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ARTIFICIAL INTELLIGENCE IN THE CLASSROOM: EMPOWERING PROBLEM- SOLVING THROUGH CREATIVE THINKING

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ABSTRACT

Introduction: This study examined the impact of an educational intervention using artificial intelligence (AI) tools, such as ChatGPT and BandLab, on developing fluency and flexibility in problem-solving within creative thinking. **Methodology:** This study was conducted with eighth grade students using a quasi-experimental pretest-posttest design. Participants engaged in five collaborative work sessions aimed at creating a song with a predefined structure, theme, and style. The Torrance Creativity Test (verbal form A) was used to measure the variables. **Results:** Statistical analyses, including normality tests and the Wilcoxon nonparametric test, revealed significant enhancements in flexibility ($p < .001$), while fluency remained consistent ($p = .517$). **Discussion:** These results suggest that, although the intervention improved students' ability to adapt strategies and modify approaches to problem-solving, the activities must be revised and supplemented to encourage generating more ideas. **Conclusions:** The results are discussed within the context of the growing integration of AI in educational settings, offering valuable insights for designing future pedagogical interventions that comprehensively promote creative thinking development.

Keywords: artificial intelligence; creativity; fluency; flexibility; collaborative learning; secondary education.

1. INTRODUCTION

In an increasingly demanding and changing educational context, the ability to solve problems creatively has become a key competence (Runco & Jaeger, 2012). Within this framework, fluency, or the generation of multiple ideas in a short time, and flexibility, or the ability to change focus when faced with an obstacle, are fundamental and complementary dimensions of creative thinking (Torrance, 1966; Guilford, 1967; Cropley, 2006). Balanced development of these skills is crucial for overcoming complex challenges in the classroom (Treffinger et al., 2002; Benedek & Fink, 2018; Qablan et al., 2023). This study analyzes how these skills interact in problem-solving contexts and explores artificial intelligence's (AI) potential as a tool to enhance them.

AI has emerged as a powerful tool for catalyzing creativity in educational contexts. Platforms such as ChatGPT and BandLab enable students to experiment with idea generation and collaboration on creative projects in novel and engaging ways. For instance, ChatGPT assists with creating and improving texts, while BandLab facilitates collaborative music composition and editing, thereby enriching the educational experience and fostering fluency and flexibility in problem-solving.

Despite the growing amount of research on the importance of fluency and flexibility in creativity, the specific interaction between these two dimensions in the context of AI-mediated problem solving has not yet been sufficiently explored (Runco & Jaeger, 2012; Benedek et al., 2018). Similarly, although the use of AI tools in education has been studied, few empirical studies directly examine how specific technologies, such as ChatGPT and BandLab, influence students' fluency and flexibility (Shute & Rahimi, 2017; Guven et al., 2019). Most literature focuses on fields such as robotics or coding without thoroughly investigating the impact of these AI tools in creative and collaborative contexts. Furthermore, a gap has been identified in integrated methodologies that enhance both dimensions of creativity simultaneously (Garaigordobil & Berrueto, 2020; Kim & Coxon, 2020). This research aims to contribute to filling these gaps by offering a solid empirical basis for effectively using AI to improve key problem-solving skills and creative thinking development in an educational context.

By addressing the impact of AI on teaching and its influence on developing creative skills, this work contributes to the discussion on the role of ICTs in Ibero-American education. This study evaluates the influence of AI tools, specifically ChatGPT and BandLab, on enhancing fluency and flexibility in problem-solving to determine their contribution to creative thinking development among eighth-grade students in Chile.

The main objective of this study is to evaluate the relationship between fluency and flexibility in problem-solving among eighth-grade students. This relationship will be examined in the context of a pedagogical experience designed to develop and

catalyze creativity through the use of artificial intelligence, specifically ChatGPT and BandLab.

Additionally, this study aims to explore how AI-mediated educational interventions can enhance these essential cognitive skills simultaneously. To achieve this goal, the following hypotheses are formulated:

H1: There is a significant positive correlation between fluency and flexibility in problem solving among eighth-grade students, in such a way that those who demonstrate greater fluency will also show greater cognitive flexibility.

H2: Educational intervention mediated by AI tools (ChatGPT and BandLab) will significantly improve both students' fluency and flexibility in problem solving, compared to pretest measurements.

