

## CLASSROOM CLIMATE IN THE SECONDARY SCHOOL OF MAR DEL PLATA

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### ABSTRACT

The present study analyzes the Classroom Climate in educational institutions of secondary school of the city of Mar del Plata. The sample consisted of 40 classes of basic secondary level of four educational institutions of the city of Mar del Plata (998 students, 37 teachers and 39 preceptors.) To evaluate the Classroom Climate was used the Classroom Environment Scale (CES) developed by Moos and Tricket. The results indicate a moderately favorable Classroom Climate. The strengths and weaknesses are presented, as well as the differences between teachers, preceptors and students. The importance of the role of preceptors in educational institutions is highlighted. The results are expected to enable future lines of research in the design of educational intervention programs that favor a positive Classroom Climate.

**Keywords:** classroom environment; high school; school psychology.

## Clima áulico en la escuela secundaria de la ciudad de Mar del Plata

### RESUMEN

El presente trabajo analiza el Clima Áulico en instituciones educativas de nivel secundario de la ciudad de Mar del Plata. La muestra estuvo conformada por 40 grupos Áulicos de nivel secundario básico de cuatro instituciones educativas de la ciudad de Mar del Plata (998 estudiantes, 37 docentes y 39 preceptores). Para evaluar el Clima Áulico se utilizó la Escala de Clima Social Escolar (Classroom Environment Scale, CES) desarrollada por Moos y Tricket. Los resultados señalan un Clima Áulico medianamente favorable. Se presentan las fortalezas y debilidades, así también como las diferencias entre docentes, preceptores y estudiantes. Se resalta la importancia del rol de los preceptores en las instituciones educativas. Se espera que los resultados posibiliten futuras líneas de investigación en el diseño de programas de intervención educativa que favorezcan un Clima Áulico positivo.

**Palabras Clave:** ambiente de la sala de clase; escuelas secundarias; psicología escolar.

## Clima Áulico na escola secundária da cidade de Mar del Plata

### RESUMO

O presente estudo analisa o Clima Áulico em instituições educativas de nível secundário da cidade de Mar del Plata. A mostra foi formada por 40 grupos Áulicos de nível secundário básico de quatro instituições educativas da cidade de Mar del Plata (998 estudantes, 37 docentes e 39 preceptores). Para avaliar o Clima Áulico utilizou-se a Escala de Clima Social Escolar (*Classroom Environment Scale*, CES) desenvolvida por Moos e Tricket. Os resultados mostram um Clima Áulico medianamente favorável. Apresentam-se os pontos fortes e os pontos fracos, assim também como as diferenças entre docentes, preceptores e estudantes. Ressalta-se a importância do rol dos preceptores nas instituições educativas. Espera-se que os resultados possibilitem futuras linhas de pesquisa no desenho de programas de intervenção educativa que favoreçam um Clima Áulico positivo.

**Palavras-chave:** ambiente da sala da aula; escolas de ensino médio; psicologia escolar.

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## INTRODUCTION

Education is a complex process in which teaching and learning processes converge. Studies in education account for various variables that have been considered crucial in the transmission and acquisition of knowledge, such as the students and teachers' well-being (Bisquerra Alzina, 2008; Carmona & López, 2015; Paneiva Pompa, Bakker, & Rubiales, 2018). They have traditionally been placed in two large groups, those that are included within the so-called alterable factors (cognitive / intellectual variables, study aptitude and affective variables) and those included within the factors that are not susceptible to being modified by the educational system, called unalterable (socioeconomic position, parents' educational level, family size, among others) (Chávez Uribe, 2006). However, as Sternberg, Wagner, Williams, and Horvath (1995) point out, these factors are poor predictors of long-term academic performance and job success outside of educational settings. Consequently, various investigations are oriented towards the search for non-cognitive factors that allow a greater understanding of the causes and factors that influence current and frequent problems in educational settings, as well as the design of programs to improve the students' learning process (Bisquerra Alzina, 2008). In this area of little study is the Classroom Environment. Coll and Solé (2004) point out that until a few decades ago the classroom context has been practically absent in research about learning at school. However, at present, the panorama has been changing, and research about the characteristics of the teaching and learning context is gaining greater prominence (Treviño et al., 2010).

