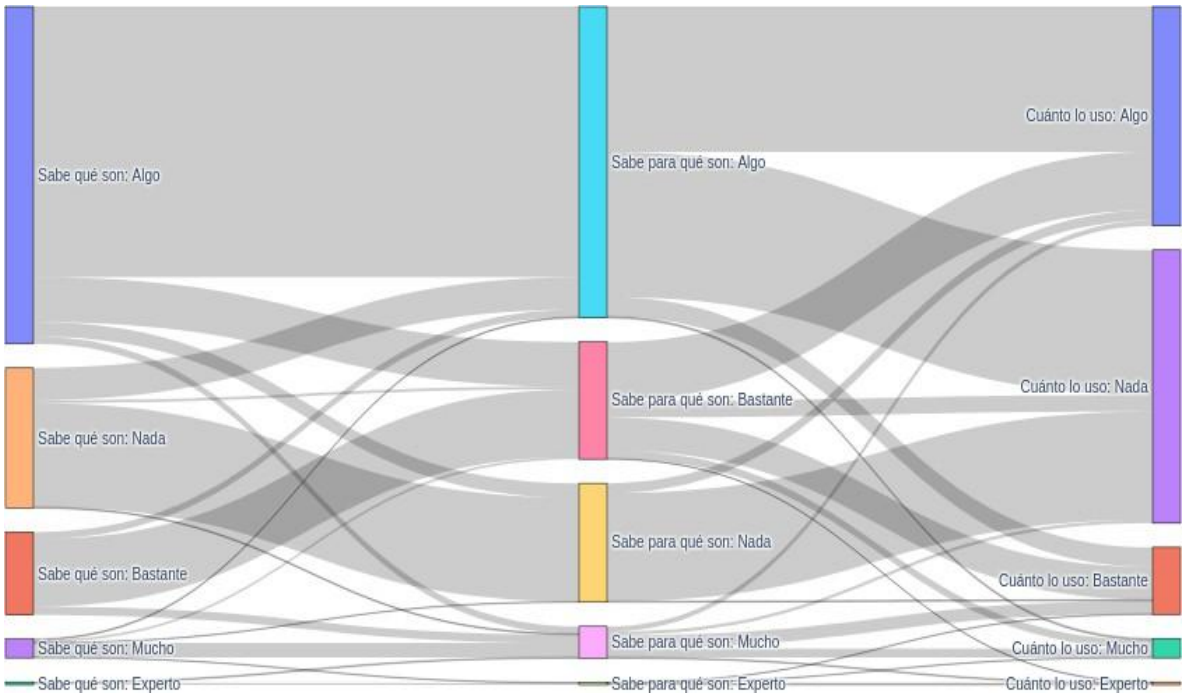
Source: Elaborated by the authors

To represent how a single teacher's responses flow between the three axes—conceptual knowledge ("Do you know what they are?"), functional knowledge ("Do you know what they are for?"), and actual usage level ("How much do you use them?")—a Sankey diagram was created (Figure 5). Each "stream" in the graph represents the transition from one response level to another. For example, a teacher who answers "Somewhat" to the first question and "Quite a bit" to the second appears in the stream connecting those two categories.

The first and second groups of teachers fall into the low or intermediate levels ("None" or "Some") in terms of both their understanding of what GAI systems are and their use of them. This indicates a basic understanding and limited use of GAI systems. This pattern seems to indicate that many teachers, although they had heard of GAI, did not have a deep understanding of it, nor had they incorporated these tools into their teaching practices. There is also a small group of teachers who report knowing "Quite a lot," and whose alignment between knowing what it is used for and actually using it also remains

at “Quite a lot.” This group consists of teachers with conceptual and functional mastery who, consequently, report frequent or expert use of GAI.

Figure 5. *Fluctuation of teachers' responses with respect to the three previous categories*



Source: Elaborated by the authors.