H3: The improvement in fluency and flexibility resulting from the educational intervention will be correlated with the active and effective use of AI tools for idea generation and creative collaboration.

1.1. Fluency and flexibility in creativity

In the context of creative thinking, fluency refers to the ability to generate multiple ideas in a limited period of time, while flexibility relates to the ability to change strategy or perspective when faced with a problem (Torrance, 1966; Guilford, 1967; Cropley, 2006). Although conceptually distinct, these dimensions interact in a complementary manner: fluency provides the quantity of ideas, and flexibility allows them to be reorganized and adapted to new situations (Treffinger et al., 2002; Benedek & Fink, 2018). Several studies have shown that the balanced development of both dimensions is key to addressing complex problems and fostering innovative solutions. In the context of this research, these dimensions are specifically assessed using the Torrance Creativity Test, which allows a direct correlation to be established between the theoretical concepts and the creative skills observed in students after the intervention with artificial intelligence tools (Sternberg, 2006; Qablan et al., 2023). These definitions are operationalized through the use of the Torrance Creativity Test (verbal form A), allowing for a quantitative assessment of how AI tools can influence students' creative thinking.

Recent studies have confirmed the positive impact of AI on these dimensions. For example, Urban et al. (2024) demonstrated that the use of ChatGPT improves creative problem-solving skills, especially in terms of the originality and quality of the ideas generated. However, Liu et al. (2024) warn that prolonged use could lead to a certain degree of homogenization, which underscores the need for intentional pedagogical design to maintain creative diversity.

1.2. The influence of AI on creativity

Artificial intelligence has emerged as a powerful tool in education, with the potential to catalyze complex cognitive skills such as creativity. Tools such as ChatGPT and BandLab allow students to engage in creative processes in real time: ChatGPT acts as a textual assistant that facilitates the exploration of ideas, rephrasing of sentences, and stylistic suggestions; while BandLab offers a musical environment that encourages experimentation with harmonic progressions and sound structures. In the context of this research, students used ChatGPT primarily to rephrase verses and enrich song lyrics, while BandLab was used to compose, record, and fine-tune their musical creations.

In theoretical terms, these tools can influence creative dimensions in different ways. ChatGPT promotes flexibility by allowing students to reconfigure ideas, adopt new approaches, and adjust their discourse through automated suggestions (Oates & Johnson, 2025). BandLab, for its part, reinforces this ability by offering an interactive space where students must adapt their creations to different styles and rhythms, as Lam (2024) points out in a review of technology-mediated musical creativity. However, as discussed in this study, if tasks are not explicitly geared toward encouraging divergent production, as evidenced by the results where no significant improvement was observed in the dimension of fluency, the impact on fluency—understood as the number of ideas generated—may be limited. The results showed significant improvements in flexibility but not in fluency, suggesting that the type of interaction with AI and the design of the creative activity are key to developing each dimension. In this regard, Suriano et al. (2025) highlight that the quality of interaction with AI and the type of prompts used are key factors in enhancing complex cognitive skills such as creative thinking.

1.3. Relationship between fluency, flexibility and creative thinking

The relationship between fluency and flexibility in problem solving is synergistic rather than merely additive. While fluency provides the raw material for ideas, flexibility allows them to be reconfigured in novel and useful ways (Benedek & Fink, 2018). Empirical studies have shown that interventions designed to jointly foster both skills result in significant improvements in creative problem-solving ability. For example, Garaigordobil and Berrueto (2020) found that educational programs that integrate the development of fluency and flexibility significantly increase divergent thinking in students.

Likewise, research has found that the interaction between these two dimensions is a strong predictor of creativity in team problem solving (de Dreu et al., 2012), underscoring the importance of designing educational interventions that not only develop each skill separately but also encourage their interaction.

In this regard, this research aims to investigate how the use of artificial intelligence tools, specifically ChatGPT and BandLab, influences the development of fluency and

flexibility in problem solving in eighth-grade students. Given the existing gap in knowledge about how AI specifically affects these components of creativity, this study is essential to contribute to the development of innovative methodologies in the classroom and to provide a solid empirical basis to guide the integration of these technologies into teaching.

The results of the pretest and posttest were used to measure changes in students' fluency and flexibility, providing quantitative data for a correlational analysis that allows for effective evaluation of the impact of AI-mediated educational intervention on the development of critical cognitive skills for creative problem solving.