Classroom Environment can be defined as the intellectual, social, emotional, and physical environment in which students learn (Ambrose, Bridges, DiPietro, & Lovett, 2010). It is a reflection of the opinions of students about their experience in the academic context (Reid & Radhakrishnan, 2003). Various studies indicate that a positive Classroom Environment favors the cognitive and emotional development of students, benefiting the acquisition of cognitive skills, learning, the development of positive attitudes towards study and academic performance (Cornejo, & Redondo, 2001; Norton, 2008; Pianta, La Paro, Payne, Cox, & Bradley, 2002; Triano Quijano, & Velázquez Niño, 2014).

Considering the need for more empirical evidence to validate the implementation of strategies that favor a positive Classroom Environment, this study aimed to evaluate and analyze the levels of Classroom Environment in secondary school classes of educational institutions in the city of Mar del Plata. Therefore, the levels of Classroom Environment of the Classroom groups are described in terms of Relationships, Personal Development, Stability and System of Change. In turn, the perceptions of students, teachers and preceptors

are compared. In this sense, it seeks to identify the elements of the class that substantially intervene in the educational process, and it is expected that the results will make it possible to design educational intervention programs that favor a positive Classroom Environment.

## METHODOLOGY

### Instrument

The Classroom Environment Scale (CES) developed by Moos and Trickett (1974) was used to evaluate the Classroom Environment. It focuses on the social-emotional-environmental aspects of the class, which refer to the social dynamics of the system that includes not only the behavior of the teacher, but also the teacher-student relationship and that of the students among themselves.

For this research, the version adapted to Spanish-Castilian was administered (Casullo & Mikulic, 2009), to which a Likert-type response form was incorporated with four options: "Never", "Sometimes", "Almost always" and "Always", having to mark with an "X" the option they considered correct. Both the original version and the adapted version are made up of 90 items grouped into 9 subscales comprised of four dimensions: Relational, Personal Development, Stability and System of Change.

Below is a brief box (Box 1) describing the nine subscales of the CES and detailing which dimension they belong to.

### Population and sample

The universe of the study corresponds to classroom groups belonging to the basic cycle of secondary education in the city of Mar del Plata. The sample was made up of 40 groups of students of basic secondary level [12 of the first year (30%), 14 of the second year (35%) and 14 of the third year (35%)], from four (4) educational institutions of the city of Mar del Plata. The total sample consisted of 998 students, 37 teachers and 39 preceptors.

### Procedure

Contacts were made with four educational institutions in the city of Mar del Plata, province of Buenos Aires, Argentina. The evaluation sessions with the courses were carried out in a group and self-administered way. Participation was voluntary and with the parental, teachers and directors' consent; as well as the participating students' consent. Before administering the instrument, the test instructions were read. During the development of the work, the ethical principles of research with human beings were respected, seeking the necessary conditions to protect confidentiality and act for the participants' benefit.