5.4. Generative Artificial Intelligence and Educational Institutions

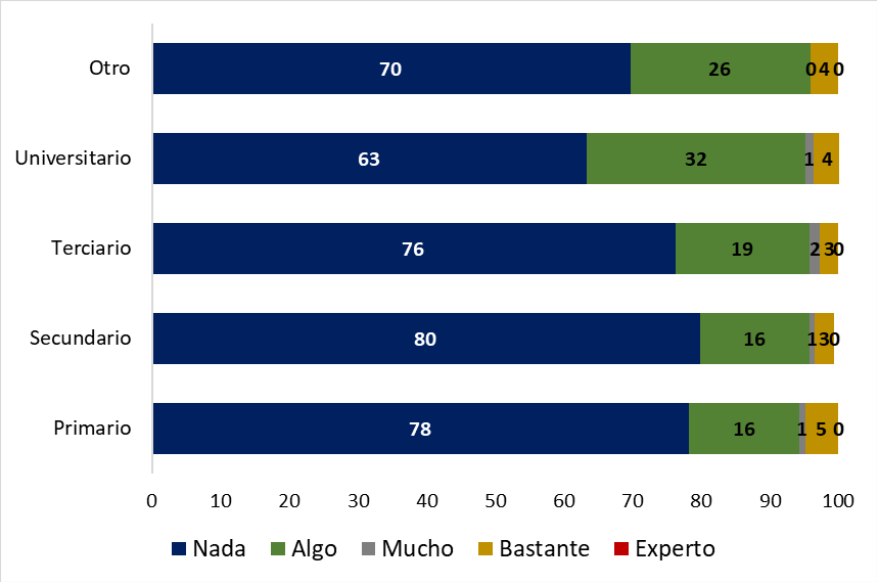
This section consists of two Likert-type scale items. These items aim to explore the institution where the teacher works and its understanding of GAI and whether its incorporation into the classroom has been discussed, debated, and reflected upon within the institution.

Analysis of the responses regarding the first aspect reveals that the most frequently chosen options by teachers at all educational levels are “Not at all” and “Somewhat.” This suggests that, in general, teachers perceive their institutions as poorly prepared or, at best, only moderately prepared to address the integration of GAI (Information and Communication Technologies). Analysis by educational level shows that primary school teachers have the highest proportion of teachers who consider their institution “Not at all” (58%) prepared for the introduction of GAI. At the secondary level, “Somewhat” (39%) and “Not at all” (55%) were the most frequently selected options. In contrast, at the tertiary and university levels, the distribution between “Not at all” and “Somewhat” is similar. At these levels as well, “Quite a lot” is the third most frequently chosen option (See Annex 2).

Regarding the adaptation of classes to the GAI, the options “Nothing” and “Something” are predominant at all educational levels (Figure 6). These results suggest that teachers

believe their institutions did not create spaces for discussion, reflection, or even training for their teaching staff. Looking at the responses by educational level, at the secondary and university levels, the response "Something" appears more frequently than at the other levels. This suggests that, within these institutions, there were some discussions about how to adapt classes to the GAI.

Figure 6. *Level of discussion in institutions regarding the adaptation of classes to GAI*



