

Assessment of the teaching performance favors to creativity in a sample of Colombian public and private educational institutions

Valoración de la actuación docente favorecedora de la creatividad en una muestra de instituciones educativas públicas y privadas colombianas

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Abstract

The present study was oriented to assess the teaching performance that favors creativity from the teaching practices, contrasting it with the type of educational institution, pedagogical model, creativity and academic score of the students in a sample of the educational institutions of the Aburrá Valley. A quantitative, non-experimental, ex post facto study was carried out with 210 teachers and 950 students from 10 educational institutions. The Likert scale of teaching performance designed adhoc, and the PIC-J test were used. The results indicate that the use of cognitive mediation strategies for divergent thinking and the use of flexible and open evaluation strategies are related to higher creativity scores in students. The implications for educational processes and the need to implement innovative pedagogical and didactic strategies to reorient the emphasis of rote methodologies towards creative learning are discussed.

Keywords: cognitive mediation, teacher performance, learning evaluation, creativity.

Resumen

El presente estudio se orientó a valorar la actuación docente favorecedora de la creatividad desde las prácticas de enseñanza, contrastándola con el tipo de institución educativa, modelo pedagógico, puntaje en creatividad y académico de los estudiantes en una muestra de las instituciones educativas del Valle de Aburrá. Se llevó a cabo un estudio cuantitativo, no experimental, ex postfacto, con 210 docentes y 950 estudiantes de 10 instituciones educativas. Se empleó la escala Likert de actuación docente, diseñada adhoc y la prueba PIC-J. Los resultados indican que el empleo de las estrategias de mediación cognitiva para el pensamiento divergente y el uso de estrategias de evaluación flexibles y abiertas se relaciona con mayor puntaje de creatividad en los estudiantes. Se concluye con las implicaciones para los procesos educativos y la necesidad de implementar estrategias pedagógicas y didácticas innovadoras para reorientar el énfasis de metodologías memorísticas hacia un aprendizaje creativo.

Palabras clave: mediación cognitiva, actuación docente, evaluación del aprendizaje, creatividad.

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1. Introduction

The Organization for Economic Cooperation and Development (OECD), considers that education is the answer to the challenges of today's society, among which is the international economic crisis, achieving sustainable growth and coping with climate change, without counting the innumerable problems at the social level (OECD, 2019). In this sense, the 21st century society, considered as an information society, demands a professional profile based on the capacity for critical-reflexive and creative thinking, assertive communication skills, teamwork, emotional and social intelligence, and technological skills (Organization United Nations, 2020).

Measurements of student competencies at an international level, such as PISA, for example, have made it possible to identify both the favorable characteristics of the educational systems in different countries, as well as the deficiencies that still do not allow achieving a training profile in accordance with the demands of contemporary society (Villa-Guardiola et al., 2022). In this regard, the deficiencies presented by students regarding the management of creative thinking are highlighted, since, in many countries, despite the existence of regulations and educational policies aimed at this end, in the practice of teaching and in the happening in the classroom, these guidelines are not carried out (Pllana, 2019).

Studies on the subject indicate that teachers, at a general level, manifest awareness of the importance of creative thinking in the teaching process (Barrera-Mesa & Fernández-Morales, 2022). However, at the same time, the presence of notorious deficiencies is observed in their performance in the classroom in terms of the use of specific pedagogical and didactic strategies, aimed at developing creativity in students (Gralewski, 2016; Valero, 2019). . This situation of non-coherence between what teachers say and what they actually do in the classroom may arise due to the lack of specific knowledge regarding the methodological strategies required to promote creativity in the classroom (Akkanat & Gökdere, 2015; Hellens, 2020; Fan & Cai, 2022).

Another aspect that influences the teaching performance in the classrooms are the conceptions of creativity. Intercultural studies have indicated the presence of differences in the expectations that teachers have in various countries regarding the creative performance of students in the different areas of knowledge, as well as the assessment of the factors that favor and hinder creativity (Katz- Buonincontro et al., 2020; Kasirer & Shnitzer-Meirovich, 2021), which clearly affects their performance in the classroom.