### Data Analysis

To carry out the statistical analyzes, the SPSS

**Box 1.** Dimensions and subscales of the CES (Moos & Tricket, 1974).

DIMENSION	Definition	Subscales	Definition
<b>Relational</b>	Degree of involvement of students in the environment, scope of their support and help towards the other and degree of freedom of expression. That is, it measures how integrated the students are in the class, they support and help each other	Involvement	Degree to which students show interest in class activities and participate in colloquia and how they enjoy the environment created, incorporating complementary tasks.
		Affiliation	Friendship level between students and how they help each other with their homework, get to know each other and enjoy working together.
		Help	Degree of help, concern and friendship for students (open communication with students, trust in them and interest in their ideas).
<b>Personal development</b>	Importance that is given in the class to the completion of the tasks and the content of the subjects.	Homework	Importance given to the completion of scheduled tasks. Emphasis placed by the teacher on the subject matter syllabus.
		Competitiveness	Degree of importance given to the effort to achieve a good grade and esteem, as well as to the difficulty in obtaining them.
		Organization	Importance that is given to order, organization and good manners in carrying out school tasks..
<b>Maintenance System</b>	Evaluate the activities related to the fulfillment of objectives, proper functioning of the class, organization, clarity and consistency in it.	Clarity	It is important to establish and follow clear rules and knowledge on the part of the students of the consequences of their default.
			Degree that the teacher is consistent with this norm and breaches.
		Control	Degree to which the teacher is strict in his controls about compliance with the rules and penalization of those who do not practice them.
<b>Change System</b>	Degree to which there is reasonable diversity, novelty, and variation in class activities.	Innovation	Degree to which students contribute to planning school activities and the variety and changes that the teacher introduces with new techniques and stimuli to student creativity.

(Statistical Package for the Social Sciences) version 19 was used. The raw scores obtained were transformed from a scale of 0 to 3 points according to the response options used, adapting the scale of Rivera Arrieta (2018) of five interpretation intervals: 0 to 0.6 = very unfavorable; 0.7 to 1.2 = unfavorable; 1.3 to 1.8 moderately favorable; 1.9 to 2.4 = highly favorable; and 2.5 to 3 = highly favorable. The score for total Classroom Environment was obtained from the average of the 4 dimensions evaluated. In order to describe the levels of Classroom Environment, the data obtained were subjected to a descriptive statistical analysis.

Since the data do not comply with the homocostacy hypothesis (Pardo & Ruiz, 2000), the Mann-Whitney and Kruskal-Wallis U tests were applied to compare means and to establish whether the observed differences are statistically significant. Additionally, the effect size of

the difference was calculated, for which the Cohen rank classification was used, which indicates that the effect size can be large (greater than 0.8), medium (close to 0.5) or less (less than 0.2) (Quezada, 2007).

## RESULTS

### Total Classroom Environment

In relation to the description of the Classroom Environment in the secondary school of the city of Mar del Plata, the results indicate a median of 1.45 points out of 3, which when compared with the interpretation scale indicates a moderately favorable Environment. The minimum score was 0.55 and the maximum was 1.99; the typical deviation being 0.22. In the same sense, we can see in graph 1 that 75% of the data scores above 1.31; which according to the scale refers to a moderately favorable climate.

Graph 1 shows a homogeneous and symmetric distribution, which would indicate little variability and a similar frequency distribution above and below the median. Similarly, a minimum score of 0.55 and a maximum score of 1.99 are observed; and the existence of some atypical values, that is, far from the normal distribution of the data, below the first quartile.

### Classroom Environment Dimensions

Table 1 shows the results for the dimensions of Classroom Environment in the secondary school of the City of Mar del Plata. It reflects that all dimensions are in the moderately favorable category. However, the dimension with the lowest median was the Change System with a score of 1.37; and the one with the best score was the Personal Development dimension with a median of 1.60.