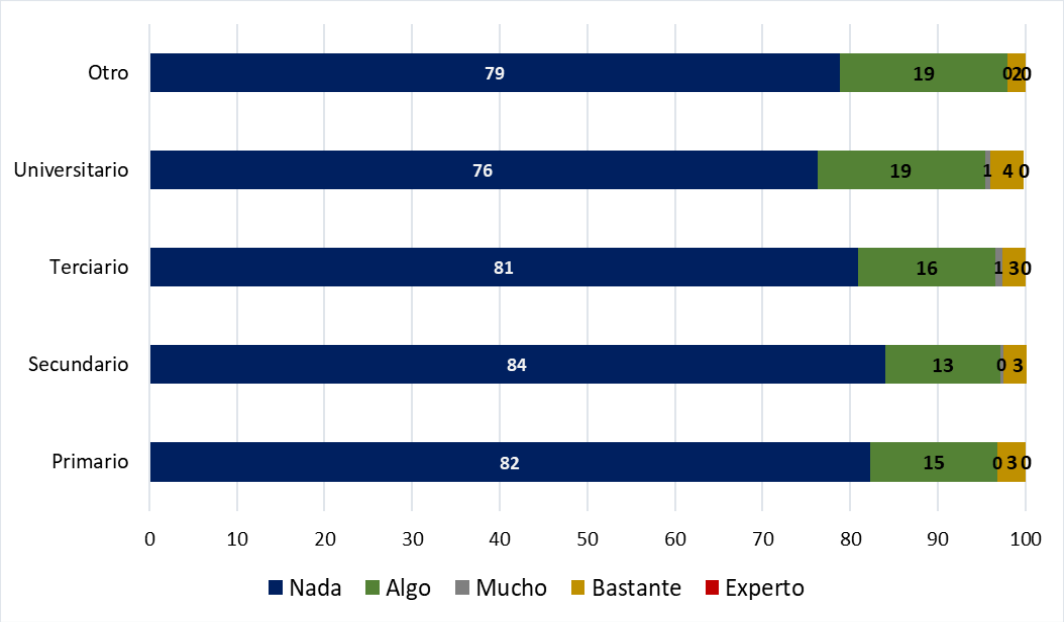
Source: Elaborated by the authors.

Finally, the fifth and final section of the survey focuses on GAI resources within classrooms, including assessment times. It explores teachers' perceptions of the impact of GAI in classrooms in the coming years and how they are adapting assessment practices to accommodate GAI.

Regarding the future impact of GAI in classrooms, the options "Quite a lot" and "A lot" are the predominant responses at all educational levels. The option "Somewhat" is moderately frequent, while the option "None" is the least chosen at all levels. These values suggest that the majority of teachers surveyed assume that GAI will play an important role in classrooms in the coming years (See Annex 2).

Regarding the adaptation of assessment to the GAI, the options "None" and "Some" are the most prevalent at all educational levels, while the option "Quite a lot" has a low frequency (Figure 7). These values suggest an absence or very low level of discussion within institutions about how to adapt assessment processes.

Figure 7. *Approaches to assessment and gai in educational institutions*



Source: Elaborated by the authors.