In Colombia, the issue of educational quality and especially the development of creative capacity in students has been the subject of numerous criticisms during the last decades. According to Schleicher (2018), OECD Director of Education and Skills, the country has deficiencies in rural education, gaps between public and private education, and problems related to teachers. In this last factor, there are deficiencies in the preparation of teachers, in the commitment to students in their formative work, in the economic situation of their profession and in the required social prestige. In this panorama, one of the substantial shortcomings is the teaching methodology that is not adequate to the needs of contemporary society, where an education based on the rote reproduction of contents is privileged, neglecting the promotion of creative thinking skills (Macías-Rojas et al., 2022). This is reflected in the deficient results in PISA tests that Colombian students have been presenting practically since its application began in the country.

There is no doubt that the teacher plays a crucial role in educational quality, since he is in charge of creating favorable learning environments for the development of creative and meaningful thinking in the classroom (Martínez-Ariza et al., 2022). For this reason, it is necessary to identify the practical aspects of teaching performance in the classroom, in order to carry out the processes of initial and continuous teacher training (Chandra, 2018; Fan & Cai, 2022).

The present study was oriented to identify the characteristics of the teaching performance

favorable for the promotion of creativity from the teaching practices, in a sample of public and private educational institutions, located in the metropolitan area of the Aburrá Valley, Colombia. The research focused on the following four components: the use of cognitive mediation strategies and emotional-motivational mediation, acting as a facilitator teacher, and the use of evaluative strategies by teachers. The specific objectives were oriented to investigate the use of teaching strategies favorable to creativity in these four aspects, contrasting the above according to the type of educational institution (public/private), pedagogical model of the institution (traditional/alternative), state academic test scores and creativity scores of participating students.

2. Methodology

2.1 Type of research and participants

A study with a quantitative approach, descriptive level, non-experimental method, *ex post facto*, was carried out. The study population corresponds to high school teachers from public and private schools in the city of Medellín, Colombia, who support different pedagogical models. The sample consisted of 10 educational institutions, randomly selected from among those that responded positively to the call to participate in the study, 5 private and 5 public schools, with a traditional pedagogical model ($n=4$) and an alternative pedagogical model ($n=6$).

In each school were selected the teachers with a minimum permanence in the institution of 2 years and who agreed to voluntarily participate in the study. The final sample consisted of 210 teachers: 28.5% male ($n=60$) and 71.4% female ($n=150$). Regarding the educational level, 75% had a bachelor's degree, 15.6% a specialization and 9.6% a master's degree. In addition, 43.8% had teaching experience between 2 and 4 years, 40.7% from 4 to 8 years, and 15.7% from 8 to 19 years.

Additionally, it was carried out a sample of bachiller students from each school, selecting students with a minimum of 5 years of belonging to the institution and who expressed their willingness to participate in the research. Among the students who met these inclusion criteria, 950 of them were randomly chosen, with an average age of 14.08 (SD 1.5). The sample size was calculated with a confidence level of 95% and a margin of error of 5% for each school. In the study, ethical aspects were taken into account according to resolution 8430 of the Ministry of Health, where guidelines for research with human beings are given. Likewise, informed consent was signed with the teachers and guardians of the students, as well as the informed assent with the participating students.

2.2 Collection and analysis of information

The assessment of academic performance was made from the scores obtained in the last state academic tests presented by the students of each educational institution. For the evaluation of the creativity of the students, was used the PIC-J test authored by Artola et al. (2008) and validated in the Spanish population. The instrument consists of four games (tasks), for the assessment of narrative and graphic creativity which represent the total creativity score. The test obtained a Cronbach's alpha of ,85, while the exploratory factor analysis showed the presence of two factors with an explained variance of 53.77% (Artola et al., 2008).

For the assessment of the pedagogical strategies aimed at promoting creativity from teaching practices was designed an ad hoc instrument for this study. The instrument consists of a Likert scale with a range of responses between 1 and 5, initially composed of 6 subscales and 31 items, defined from the theoretical analysis of the concept of teaching practices, educational factors that favor creativity and constituent components of creativity (Klimenko, 2011). The initial version of the scale had four subscales: the cognitive and emotional-motivational mediation strategies, evaluative strategies, teaching

planning, educational resources and classroom environment.