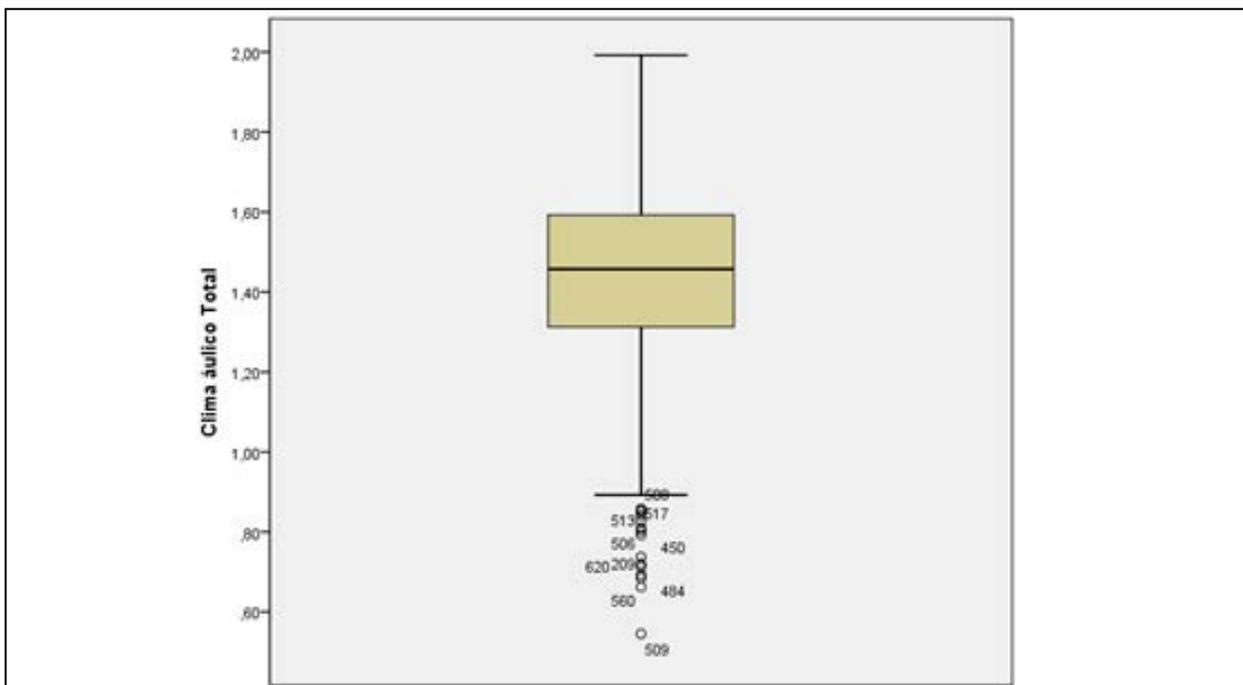
Graph 2 shows that all dimensions presented a symmetric distribution, which would indicate a similar

frequency distribution, above and below the median. In turn, the Personal Development dimension presented the most homogeneous distribution, while the Change System was the one that presented the greatest heterogeneity. All dimensions show atypical cases.

### Subscales of Classroom Environment

Table 2 presents the results for the Classroom Environment subscales in the secondary school of the City of Mar del Plata. It reflects that the involvement and control subscales have the lowest medians, with a score of 1.18; which according to the interpretation categories are unfavorable. The other subscales presented scores that according to the interpretation scale are considered moderately favorable, with the exception of the clarity subscale with a median of 1.82 considered highly favorable.

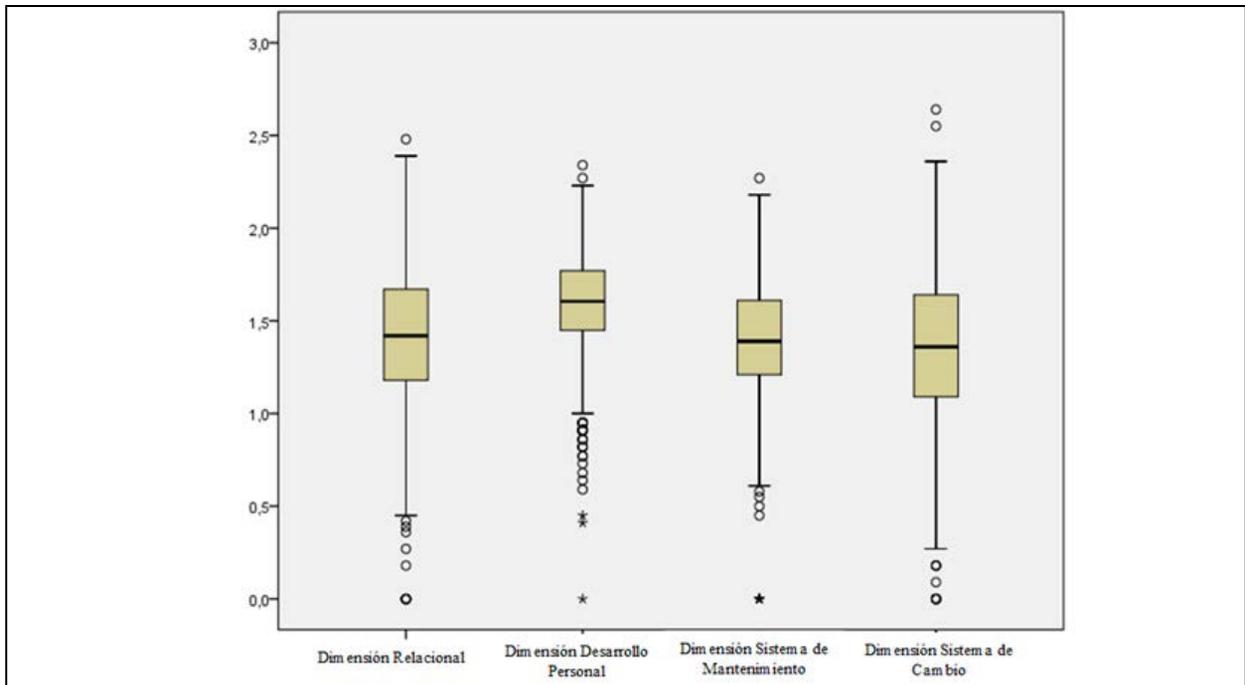
Graph 3 represents the frequency distribution of the scores of the sub-scales of Classroom Environment. In