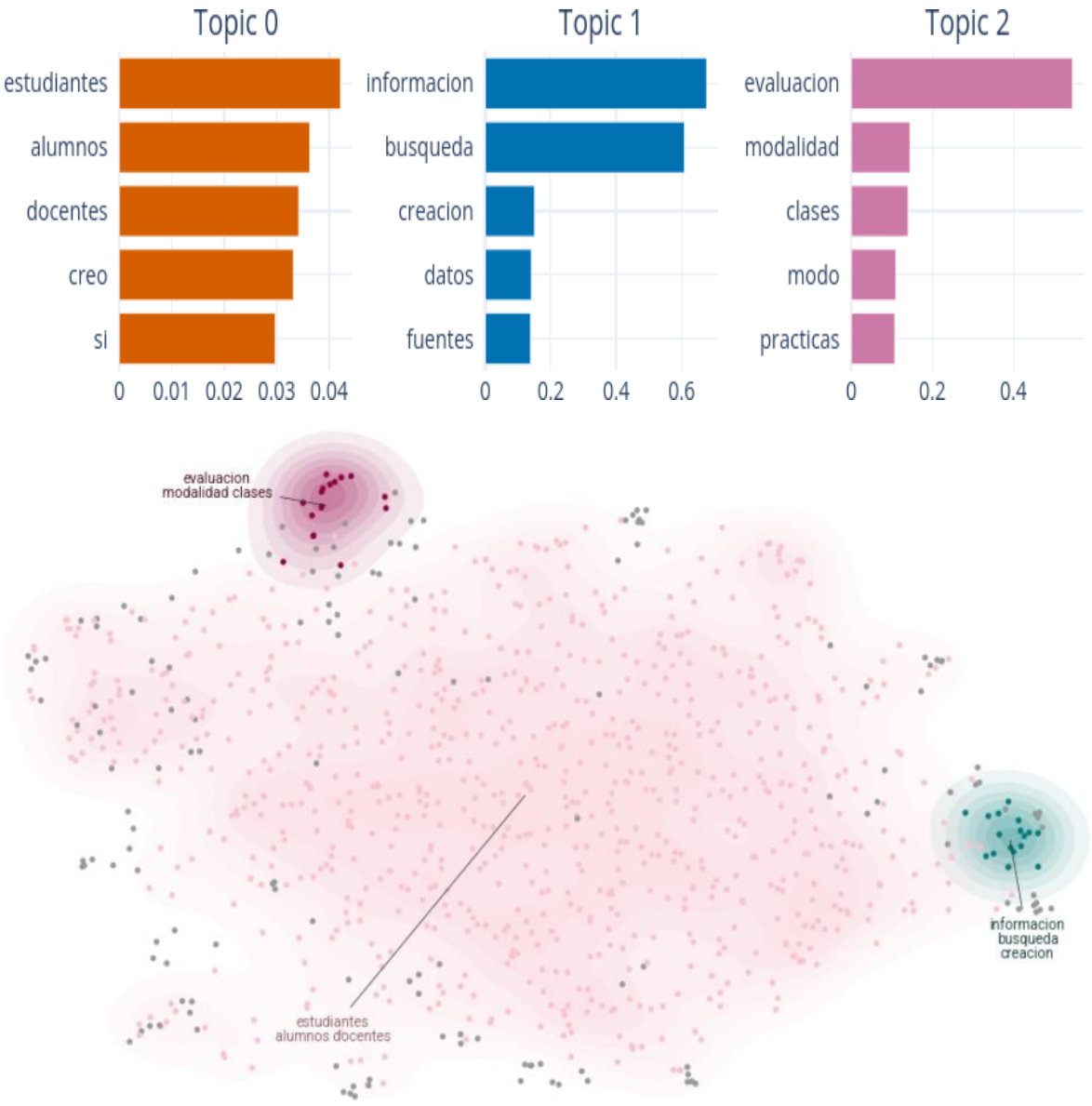
A key aspect that warrants further exploration is how teachers believe GAI will affect classrooms in the future. To this end, a word cloud was generated using the text provided by the respondents (Figure 8). The most frequently used words include: information, pupils, students, teacher, work, tool, activities, and responses, among others.

Figure 8. *How teachers perceive impact in the classroom*


evaluacion
herramientas
ensenanza
critico
docentes
ia
tareas
tener
aula
produccion
trabajos
forma
estudiantes
como
informacion
docente
alumnos
trabajo
herramienta
actividades
respuesta
conocimiento
contenidos
aprendizaje
clases
resolver
afectar
pensamiento
respuestas
manera
creo
mas
usar
busqueda
tiempo
nuevas
siempre
tecnologia
chatgpt
inteligencia
trabajar
tipo
educacion
parte
alumno
formas
practicas
problemas
capacidad
ensenar
tema
vez
considero
proceso
sistema
chat
poder
debemos
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pensar
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To continue and expand on the description of these responses, the topic analysis methodology mentioned earlier was used. Responses were identified across three topics or themes (Figure 9). The first group consists of general responses that mention GAI as a tool that will be used by teachers and students in the future. In the second group, references to information-search tasks reappear, suggesting that a group of respondents may be confusing chatbots with information search engines. The third group contains more specific responses that discuss changes in assessment, teaching methods, classes, and practices.

Figure 9. *Topic analysis of teachers' responses regarding the impact of GAI.*



Source: Elaborated by the authors

6. DISCUSSION

With regard to the objectives set for this study, the results obtained from the survey provide some insights.

The first objective of this study focused on teachers' knowledge and use of GAI. Specifically, the relationship between those who claim to know what GAI is and what these tools are for, and those who actually use them, reveals distinct gaps between knowledge and use. The survey shows a predominance of those who say they know "Something" about what these tools are and what they are used for. This group, however, is divided between those who use it “somewhat” and those who do not use it “at all." That is, a large number of respondents do not use them, perhaps due to minimal knowledge. A similar result was obtained by Lee et al. (2024) for the secondary level. The authors concluded that secondary school teachers were ambiguous when it came to integrating GAI into the classroom.