2. OBJECTIVES

This study aims to evaluate the influence of an educational intervention mediated by artificial intelligence tools—specifically ChatGPT and BandLab—on the development of creative thinking in students in the eighth grade (equivalent to the first years of secondary education). The intervention was designed to enhance the fundamental cognitive skills involved in creative problem solving, focusing on the dimensions of fluency and flexibility, which were measured using the Torrance Creativity Test, verbal form A, through raw scores.

2.1. General objective

Evaluate the effect of an artificial intelligence-mediated learning experience—using ChatGPT and BandLab—on the empowerment of fluidity and flexibility in problem solving, in order to determine its contribution to the development of creative thinking in students in the eighth grade.

2.2. Specific objectives

1. Comparing the raw scores for fluency, flexibility, and originality obtained in the Torrance Creativity Test, verbal form A, before and after the AI-mediated educational intervention.
2. To analyze the relationship between fluency and flexibility in creative problem solving in students.
3. To evaluate the overall impact of AI-mediated educational intervention on students' creative performance, considering both descriptive measures (means, percentiles, confidence intervals) and score variability.

3. METHODOLOGY

This study relied on a quantitative approach to collecting and analyzing numerical data, which facilitated hypothesis testing and the generalization of results (Creswell, 2014). A quasi-experimental design was adopted to establish causal relationships, control variables, and measure the specific effects of the intervention (Campbell & Stanley, 1963). In addition, a pretest-posttest scheme was implemented to assess changes in participants over time, allowing for a robust assessment of the intervention's impact (Shadish et al., 2002).

The study aimed to evaluate the effects of using artificial intelligence tools—specifically ChatGPT and BandLab.com—on the development of creative thinking in 12- and 13-year-old students. The research was conducted at a scientific-humanistic school located in the O'Higgins region of Chile, covering the entire eighth-grade population, without the inclusion of a control group. To ensure data confidentiality, each participant was assigned a unique number, and parental consent was obtained for the use of their responses in the research.

To assess students' creativity, the Torrance Creativity Test (TTCT), verbal form A, was used. This is a recognized and widely validated instrument that measures various dimensions of creative thinking, such as fluency, flexibility and originality (Torrance, 1998).

3.1. Procedure

The research procedure was structured in three main phases:

1. Pretest: The TTCT was applied before starting the creative activity to establish a baseline of the students' creativity.
2. Intervention: Students participated in a creative activity that involved creating original song lyrics. During this phase, ChatGPT was used as an assistant to generate paragraphs and verses to replace the base text, and each compositional progress was recorded on the BandLab.com platform. On this platform, students learned to record their creations over pre-recorded rhythmic bases, called loops. Both artificial intelligence tools were used to stimulate idea generation and structure both the textual content and the harmonic progression of the songs. This phase aimed to stimulate creative thinking through the strategic use of AI.
3. Posttest: After the creative activity, the TTCT was applied again to evaluate whether the AI intervention had managed to improve the students' creative indices.

Participants' responses were recorded and organized in a spreadsheet for later analysis. During the intervention, students collaborated with ChatGPT to generate ideas and develop song lyrics, receiving instructions on how to interact with the AI model and how to integrate its suggestions into their creative work. SPSS and BIPLLOT software were used to analyze responses related to the dimensions of creativity, complemented by manual reviews in specific cases. Furthermore, to ensure the reliability of the instrument used, Cronbach's alpha coefficient was calculated, obtaining a value of 0.819, indicating a high level of internal consistency.

3.2. Data Analysis

To examine changes in creativity scores obtained before and after the intervention, various statistical tests were implemented, structured to provide a comprehensive and accurate evaluation of the data, ensuring the validity and reliability of the results:

- Normality Tests (Kolmogorov-Smirnov and Shapiro-Wilk):

These tests were performed to determine whether the TTCT scores followed a normal distribution, which is a fundamental step before applying certain statistical analyses (Creswell, 2014).

- Paired Sample Test:

Since the data did not meet the assumption of normality, this test was used to compare creativity scores before and after the intervention. This method is appropriate for related samples, since measurements were taken at two different times (Shadish et al., 2002).

- Wilcoxon test:

The Wilcoxon test was applied due to the non-normality of the data, allowing the comparison of the medians of two related samples to determine significant differences (Shadish et al., 2002).