Graph 1. Box-and-whisker plot of total Classroom Environment.

Table 1. Dimensions of Classroom Environment in the Secondary School in Mar del Plata.

	Relational	Personal Development	Maintenance System	Change System
Average	1.41	1.59	1.39	1.37
Median	1.42	1.60	1.39	1.36
Typical deviation	.37	.28	.31	.40
Minimum	.00	.00	.00	.00
Maximum	2.48	2.34	2.27	2.64
Percentiles				
25	1.18	1.45	1.21	1.09
50	1.42	1.60	1.39	1.36
75	1.67	1.77	1.61	1.64



**Graph 2.** Box-and-whisker diagram of the dimensions of Classroom Environment.

**Table 2.** Statistical Subscales of Classroom Environment in the Secondary School of the city of Mar del Plata.

	Implications	Affiliation	Help	Homework	Competitiveness	Organization	Clarity	Control	Innovation
Average	1.16	1.47	1.61	1.63	1.56	1.26	1.76	1.17	1.37
Median	1.18	1.45	1.64	1.64	1.55	1.27	1.82	1.18	1.36
Typical deviation	.44	.45	.46	.33	.35	.39	.40	.40	.40
Minimum	.00	.00	.00	.55	.00	.00	.55	.00	.00
Maximum	2.45	2.73	2.64	2.64	2.55	2.36	2.73	2.36	2.64
Percentiles									
25	.82	1.18	1.27	1.36	1.36	1.00	1.55	.91	1.09
50	1.18	1.45	1.64	1.64	1.55	1.27	1.82	1.18	1.36
75	1.45	1.80	1.91	1.91	1.82	1.55	2.09	1.45	1.64

it, elongated boxes can be observed, which indicates greater heterogeneity in the data with respect to the total Classroom Environment, that is, they present dispersed characteristics and greater variability.