This initial version of the scale was submitted to the judgment of 2 experts, who evaluated the aspects of sufficiency, coherence, relevance, and clarity of wording of the items. The Kappa index presented values between 76 and 90, with $p=,000$, indicating high agreement between the judges. The instrument in its initial design was applied to 110 volunteer teachers as a pilot test. The exploratory factor analysis with principal component extraction and varimax rotation initially projected 8 factors with a total explained variance of 82% and allowed the instrument to be refined, eliminating items with factor loading

less than 0,4. Removing the items improved the KMO and the Bartlett's test remained significant.

The confirmatory factor analysis finally yielded 4 factors whose explained variance was 72%, complying with the parsimony criterion. The 4 components showed self-values above 1. Table 1 shows the final 22 items of the scale with their factorial load, distributed in 4 factors, as follows: factor 1: Cognitive mediation strategies; factor 2: Motivational mediation strategies; factor 3: Teacher as facilitator; factor 4: Evaluation. Finally, Cronbach's Alpha showed the value of $\alpha=,82$, indicating adequate internal consistency of the scale.

Table 1. Factor loading of the items for the final version of the scale.

| Items | Factors | | | |
|---|---------|------|------|------|
| | 1 | 2 | 3 | 4 |
| 1. I use guiding questions to guide exploration of unusual aspects and hidden relationships between phenomena. | ,617 | | | |
| 2. I invite students to look at situations and/or phenomena from different perspectives. | ,608 | | | |
| 3. I accompany the students to look for key aspects in the task that help them find the solution. | | | ,857 | |
| 4. I propose that the themes be exposed through different forms of representation (narration, drawing, song, dance, dramatization, pantomime, etc.) | ,823 | | | |
| 5. I encourage the search for analogies and use analogy and metaphor in my explanations. | ,774 | | | |
| 6. I expose the study topics through problem situations based on real life experience. | ,627 | | | |
| 7. I offer readings of different texts and invite discussion and argumentation of these. | ,770 | | | |
| 8. When I explain topics, I do not give students complete information from the beginning, but rather, when I have raised a problem, I invite them to look for what is necessary for their understanding and solution. | | ,693 | | |
| 9. I try to make students feel comfortable with uncertainty and do not pressure them to seek hasty answers. | | | | ,828 |
| 10. I invite students to express different positions and ideas without fear of being criticized. | ,813 | | | |
| 11. I invite students to be interested in the latest research topics in science, technology, etc., even if they are not related to the curriculum. | ,695 | | | |
| 12. I encourage interest in students regarding the topics studied so that they go beyond what is seen in class. | | | ,537 | |
| 13. For evaluation I use problem solving strategies through collaborative work. | | | | ,632 |
| 14. I give students the freedom to choose the way they want to demonstrate their learning. | | | | ,662 |
| 15. I give constructive feedback regarding the evaluations so that each student understands what they did wrong and why. | | ,713 | | |
| 16. I give priority to students' ideas and change the planned course of the class in case other topics or interests arise. | | | ,624 | |
| 17. I combine the guide texts with free choice of complementary topics according to the interest of the student. | | ,593 | | |
| 18. I give students the opportunity to investigate and propose topics for study. | | ,745 | | |

| | | |
|---|------|--|
| 19. I use various learning experiences that allow a relationship between the visual, auditory and kinesthetic registers. | ,765 | |
| 20. I go with surudente on field trips and observe natural phenomena. | ,782 | |
| 21. I allow a flexible organization for the chairs and tables distribution and their high mobility. | ,887 | |
| 22. Together with the students, I organize an aesthetic decoration that stimulates curiosity (sentences, drawings, models, etc.). | ,772 | |

Extraction method: Principal component analysis.
 Rotation method: Varimax normalization with Kaiser.

a. The rotation has converged in 5 iterations.

The statistical analysis indicated a normal distribution for the variable of motivational mediation strategies, while the variables of cognitive mediation strategies, teacher as facilitator and evaluation presented a non-normal distribution. Total creativity and narrative and graphic creativity also showed a non-normal distribution.