- Descriptive Analysis:

Posttest scores were calculated to illustrate the changes produced by the intervention (Creswell, 2014).

- Percentile Analysis:

This technique was used to evaluate the impact of the intervention on different segments of the student population (Creswell, 2014).

- Comparative Analysis using Multivariate Techniques (Biplot):

Biplots were used to provide a graphical representation of the differences in creativity scores between the pretest and posttest, allowing a direct visual comparison of changes in creativity indicators (Shadish, et al., 2002).

This methodology enabled a comprehensive and rigorous evaluation of the effects of AI-mediated educational intervention on the development of creative thinking in students, providing quantitative evidence of the effectiveness of the implemented strategy.

4. RESULTS

This section presents the findings obtained after applying statistical tests to the data set, focusing on the dimensions of flexibility and fluency in problem-solving. Pre-test and post-test scores are compared to determine the impact of the AI-mediated intervention on students' creative thinking.

4.1. Flexibility analysis

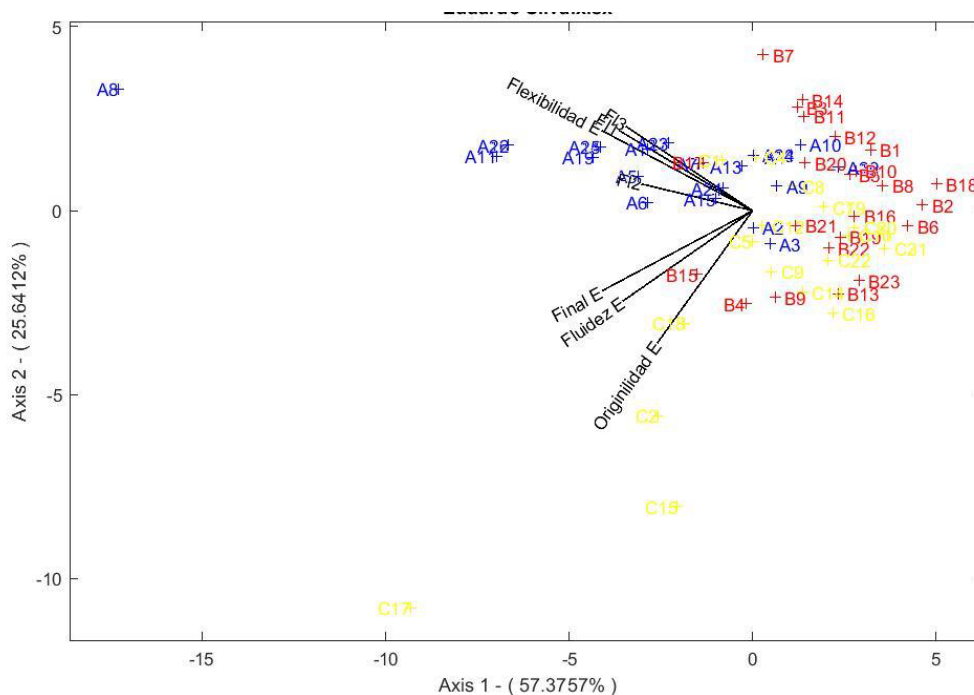
One of the most relevant findings of this research relates to the improvement in students' cognitive flexibility following intervention with AI tools. As shown in Figure 1, in the initial measurement, flexibility scores were distributed heterogeneously, with

a more marked concentration in groups A and C. However, the dispersion of the data suggests that there were significant differences between the students in the three courses analyzed.

In the graph, each point represents a student, while the arrows indicate the creative dimensions evaluated (flexibility, fluency, and originality). The proximity of the points to the arrows suggests a greater relationship between that student and the corresponding dimension. This biplot allows us to observe the initial arrangement of the data before the intervention.

Figure 1

Initial distribution of flexibility and fluency scores in the pretest (Input Biplot)