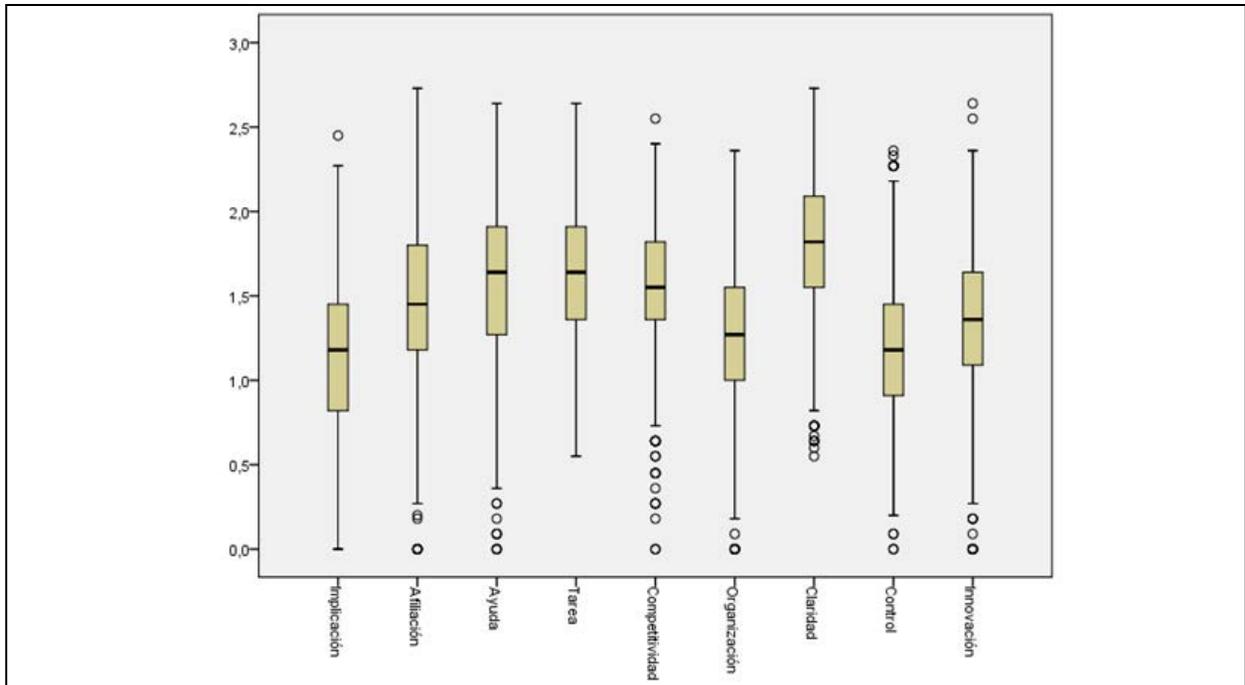
#### Differences among the perceptions of teachers, preceptors and students

In Table 3 the results are presented for the dimensions and subscales of the Classroom Environment in the secondary school of the city of Mar del Plata by students, teachers and preceptors. Significant differences were found in the Relational dimensions, Personal Development and Change System, as in all subscales except for homework and innovation. In the subscales competitiveness and control the differences were less than 0.05; but that in implication, affiliation, help, organization and clarity the differences were less than 0.01.

Table 4 is presented below, which shows the

results for the dimensions and subscales of Classroom Environment in the secondary school of the city of Mar del Plata, comparing teachers with students, teachers with preceptor, and preceptors with students.

When comparing teachers with students, statistically significant differences were found in all dimensions and subscales except for Homework and Personal Development. The differences were in favor of teachers with a large effect size in the subscales of involvement, affiliation, help, clarity and the Relational dimension; and a medium effect size in organization, innovation and the Maintenance System dimension. The students presented statistically significant higher scores on the control and competitiveness subscales with a mediating effect size. However, when comparing teachers with preceptors, statistically significant differences were only found in the subscale help and the Relational dimension, with a medium effect size.



**Graph 3.** Box-and-whisker diagram of Classroom Environment Subscales.

**Table 3.** Statistics of the dimensions and subscales of Classroom Environment in the Secondary School of the city of Mar del Plata and results of the Kruskal-Wallis test discriminated according to students, teachers and preceptors.