It is worth noting that the majority of teachers fall into the category of those who do not use it "at all" or "Somewhat," indicating a generally limited use of GAI. Two other striking findings emerge in this regard. One group reports knowing only a little about what GAI is, but quite a bit about its purpose, and in this case, they use it "Somewhat" or "Quite a bit." It can be inferred that, even without knowing what GAI is, they recognize its usefulness and use it. Within this group, there is a risk that teachers may be misusing GAI or making incorrect assumptions about how it works. Furthermore, the analysis of the uses teachers mention for GAI highlights information searching. This result aligns with those obtained by Espejo Aubá (2024). Although this author analyzed only 41 teacher responses, he concluded that they demonstrated serious difficulties in distinguishing GAI from other virtual environments.

It is important to note that this could stem from a misconception of what GAI is, since generating responses differs significantly from a traditional search and information retrieval process (such as using a Google search engine). This underscores the need for GAI literacy training so that teachers understand the fundamentals of how it works, its applications, and, most importantly, its limitations. Developing basic skills to understand how GAI systems are built and operate helps prevent inappropriate use or the attribution of capabilities that teachers do not possess.

The need for GAI literacy among teachers reinforces the findings of Chan and Tsi (2024), who concluded that university students are more receptive to these tools than their own instructors. Understanding how GAI generates content, its structure, and the format of the output allows teachers to differentiate between work genuinely produced by their students and work created using GAI. Han et al. (2024) conclude that, at the primary level, authorship and ownership of student writing projects is a concern for both teachers and parents.

Regarding the second objective—how teachers perceive the impact of GAI on education—the survey showed a degree of agreement that the impact would be significant. Teachers expressed the opinion that the introduction of GAI would have a substantial impact on the educational context, ranging from "A lot" to "Quite a lot." When analyzing teachers' open-ended responses to identify the areas where they believe it would have the greatest impact, two issues emerged that stood out from the general concerns: information seeking and assessment.

In the first case, the words information, search, creation, data, and sources stand out (topic 1). From these, one could infer a certain apprehension regarding the veracity of information, the reliability of sources, and perhaps a fear of a lack of creative thinking. The other identified theme is that of assesment (topic 2), a problem that concerns teachers in classrooms where the presence of GAI leads to a rethinking of evaluation mechanisms. Kizilcec et al. (2024) obtained similar results for Australia, Cyprus, and the United States. They concluded that teachers are in favor of adapting assessments. These are all well-founded concerns regarding GAI and require special attention in the educational context.

The final objective of the research conducted in this work concerns the adaptation of educational institutions to the presence of GAI in aspects such as classroom management and assessment. In this regard, it is worth noting that, at the time of the survey, despite widespread recognition of the use and expected impact of GAI, the topic was not being addressed within institutions. Specifically, while institutional attention to both aspects—classroom adaptation and assessment—was very low, it was even lower in the latter than in the former. That is to say, on an issue that teachers cite as one of their greatest concerns—assessment in the context of GAI—institutions provided less response.

Table 2 summarizes the most relevant results, observations and implications described in four dimensions: knowledge about GAI, use of GAI, institutional preparation and discussion, and perceived impact and evaluation.