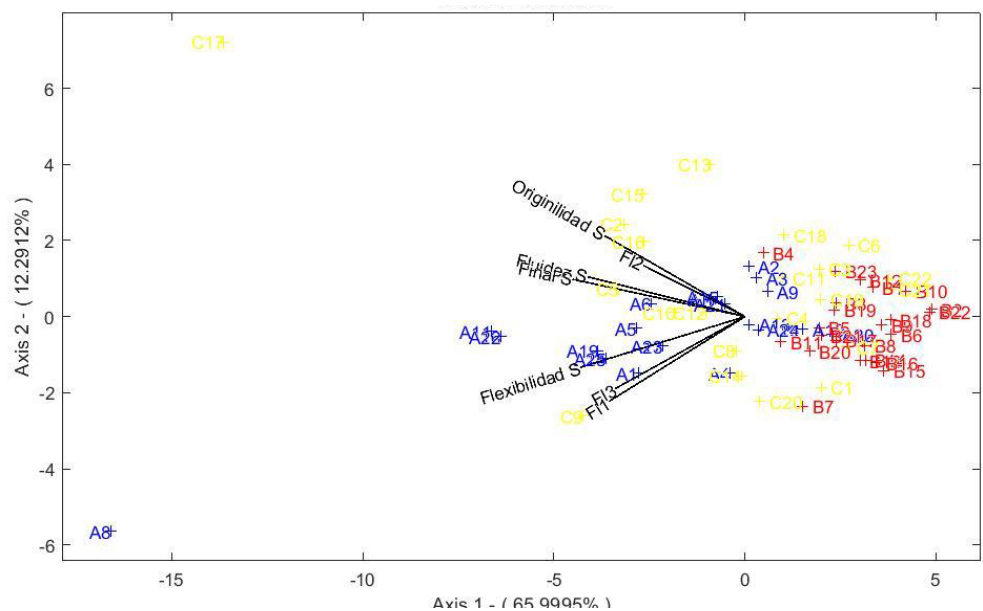


Source: Elaborated by the authors.

Following the implementation of the intervention, the results show a significant improvement in this dimension. As shown in Figure 2, the distribution of the data shows a positive shift in flexibility values, with a higher concentration of higher scores in groups B and C, indicating that these students experienced greater progress compared to group A. In other words, changes are observed in the position of students with respect to the variables evaluated. The arrows reflect the creative dimensions and their contribution to the variance. A greater clustering towards the vectors of flexibility and originality suggests progress in these areas after the AI intervention.

Figure 2

Final distribution of flexibility and fluency scores in the post-test (Output Biplot)



Source: Elaborated by the authors.

These changes are also reflected in the statistical data. As seen in Table 1, the mean flexibility score increased from 3.19 to 4.31, while the median increased from 3.00 to 4.00, suggesting that more students improved their ability to change strategies and adapt their thinking when solving problems. Furthermore, the 95% confidence interval for flexibility also widened from 2.50–3.87 to 3.51–5.12, reflecting an increase not only in the mean score but also in the variability of the data.

Table 1.

Comparison of means, medians, and confidence intervals for flexibility and fluency before and after the intervention

			Initial result	Final result
flexibility	average		3.19	4.31
	95% confidence interval	lower limit	3.19	4.31
		upper limit	3.87	5.12
	median		3.00	4.00
fluency	average		7.84	7.77
	95% confidence interval	lower limit	7.13	6.75
		upper limit	8.55	8.79
	median		7.00	7.00

Source: Elaborated by the authors.

From a comparative analysis perspective using the Wilcoxon test, the results indicate a statistically significant difference between pretest and posttest scores in flexibility ($p = 0.000$), allowing the null hypothesis to be rejected and confirming that the intervention had a positive impact on this dimension of creative thinking.

4.2. General interpretation of the findings

The results obtained lead to the conclusion that the artificial intelligence-based intervention significantly enhanced students' flexibility, promoting a greater ability to adapt and change strategies in problem solving. This improvement was evident in the descriptive analyses and confirmed by statistical tests, highlighting that the use of AI in creative activities can play a key role in the development of adaptive cognitive skills.

In contrast, fluency did not undergo significant changes, suggesting that the intervention failed to stimulate the generation of a greater number of ideas. This finding raises questions about the need to design more specific strategies to work on fluency in the context of artificial intelligence, complementing the positive impact already observed in flexibility.

Finally, multivariate analyses using biplot made it possible to visualize how the distribution of flexibility and fluency scores evolved throughout the study. Greater dispersion and improvement in flexibility were observed after the intervention, while fluency remained stable across the different courses. These results provide valuable information for future research and the design of more effective educational interventions in the field of creative thinking and artificial intelligence.

4.3. Evaluating data distribution

Normality tests (Kolmogorov–Smirnov and Shapiro–Wilk) indicated that the fluency and flexibility scores did not meet the normality assumption, justifying the use of nonparametric methods in the inferential analysis (Creswell, 2014).