Dimension	Subscale	Students		Teachers		Preceptors		Contrast statistics	
		A	TD	A	TD	A	TD	X <sup>2</sup>	p
Relational	Implication	1.13	.43	1.57	.40	1.53	.37	61.52	.00**
	Affiliation	1.44	.44	1.92	.50	1.74	.39	45.31	.00**
	Help	1.60	.45	1.98	.35	1.73	.43	28.96	.00**
	Total	1.38	.36	1.83	.34	1.67	.31	66.02	.00**
Personal Development	Homework	1.63	.34	1.67	.27	1.65	.30	.983	.61
	Competitiveness	1.56	.36	1.43	.28	1.49	.27	8.57	.01*
	Total	1.59	.29	1.55	.19	1.57	.23	2.31	.00**
Maintenance System	Organization	1.24	.39	1.45	.28	1.56	.32	36.03	.00**
	Clarity	1.74	.39	2.15	.28	1.98	.43	50.30	.00**
Change System	Control	1.18	.41	1.03	.27	1.16	.33	6.41	.04*
	Innovation	1.36	.40	1.57	.45	1.34	.29	9.86	.07

\*:  $p < .05$ .; \*\*:  $p < .01$ . Ref.: A (Average), TD (Typical Deviation).

On the other hand, when comparing preceptors with students, statistically significant differences were found in the subscales of involvement, affiliation, organization and clarity, and in the Relational and Maintenance System dimensions. The differences resulted with a medium effect size in the affiliation and clarity subscales and in the Maintenance System dimension; and a large effect size in the implication and organization subscales

and in the Relational dimension.

## DISCUSSION

When evaluating and analyzing the levels of Classroom Environment at the basic secondary level of the city of Mar del Plata, the findings indicate that it presents moderately favorable levels, which as indicated

**Table 4.** Results of the U-Mann-Whitney test, bilateral asymptotic significance and Cohen's  $d'$  comparing teachers with students, teachers with preceptors and preceptors with students.

Dimension	Subscales	Teachers vs students		Teachers vs preceptors		Preceptors vs students	
		p	$d'$	p	$d'$	p	$d'$
Relational	Involvement	.00**	1.02	.70	-	.00**	.93
	Affiliation	.00**	1.08	.12	-	.00**	.68
	Help	.00**	.85	.00**	.63	.07	-
	Total	.00**	1.25	.04*	.49	.00**	.80
Personal	Homework	.38	-	.69	-	.62	-
	Competitiveness	.01*	.36	.30	-	.13	-
Development	Total	.17	-	.55	-	.47	-
Maintenance System	Organization	.00**	.54	.09	-	.00**	.82
	Clarity	.00**	1.06	.10	-	.00**	.61
	Control	.01*	.37	.05	-	.70	-
	Total	.00**	.55	.28	-	.00**	.61
Change System	Innovation	.00**	.52	.00**	.61	.68	-

\*:  $p < .05$ .; \*\*:  $p < .01$ .

would be beneficial for the acquisition of cognitive skills, learning, development of positive attitudes towards study and academic performance (Cornejo & Redondo, 2001; Norton, 2008; Pianta et al., 2002; Triano Quijano & Velázquez Niño, 2014). These results are in tune with the findings of the APRENDER tests, an evaluation carried out by the Ministry of Education of the Nation, which aims to obtain data about the state of education in Argentina to plan educational public policies. In it, high school students in the city of Mar del Plata obtained higher results in their learning than the average of the province of Buenos Aires and the country (Ministerio de Educación de la Nación, 2018). In other words, the moderately favorable levels of Classroom Environment found in this study may be a factor that is positively influencing the academic results of the students.

Regarding the analysis of the results according to dimensions, they indicate that the Change System presented the lowest score, indicating as a weakness the degree to which there is diversity, novelty and reasonable variation in class activities. On the other hand, the best score was presented by the Personal Development dimension, noting the importance given in the classes to the completion of the tasks and the subjects of the school contents.

Regarding the subscales, the results showed that the lowest scores were found in involvement and control, which respectively would indicate a low interest in class activities, little participation in group activities and enjoyment of the environment created incorporating complementary tasks; with excessive teacher's flexibility in his controls about the fulfillment of the norms and penalization of those that do not practice them. On the

other hand, the highest scores were found in the clarity subscale, indicating that great importance is given to the establishment and follow-up of clear rules and to the knowledge by the students of the consequences of their non-compliance. In summary, these data would allow us to think that in the secondary school of the city of Mar del Plata there would be clarity to explain and make explicit the rules of a class, but a low degree of coherence with the regulations and their breaches.