To identify the descriptive values of the study variables was performed a descriptive analysis of medians and standard deviation. For the intergroup comparison, the Anova statistic of one factor and Kruscal-Wallis were used according to the type of distribution of the variables in the case of more than two groups, and in the case of two groups was used the Man-Whitney U statistic and the Student's T test. For the comparison according of academic score groups, the academic score variable was recategorized into two qualitative variables: low and high performance, with a cutoff of 300 points

as the median of scores at the national level obtained in the Saber-Pro tests. Similarly, for the comparison according to groups of educational institutions with the highest and lowest student creativity scores, the total creativity variable was recategorized with a cutoff of 50.

3. Results and discussion

3.1 Analysis of variables associated with teachers

The scores obtained in the variables of the scale for teachers show that, according to the self-report of teachers, at the general level of the sample, scores were reached at the high level in strategies of cognitive mediation, teacher as facilitator and evaluation. The motivational mediation strategies variable was located at the medium-high level (see table 2).

Table 2. Descriptive statistics of the variables associated with the teacher scale.

| Variables | M (Dt) | Level |
|-----------------------------------|------------|-------------|
| Cognitive mediation strategies | 33 (5,4) | High |
| Motivational mediation strategies | 24,6 (5,4) | Medium-high |
| Teacher as facilitator | 15,8 (2,7) | High |
| Evaluation | 11,5 (2,3) | High |

Table 3 presents the descriptive data of the variables associated with the educational institutions participating in the study, obtained from the responses of teachers on the self-

assessment scale of their teaching practices. Although significant differences were found in cognitive mediation strategies ($p=.007$), emotional-motivational mediation strategies

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($p=,000$), teacher facilitator ($p=,047$) and evaluation ($p=,016$), At a general level, the scores were high in all the schools, with only one educational institution showing median

scores in three of the factors. Likewise, significant differences were observed in relation to the general, narrative and graphic creativity scores.

Table 3. Descriptive statistics of the variables for each educational institution.

| College Pedagogical model Type of college | 1 Traditional public | 2 Traditional public | 3 Traditional public | 4 Alternative public | 5 Alternative private | 6 alternative private | 7 Traditional private | 8 alternative private | 9 alternative public | 10 alternative private | Sig. |
|---|----------------------|------------------------|------------------------|------------------------|------------------------|-----------------------|------------------------|-----------------------|----------------------|------------------------|--------|
| Cognitive mediation strategies (8-40) | 33,9 (8,6) high | 31 (5,9) high | 32,2 (3,5) high | 33 (3,5) high | 32,5 (2,8) high | 33,9 (2,3) high | 27,4 (7,9) medium | 35,2 (2,5) high | 33,2 (2) high | 38(2) high | ,007** |
| Motivational mediation strategies (7-35) | 29,3 (4,9) high | 24,8 (2,3) medium/high | 24,9 (4,5) medium/high | 24,2 (4,7) medium/high | 21 (4,3) high | 19,1 (4,2) medium | 21(4,9) medium | 27,9 (3,5) high | 26,8 (3) high | 30,4 (1,9) high | ,000* |
| Teacher as facilitator (4-20) | 17,4 (2,2) high | 14,2 (1,8) medium/high | 14,4 (2,4) medium/high | 15,3 (3,2) high | 14,8 (2,9) medium/high | 15,9 (3,2) high | 14,5 (3,2) medium/high | 16,5 (2) high | 16 (2) high | 18,4 (0,8) high | ,047** |
| Evaluation (3-15) | 12,6 (2,4) high | 11,2 (2,6) high | 10,7 (3) medium/high | 10,3 (2,8) medium/high | 12 (1,9) high | 12 (1,8) high | 9 (1,9) medium | 12,3 (1) high | 12,1 (1) high | 13,4 (0,8) high | ,016** |
| Total creativity | 34(21) | 30(20) | 33(19) | 38 (17) | 71 (50) | 51(40) | 52 (25) | 62 (40) | 31 (17) | 86 (48) | ,000** |
| Narrative creativity | 28(20) | 26(26) | 29(18) | 31(12) | 64(46) | 46(35) | 44 (25) | 53 (40) | 26 (12) | 75 (45) | ,000** |
| Graphic creativity | 6(6) | 4(6) | 4(3) | 7(4) | 7(5) | 7(6) | 8(4) | 9(4) | 5(2) | 9(7) | ,000** |
| Academic score | 292,4 | 281,9 | 262,9 | 234,8 | 299,5 | 352,1 | 259,9 | 355,5 | 245,3 | 353,1 | |

* Anova of one factor was used (M(Dt)
 ** Kruskal-Wallis test (Me (Ri)) was used.