4.4. Descriptive analysis

Fluency:

- The mean in the fluency dimension was slightly reduced from 7.84 (pretest) to 7.77 (posttest).
- The median remained constant at 7.00, which demonstrates stability in the central value of the scores.
- A slight widening of the 95% confidence interval was observed, indicating a moderate increase in the dispersion of the data.

Flexibility:

- The average increased from 3.19 in the initial evaluation to 4.31 in the final evaluation.
- The median increased from 3.00 to 4.00, suggesting substantial improvements in the ability to adapt and modify strategies.
- The shift towards higher values in the 95% confidence interval supports the existence of a positive change in this dimension.

4.5. Hypothesis testing

Given the failure to comply with the assumption of normality, the Wilcoxon signed-rank test for related samples was applied:

- Fluency (Fluency E vs. Fluency S):

The null hypothesis stating that the median of the differences is equal to 0 was not rejected ($p = .517$), indicating that the intervention did not produce statistically significant changes in the ability to generate ideas quantitatively.

- Flexibility (Flexibility E vs. Flexibility S):

A p-value of .000 was obtained, which leads to the rejection of the null hypothesis and shows a significant difference in flexibility scores after the intervention.

4.6. Graphic analysis

Multivariate analysis using biplots allowed the evolution of the variables to be visualized:

- Initial Biplot:

The representations of "Fluency E" and "Fluency S" showed a similar distribution, which is consistent with the stability of this dimension in the descriptive analyses. In contrast, flexibility showed a dispersion that suggested potential for improvement.

- Final Biplot:

The direction of the arrows corresponding to "Flexibility E" and "Flexibility S" shifted toward higher values, reflecting the significant improvement observed in students' ability to modify their strategies. The distribution of fluency remained virtually unchanged.

4.7. Summary of results

The results suggest that the intervention had a differential effect on the two dimensions evaluated:

- Fluency: No significant changes were observed, suggesting that the ability to generate a greater number of ideas was not modified by the intervention.
- Flexibility: A significant improvement was evident, indicating that the use of AI tools in a collaborative context enhanced the ability to adapt and restructure strategies in problem-solving.

5. CONCLUSIONS AND DISCUSSION

This study aimed to evaluate the impact of an educational intervention mediated by artificial intelligence (AI) tools, specifically ChatGPT and BandLab, on the development of two key dimensions of creative thinking: fluency and flexibility in problem solving. The findings indicate that the intervention generated significant improvements in students' cognitive flexibility, while fluency remained unchanged. This pattern suggests that, in the context of the creative activity implemented, AI acted as a catalyst for the ability to adapt and change strategy in problematic situations, without significantly affecting the quantitative generation of ideas.

This difference in effect on both dimensions can be interpreted in light of the intrinsic characteristics of each component. Flexibility, understood as the ability to modify or reorganize strategies and approaches (Cropley, 2006; de Dreu et al., 2012), was favored by the iterative and collaborative nature of the intervention. The use of ChatGPT allowed students to receive feedback and suggestions that encouraged the revision and restructuring of their ideas, while BandLab facilitated a dynamic composition process that promoted experimentation and strategy change. In contrast, fluency—related to the ability to produce a greater number of ideas in a limited time (Torrance, 1966; Guilford, 1967)—did not show significant changes, which is probably because the activity did not directly emphasize the mass generation of proposals, but rather their quality and adaptability.

5.1. Comparison with previous studies

The results obtained are partially consistent with existing literature. Previous research has indicated that interventions focused on the integration of digital technologies can enhance cognitive flexibility in educational contexts (Benedek & Fink, 2018; Garaigordobil & Berrueto, 2020; Oyarzún & Rodríguez, 2024). The improvement in flexibility observed in this study supports these findings and reinforces the idea that interaction with AI tools can promote the development of adaptive strategies in problem solving.

This distinction between dimensions can also be linked to the type of interaction facilitated by the technological tools used. While ChatGPT promoted iterative adjustments to textual content—enhancing flexibility—it was not structured to encourage the massive generation of alternative ideas from a blank sheet, as required by fluency. Similarly, BandLab encouraged collaborative composition based on harmonic exploration, rather than on the multiplication of initial versions or proposals. This articulation between the functions of the tools and the theoretical dimensions allows for a better understanding of why the intervention had a differentiated impact on students' creativity.