Table 2. *Summary of the Most Relevant Findings*

Analyzed Dimension	Main Results	Comments / Recommendations
Knowledge about GAI	Teachers report having a low level of knowledge about what GAI systems are and what they are for.	There is a clear lack of literacy in GAI. Many teachers confuse GAI with traditional search engines information (like Google), which reflects a profound lack of understanding of its technical foundations and limitations.
Use of GAI	A significant gap is observed between knowledge and use. Even among the group of teachers who claim to know "Something" about these tools, a large proportion indicates that they do not use it.	By not properly understanding how it works, teachers could be making mistakes uses inadequate either attributing to GAI capabilities it does not possess, limiting thus its didactic potential.
Institutional preparation and discussion	Most teachers feel that the institutions where they work are poorly prepared—or not prepared at all—to handle the integration of GAI. The primary level is where the greatest lack of training is perceived.	There is virtually no institutional discussion or consideration of this issue. Schools have not created opportunities to reflect on how to adapt classes or teaching models in light of this new technology.
Perceived impact and assesment	Teachers believe that the impact of GAI in classrooms in the coming years will be very high	Despite a lack of training, teachers recognize the future impact of AI. Clear concerns are emerging regarding the accuracy of information, the reliability of sources, and the risk of stifling students' creative thinking. One of the biggest concerns is the need to rethink and adapt assessment methods.

Source: Elaborated by the authors.

To rethink teaching practices in light of GAI and to discuss the ethical and academic integrity issues raised by Andreoli et al. (2024), this matter must be addressed within the institutions themselves. Otherwise, this issue would be left to the discretion of individual faculty members without institutional support.

7. RECOMMENDATIONS

Based on the results obtained and taking into account the objectives of this work and the survey designed and implemented for Argentina, it is necessary to generate GAI literacy actions for teachers at different levels of the education system.

It is essential to continue focusing on training teachers in GAI resources, given their rapid and constant evolution, in order to understand their potential and limitations, learn to interact in an informed and responsible manner, and critically analyze the ethical aspects of their use and their social and environmental effects. In this way, these same teachers will be able to influence their students' GAI literacy and ensure that citizens can make reflective and critical use of GAI resources. It is necessary for individuals to exercise autonomy in their interactions with GAI resources, reflecting on issues related to privacy, autonomy, surveillance, bias, and discrimination.

8. CONCLUSIONS

The general objective of this study was to analyze the perceptions of teachers in Argentina regarding GAI, their level of knowledge, and their uses of this technology. While surveys on this topic have been conducted in various countries, as previously mentioned, conducting a study in the region allows for a national perspective on the issue, taking into account the country's social, economic, and cultural realities. This perspective, in turn, enables discussion on specific educational policies for the country based on concrete indicators and the key concerns of teachers at different levels.

To facilitate informed decision-making, the number of responses collected is significantly higher than in other surveys in Argentina and even other countries, and it is comprehensive in terms of educational levels, types of institutions, and educational jurisdictions. Additionally, the survey sought to identify specific concerns of teachers and delved into a topic that frequently arises in the field of education: assessment in the presence of GAI. Similarly, institutional approaches were considered a key aspect to consult with teachers on, in order to enhance the discussion about actions to be taken institutionally.

Based on the results obtained, the need to discuss and address these issues in educational institutions and at the level of educational policy is evident. Furthermore, the need arises to allocate training and professional development opportunities in GAI for teachers at different educational levels. These findings coincide with those obtained in similar studies, such as (Lee et al., 2024), where teachers expressed a need for support in using GAI tools.

It is important to point out some limitations of this study that should be considered when interpreting its results. First, although the sample is large, some regions of the country may be underrepresented. Due to its territorial size, the province of Buenos Aires has the largest number of surveyed teachers. Other provinces may have a proportion of respondents that is not proportional to their existing teacher population. In this sense, the data analyzed at the regional level could reveal disparities according to specific realities. Second, the distribution mechanism, using mailing lists and social networks, not being systematic across educational institutions, may not have reached all sectors of the teaching population equally. As a continuation of this work and taking into account the reported results, over the last two years, the authors have been designing

and implementing training programs on GAI and education. These programs are aimed at teachers of various disciplines and educational levels in Argentina, and their purpose is precisely to improve teachers' GAI literacy.

These actions contribute not only to teacher training but also to the corresponding disciplinary field. Teachers who acquire knowledge in GAI not only learn to optimize certain routine tasks of the teaching profession but also to generate their own resources with the assistance of GAI, both for lesson design and materials, for classroom activities, and for assessments. Finally, the designed and implemented survey can be replicated by other researchers and even by the administrators of institutions interested in understanding their teachers' relationship with GAI, thus becoming a methodological contribution.

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