The creativity scores of the high school students surveyed presented a low level in total creativity and narrative creativity, and a medium low

level in graphic creativity. The Z score indicates that the scores obtained were well below the reference mean (see table 4).

Table 4. Descriptive data of creativity scores for the students in the sample.

| Variables | M (Dt) | Z |
|----------------------|-------------|-------|
| Total creativity | 52,6 (25,3) | -1,52 |
| Narrative creativity | 45,7 (27,1) | -1,43 |
| Graphic creativity | 6,5(3,4) | -0,52 |

3.2 Analysis of the variables associated with educational institutions

Was observed a significant difference in the strategies of cognitive mediation ($p=,045$) and evaluation ($p=,036$), according to the pedagogical model, with higher scores for the

alternative pedagogical model. There were no significant differences in the strategies of motivational mediation and teacher facilitator between the schools with the traditional and alternative models (see table 5).

Table 5. Comparison of study variables according to the pedagogical model of educational institutions.

| Variables | Traditional model Me (RI) | Alternative model Me (RI) | U de Mann Whitney | P |
|-------------------------------------|-------------------------------|-------------------------------|-------------------------------|----------------------------------|
| Cognitive mediation strategies | 32(7) | 35(4) | 359,500 | ,045 |
| Motivational mediation strategies * | 24,86(5,2) | 24,42(5,7) | ,321 | ,075 |
| Teacher as facilitator | 15(5) | 16(6) | 389,000 | ,117 |
| Evaluation | 11(5) | 12(3) | 36,000 | ,036 |
| *M (Dt). Student's t-test. | *M (Dt). Student's t-test. | *M (Dt). Student's t-test. | *M (Dt). Student's t-test. | *M (Dt). Student's t-test. |

No significant differences were identified regarding the strategies of cognitive mediation, motivational mediation, teacher facilitator, and

evaluation according to the type of school (see table 6).

Table 6. Comparison of study variables according to the type of school.

| Variables | Public school Me (RI) | Private school Me (RI) | U de Mann Whitney | P |
|-------------------------------------|--------------------------|---------------------------|----------------------|------|
| Cognitive mediation strategies | 34(6) | 35(4) | 445,500 | ,506 |
| Motivational mediation strategies * | 25,88(4,6) | 23,74(5,8) | 1,577 | ,120 |
| Teacher as facilitator | 15(5) | 16(6) | 420,000 | ,308 |
| Evaluation | 11(4) | 12(3) | 451,500 | ,556 |
| *M (Dt). Student's t-test. | | | | |

Significant differences were identified in cognitive mediation strategies ($p=,004$), teacher facilitator ($p=,015$) and evaluation ($p=,014$) between the groups of educational institutions

with high and low academic scores, in favor of the institutions with higher academic scores. No statistically significant difference was found in motivational mediation strategies (see table 7).

Table 7. Comparison of study variables according to academic score in state tests.

| Variables | Low academic score Me (RI) | High academic score Me (RI) | U de Mann Whitney | P |
|-------------------------------------|----------------------------------|-----------------------------------|----------------------|------|
| Cognitive mediation strategies | 33(7) | 35(5) | 271,000 | ,004 |
| Motivational mediation strategies * | 24,18(5) | 25,3(5,9) | -,826 | ,412 |
| Teacher as facilitator | 15(4) | 17(5) | 306,000 | ,015 |
| Evaluation | 11(5) | 12(2) | 305,500 | ,014 |
| *M (Dt). Student's t-test. | | | | |

In the comparison of teaching strategies between the institutions that obtained the highest and lowest student creativity scores, significant differences were identified in the

strategies of cognitive mediation ($p=,028$) and evaluation ($p=,008$), in favor of the educational institutions that obtained higher scores in the student creativity test (table 8).