On the other hand, the stability in fluency levels is in line with studies suggesting that idea generation requires additional stimuli or differentiated pedagogical approaches to produce significant increases (Runco & Jaeger, 2012; Kim & Lee, 2019). Thus, the present research expands knowledge by demonstrating that, although AI can be effective in enhancing certain aspects of creative thinking, its effect on idea generation in quantitative terms may be limited if it is not

complemented by specific strategies that encourage divergence and free production of ideas.

5.2. Theoretical and practical implications

From a theoretical point of view, the results confirm that creativity is a multidimensional construct, in which each of its dimensions—fluency and flexibility—can respond differently to pedagogical interventions (Sternberg & Lubart, 1996). The empirical evidence presented here supports the importance of designing educational experiences that not only integrate advanced technological tools but also consider the specific nature of each creative dimension.

In practical terms, these findings have significant implications for teaching and curriculum design. The improvement in flexibility suggests that incorporating AI into collaborative activities can facilitate the adaptation of strategies and promote more dynamic and contextualized learning. However, the absence of changes in fluency highlights the need to complement these interventions with additional methodologies, such as structured brainstorming techniques or exercises that stimulate divergent idea generation (Guilford, 1967). Consequently, educators should consider integrating various teaching strategies that, together, enhance the comprehensive development of creative thinking in students.

5.3. Limitations and recommendations for future research

Despite the study's significant contributions, it is important to note some limitations. First, the absence of a control group prevents direct comparisons that would allow the observed changes to be attributed with greater certainty exclusively to the AI-mediated intervention (Shadish et al., 2002). Likewise, the sole use of the Torrance Creativity Test, verbal form A, although widely validated (Torrance, 1998), could limit the capture of the complexity of the creative construct.

Another limitation relates to the sample, which was drawn from a specific context (a science and humanities school in the O'Higgins region of Chile), which restricts the generalization of the findings to other educational and cultural environments. In this regard, it is recommended that future research include more heterogeneous samples and use experimental designs with control groups to strengthen the internal validity of the studies.

Likewise, a relevant limitation of the study was the absence of a systematic analysis of the interactions between students and the ChatGPT tool. Although participants used semi-open prompts guided by the teacher—such as “write a stanza about hope using simple language” or “how can I change this line to make it sound more poetic?”—the processes of interaction with AI were not recorded or analyzed in depth. Documenting these exchanges would have provided a better understanding of the cognitive mechanisms involved in textual co-creation, as well as the role of AI in stimulating creative thinking. This aspect represents a crucial line of development for future research, which could benefit from incorporating recordings, transcripts, or real-time session analysis.

On the other hand, the lack of significant changes in the dimension of fluency may be linked both to the nature of the task—structured around a thematic prompt with fixed parameters—and to the brevity of the intervention (five sessions). These conditions may have favored flexibility (adaptation and reorganization of ideas) over fluency (abundant generation of alternatives). The literature suggests that the development of fluency requires longer and more open pedagogical experiences that explicitly stimulate divergent thinking (Guilford, 1967). Consequently, it is recommended that future research include activities specifically designed to promote fluency, such as brainstorming exercises or creative free association tasks, complemented by more exploratory interactions with AI.

It is pertinent to explore interventions that simultaneously integrate specific strategies to enhance both fluency and flexibility, which would allow for a more comprehensive approach to the development of creative thinking. The combination of various AI tools and innovative pedagogical methods could offer a more complete picture of the transformative potential of these technologies in education (Shute & Rahimi, 2017; Guven et al., 2019).

Finally, the study showed that the educational intervention, based on collaborative work to create a song using AI tools, generated significant improvements in the flexibility of eighth-grade students, while fluency remained unchanged. These findings highlight the potential of AI to enhance certain dimensions of creative thinking and underscore the importance of designing pedagogical strategies that comprehensively address the multiple facets of creativity.

It is recommended that future research delve deeper into the design of activities that promote not only the quality and adaptability of ideas, but also their quantity, in order to achieve a balanced development of creativity. Likewise, the systematic documentation of the use of prompts is a key tool for understanding and improving the AI-mediated creative process.

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Silva-Fuentealba, Eduardo; Valdés-León, Gabriel, & Oyarzún Yáñez, Romina.
Artificial intelligence in the classroom: empowering problem-solving
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