When comparing teachers with students, the findings showed significant differences in favor of the students, who obtained higher scores in the competitiveness and control subscales, which would indicate a greater perception of the degree of importance assigned to the effort to achieve good grades and the perceived difficulty in obtaining them, and a higher level of rigor on the part of the teacher regarding compliance with the rules and the consequences for those who do not comply with them. On the other hand, the results showed that it was the teachers who scored significantly higher on the subscales of involvement, affiliation, help, organization and clarity; in the Relational, System Maintenance and Change System dimensions. This would indicate that teachers perceive that their students show greater interest in class activities than what they actually do, and a greater degree of commitment, cooperation among them and integration than they actually show. In turn, teachers would perceive themselves to have a closer bond with their students than they perceive, based on a greater concern for their concerns, the belief in more open communication and taking into consideration the contributions that they would make in planning of school activities. In addition, teachers would argue

that in their classes there would be a greater fulfillment of the proposed objectives, order, organization and coherence in the fulfillment of the norms than their students perceive.

On the other hand, when comparing teachers with preceptors, it is worth highlighting the similarity in the perception of the classroom environment. Although the preceptors do not share the classes, and many times their knowledge of the Classroom Environment is through deduction or assumption, the findings indicate that there would be no significant differences except in the help subscale and the Relational and Change System dimensions. In these variables, it is the teachers who would perceive themselves with greater concern and communication with their students, and ultimately better bond than their peer preceptors would perceive.

Finally, when comparing the results between students and preceptors, they show that all the significant differences were in favor of the preceptors. Regarding the subscales of involvement, affiliation, organization and clarity, and the Relational and Maintenance System dimensions, the results indicate that, as when comparing with teachers, students score significantly less. Which would mean that both the levels of cooperation and mutual help, the interest in class activities, as well as the importance given to order, organization and good manners in the performance of school tasks, as well as the establishment and follow-up of norms clear is lower than that perceived by adults.

### CONCLUSIONS

When evaluating and analyzing the levels of Classroom Environment in the basic secondary school of the city of Mar del Plata, the findings indicate that it presents as a strength the importance given to the establishment, monitoring and knowledge by students of the standards and the consequences of its non-compliance, the completion of scheduled tasks; the degree of help, concern and bond that teachers present with students; and the importance given to the effort to achieve a good grade and esteem by the teacher. On the contrary, it presents as a weakness the lesser importance given to the order of the class and the fulfillment of the established norms, concluding that although the norms of the class are clear and known, there would be no coherence with the requirement in their observance and the consequences before its breach. In this sense, a point to work on and continue evaluating is the adequacy between rules and consequences, either because the former are exaggerated or because there is no adequate implementation of the latter. Then again, the results indicated that although all the dimensions presented moderately favorable levels, the one that measures the Change System presented the lowest results. The same allows us to propose that one of

the aspects to be strengthened is the introduction of diversity, novelty and reasonable variations in class activities. In this sense, the evaluation of changes that are introduced in the classes and which are those stimuli to creativity most valued by students could be indicated for future research.

When comparing the perception of the Classroom Environment among teachers, preceptors and students, we can conclude that there are similar perceptions between teachers and preceptors. The same could be an element of great importance for the management teams of the school institutions, since the preceptors are part of the staff who spend the longest time in the institution, and they could be counted on as key informants of the characteristics of the school. Classroom Environment of the different classes. On the other hand, we can point out that teachers perceive a level of Classroom Environment better than that perceived by students, which could be explained by the existence of a certain social desirability in teachers' responses, which could be attributed to expectations for being part of research and display your homework satisfactorily.

The results obtained highlight the importance of the role of preceptors in educational institutions, as well as the importance of continuing to work on coherence between the established norms and their compliance.

Finally, it is expected that the findings will make possible future lines of research in the design of educational intervention programs that favor a positive Classroom Environment, and consequently allow to improve the learning process and the well-being of students and teachers.

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