

Towards Student-Centered Teacher Education: A Comparative Analysis of Two Regimes of Study

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Abstract

The purpose of this study was to compare the perception of the teaching-learning climate in university students of two modalities in a pedagogy program. From a quantitative, comparative, descriptive, inferential and prospective approach, it considered a random sample of 194 students, distributed according to the study regime. The Enabling Learning Teaching Climate Scale (ECAFEU) was used. In both regimes, the dominant dimension is autonomous learning, and the descended dimension is environmental conditions. High scores were observed in both tests of the ECAFEU Index; However, the data provide considerable differences regarding the centrality of the teaching and learning process.

Keywords: Learning Environment, Teacher Training, Teaching Profession, Student-To-Teacher, Perception

INTRODUCTION

Education is one of the pillars for the equitable development of any society, as it allows us to establish the foundations for people to transform their reality and that of the environments in which they coexist, especially in the professional and personal spheres. Education should itself be evidence of action and continuous improvement (Leimbach & Milstein, 2022).

As in all professions, teacher education is undergoing transformations due to the evolution of some paradigms, and also due to the growing digital development that is evident in this era (Hofer et al., 2021; Tondeur et al., 2019; Taboada & Álvarez, 2022). The teaching profession is no stranger to the need for permanent professional development (Abood & Altakhayneh, 2021), as the quality of interventions and the impact it has on students' satisfaction with the training they receive often depend on it.

Initial Teacher Training

Positioned from the perspective that initial teacher training currently plays an important role in meeting this challenge, it is necessary to turn our gaze towards students.

Greater awareness and commitment to education is required, because those who train at the different levels of education have an important social responsibility, as they are and will be agents of positive change (Palomino et al., 2022). It is important, moreover, to point out that teaching professionals are not only interested in the group of students being able to deploy actions consistent with the teaching objectives. They also value the impact of good relationships, willingness, customs, kindness, in other words, positive bonds between people (Turner & Thielking, 2019). While it is true that social and cultural patterns are consolidated into patterns of social behavior, it is urgent to learn to establish connections between students and their educational context, so that, during training, the important benefits resulting from a process that is executed around empathy and good treatment are perceived. In this way, they learn to respect roles and value the work of others, which will favor their incorporation into the Educational Organization. Considering that professional working groups are formed in the school institution for various subjects, joint work must be deployed with their peers and students under their charge (Vázquez et al., 2021).

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The Complexity of the Evening Regime

Undoubtedly, those who choose to continue their studies in the evening, in general, have a variety of responsibilities that, in some cases, are complicated by the fact that they are also mothers or fathers. In such a context, it is common that, in addition to academic and family responsibilities, they must deal with work demands to earn an income, among other tasks that increase the demands of life. If to the above is added, as in many cases, the problem of mobility from their workplace to the university, then it is no coincidence to dare to outline an environment in which difficulties and overwhelm predominate in the face of the scenario that demands continuity in tertiary education. In this same logic, support must be offered that promote the concrete possibilities of adaptation of evening students, together with the implementation of programs that take into account this student-worker-parent profile (Bravo et al., 2023). Therefore, it is necessary for the schools that train educators of this type of regime to deploy regulations that take this reality into account, since the training of future professionals must be in accordance with government demands and the needs that the labor field requires to be addressed today (Ministry of Education [MINEDUC], 2021). For this reason, it is essential that students in their time of autonomous work, have the emotional and motivational conditions that induce them to comply with the training demands in a systematic way.

Table 1 *Characterization of Day and Evening Study Regimens*

Criterion	Day Regime	Evening Diet
Timetable	It takes place during the day, usually from morning to afternoon, with fixed and regular schedules.	It is aimed at people who work during the day, so classes are scheduled at night, after the working day.
Student Profile	It is common to find mainly students who enter college after finishing high school.	It is more common to find students who are already working and want to combine their work responsibilities with their academic aspirations.
Academic Offer	A greater variety of careers and courses are offered, as it is geared towards training students who can devote their full time to their studies.	The academic offer can be smaller and focused on specific careers and programs that are more in demand by working students.

Note. This table describes the differences between the day and afternoon modalities, evidencing oppositions that condition the development of students in the university context.