Table 8. Comparison of study variables according to creativity score of students in educational institutions.

| Variables | Institutions with low creativity Me (RI) | Institutions with high creativity Me (RI) | U de Mann Whitney | P |
|-------------------------------------|--|---|-------------------|------|
| Cognitive mediation strategies | 32,5(7) | 35(4) | 347,000 | ,028 |
| Motivational mediation strategies * | 24,7(5.0) | 24,5(5.9) | ,197 | ,845 |
| Teacher as facilitator | 15(5) | 16(5) | 375,500 | ,068 |
| Evaluation | 11(5) | 12(2) | 316,500 | ,008 |

*M (Dt). Student's t-test

3.3 Discussion

Call attention the high assessment of teachers in relation to their actions favorable to the promotion of creativity. However, when considering the creativity scores, emerges the contradiction between a high assessment of their own teaching performance favorable to the promotion of creativity and the low levels of creativity evidenced by the students. This contradiction refers to the consideration of a possible high degree of social desirability that teachers showed in their responses to the scale, a situation identified in other studies that report the difference between the favorability of teachers' self-reports and the deficiencies in their actual performance in the classroom (Gralewski, 2016; Bloom & VanSlyke-Briggs, 2019).

The contrasting of the teachers' assessment of their performance in teaching practices according to different educational contexts, such as: type of school, pedagogical model, academic score and creativity of the students in the participating institutions, revealed some interesting results.

In the first place, the difference between the schools in terms of teaching performance in their teaching practices is observed. Regarding

schools with traditional and alternative models, a significant difference was identified in the use of cognitive mediation strategies and evaluative strategies favorable to creativity. There were no significant differences in motivational mediation strategies and acting as a teacher facilitator. This indicates that in schools with alternative models, it seems that more attention is devoted to aspects of student thinking development. Likewise, a greater number of evaluative strategies based on problem solving are used, giving students more freedom in choosing the ways to demonstrate their learning. This type of evaluation is more oriented towards confronting students with the management of uncertainty and the use of research, instead of memorizing the data and answers to predesigned questions according to the contents seen in class, as occurs in traditional teaching (Merchán-Rangel & Hernández-Flórez, 2018; Gómez -Mendivelso et al., 2022).

Secondly, the comparison between groups of public and private schools did not show significant differences in cognitive and motivational mediation strategies, teacher facilitator and evaluation. This implies that teaching performance may be more related to the pedagogical model to which the teacher adheres than to the type of school, as indicated

by several studies that highlight the effect of adherence to a pedagogical model on teaching practices. of teachers, determining their implicit conceptions and respective valuation of creativity (Hoseini et al., 2020; Mróz & Ocetkiewicz, 2021; Li et al., 2021; Huang and Yang, 2021).

Third, the comparison between the schools with the highest and lowest scores in the academic tests showed significant differences in terms of the use of cognitive mediation strategies, acting as a facilitator teacher, and assessment strategies, in favor of schools with higher academic scores. The foregoing suggests that these elements of teaching practices can be of greater contribution to good academic performance of students and could be related to the promotion of meaningful learning. If the orientation of the questions of the scale included in these three variables is considered, it can be seen that they are oriented to the use of teaching strategies, such as: exploration of key elements of the contents and tasks, relationship of the contents with the situations of real life, exploratory and investigative interest, argumentation and discussion, flexible evaluation through problem solving, among others. These aspects of teaching, in addition to contributing to the promotion of creative thinking, are related by many authors to meaningful learning in students, this being associated with the development of divergent thinking (Padilla & Victoria, 2014; Roys & Pérez, 2018).

At this point it is important to highlight the role of evaluative strategies used by teachers in student learning. Studies indicate that evaluation has a retroactive effect on student learning and academic motivation (Fan & Cai, 2022), stimulating the use of learning strategies depending on the type of evaluation used by the teacher. The use of a mechanical and rote evaluation drives students towards a superficial learning, based on the exact memorization of the contents. In contrast, a type of evaluation that involves reflective and comprehensive thinking based on problem solving, where the student must use the understanding of concepts, stimulates deep and meaningful learning in

students, ultimately allowing them to improve academic long-term performance.

In this sense, call attention the finding show that in schools with higher academic scores, the teachers scored higher on the subscales of cognitive mediation strategies, teacher as facilitator and evaluation, while they did not differ in the intrinsic motivation strategies.

Rodríguez (2011) indicates that there are several myths about the necessary conditions for meaningful learning to occur: one of them is that learning occurs when the student wants to learn (intrinsic motivation). Actually, the desire to learn does not guarantee that good learning takes place, the necessary premise being the assurance of the presence of an adequate cognitive process, where a connection is established between the subsumer keys (prior knowledge) and guiding keys identified in the new content. This is the task that is ensured through the use of cognitive orientation strategies by the teacher, integrated into a joint activity and aimed at exploring the study contents, which is carried out between the teacher and the student: this evidences the importance of the three variables with the highest score in the results.

This implies that it is necessary to teach the student to learn in a significant way, placing him in the problematizing situation of learning. For this, conditions of interaction with the new study materials must be created, through the use of cognitive mediation strategies, teacher accompaniment and appropriate evaluation strategies (Núñez-Rueda et al., 2022).

Regarding the schools with the highest and lowest scores in creativity, significant differences were found in the strategies of cognitive mediation and evaluation, in favor of the group of schools with the highest scores in creativity. This suggests that cognitive mediation and evaluation strategies have a greater contribution to fostering creativity in students. In this regard, the results of this study confirm the relevance of promoting divergent thinking from teaching practices, which is essential for problem solving

and creativity (Sun et al., 2020; Roberts et al., 2021).

Regarding the evaluation used in the teaching process, it is evident that this constitutes an important tool for the promotion of both significant learning and creativity. The questions included in this factor investigate the use of situations related to uncertainty, problem-solving strategies through collaborative work, and student freedom to demonstrate their learning. The results suggest that the use of evaluative strategies related to these aspects allows students to stimulate their creative abilities. Research indicates that the use of the teaching method based on problem solving has a positive impact on student creativity (Yazdanpanah and Siamian, 2014; Yurniati et al., 2019), so its use as an evaluative strategy, likewise, can have the same effect.

Several authors highlight that the orientation of education towards standardized evaluation, whose purpose is to monitor learning, influences the stagnation of student creativity. In this sense, they recommend the use of evaluative strategies that do not aim at the comparison of achievements between students or at grades as the final goal, but are oriented towards understanding and personal improvement (Hoseini et al., 2020; Huang et al., 2021). When assessment strategies are focused on students' self-improvement, they are likely to take risks, seek challenges, and persevere in the face of difficulties, allowing them to generate novel ideas and complete and communicate the results of their creative efforts. Likewise, some authors recommend reducing the pressure and stress caused by evaluations, since these can cause anxiety that decreases creative performance (Fan & Cai, 2022).

4. Conclusions

In this research, was found a high social desirability in the responses of the teachers of the sample, a situation that replicates findings from other studies. Likewise, it was found that the peda-

gogical model, apparently, plays an important role in the teaching performance favorable to creativity, since were not found the differences according to the type of school, but according to the pedagogical model.

Teachers' responses indicate that schools with alternative models pay more attention to aspects of fostering student thinking, while more flexible and open assessment strategies are used. In schools with higher academic scores, teachers reported greater use of cognitive mediation strategies for divergent thinking, greater teacher performance as facilitator and guide of the process, along with the use of more flexible and open assessment strategies. The foregoing may be affecting the promotion of more meaningful learning in students, having an impact on better academic performance. However, it is recommended to carry out larger studies considering both the variable of teaching strategies, as well as the learning strategies used by students and academic performance, in order to have more conclusive results.

In the schools with a higher creativity score, higher scores were obtained in the use of cognitive mediation strategies for divergent thinking and in the use of flexible and open assessment strategies, indicating that these factors are probably of greater incidence in the promotion of creativity in students.

Regarding future work, it is suggested to continue with the current line of research, focusing on qualitative aspects related to implicit theories and conceptions of learning and creativity, among others. This would allow establishing the impact on the promotion of creativity in students, based on the teaching practices of teachers.

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