Traditional and Student-Centered Teacher Training

Quality university teaching must consider the student at the center of the teaching and learning process (González et al., 2019; Benlahcene et al., 2020; Agustini et al., 2021), it follows that knowledge about their historicity and evolution in the various areas of development will be crucial to individualize their training needs. Although its implementation requires particular adjustments and devices to obtain successful results (Tadesse, 2020), sometimes, student-centered teaching is not successful, as some students prefer the traditional approach (Murphy et al., 2021). It could be that both activate the imminence of prototypes in students (Talbert et al., 2018). Traditional and student-centred teaching models involve 2 different approaches to education, each with particular characteristics, as outlined below:

Table 2 *Paralleling Traditional and Student-Centered Teaching*

Criterion	Traditional Teaching	Focused Teaching in the student
Class Structure	The teacher represents the focus of the class and the main transmitter of knowledge.	The teacher acts as a guide that favors learning.
Classroom Conditioning	It follows a hierarchical structure in which the teacher presents the information, the students listen and take notes.	Students are more active in the process, participate in discussions, work collaboratively, design and implement projects, and have the opportunity to explore thematic topics autonomously.
Role of the teacher	Predominant role as a leader who possesses factual discernment and disseminates it to students. Their primary task is to externalize	The role of the teacher is one of support, accompaniment and encouragement to encourage the participation of the students. It helps them learn how

	information and answer questions.	to learn, provides effective advice, and incites curiosity.
Student involvement	Students are passive recipients of information. Participation is limited to asking occasional questions or responding to teacher queries.	Emphasis is placed on the participation and cooperation of students. They are encouraged to ask questions, share ideas, and work collaboratively with their peers.
Attention to individual needs	Content is taught in a standardized way to students, not taking into account their specific knowledge, skills, or individual needs.	The diversity of students is valued and the content is adapted to their needs, characteristics and interests. Educational assignments and assessments are implemented to address individualization and can even be personalized.
Assessment of learning	The assessment focuses especially on assessing the students' ability to recapitulate and replicate the information taught by the teacher through conventional exams.	A variety of assessment techniques and procedures are used, taking into account projects, presentations and discussions, to assess student learning in a more holistic way and focused on the skills and competencies acquired.

Note: This table represents the differences between traditional and student-centred teaching, revealing completely divergent aspects in the way the teaching and learning process is conducted.

Student-centered education can cope with some oscillations due to the diversity within the classroom, the multiple and varied interactions between student and teacher, as well as the need to individualize learning, understanding that all students cannot be educated in a homogeneous way (Talbert, et al., 2018).

The different dimensions of the classroom climate that intercede in the teaching-learning process and favor the development of a student involved in their process, are represented by a dynamic imprint of the teacher as a subject committed to the regulation of elements linked to his or her work (Rigo & Amaya, 2020). Therefore, it is confirmed that a classroom that is nourished by curiosity helps to institute a culture of deep learning, and is composed of engaged and motivated students (Gholam, 2019).

The construction of the educational process at the university must be based on a person-centred approach (Samarokova et al., 2020). Undoubtedly, these learning environments help the existence of active classrooms, where the group is involved with its process, which considerably increases higher cognitive skills. That said, reflective thinking can be stimulated by creating a favorable learning climate, where teachers propose opportunities for students to think freely, develop competencies, and be responsive to academic demands (Maksum & Khory, 2020; Sağlam & Kanadli, 2022).

It is important to add that the implementation of tasks in which the student must actively engage during the educational process undoubtedly increases the expectations of academic performance. For this reason, the role of the teacher in defining the variables that affect learning is indisputable, not only in relation to the semantic field that the profession under study entails. It is also essential to foster a positive climate that provides relational guidelines in favor of class quality and pedagogical success (Granero-Gallegos, et al., 2021). Adjusted components of the teacher, in an integral way, directly affect the climate generated in the classroom. This is how the peculiarities of the hallmark or collegiate imprint, its conception of learning, the strategies it uses, the way in which it manages or does not manage to position itself in the face of emotions and feelings, translate into definitive factors of the classroom climate (Pereira, 2010). However, the teaching skills used by teachers correspond to the level of learning revealed by students (Gallo et al., 2023).

Hands-on Training

In general, students in training positively value the educational experiences that can be carried out in the field of action in which they will participate, and having the possibility of applying what they have learned in the classroom is meaningful to them (Bahjat, 2021). Teachers can define action strategies to promote significant changes in pedagogical conceptions and practices (Melo & Campos, 2019).

Along these lines, it is important to highlight the role that higher education institutions have with society, in relation to the future technicians and professionals who are trained in their classrooms. This implies raising awareness in particular among students in training as teachers, considering the role they will have as teachers in the current context. Therefore, we cannot train them in the same way that we prepared the students of

yesterday, today they need to be involved in the training process, dispel their doubts, self-direct their learning, learn to be responsible and demonstrate their formative stamp (Gholam, 2019).

Therefore, educational practices through co-teaching constitute the basis for contributing to training and, in this way, empowering them to interact more harmoniously and be able to self-direct (Cordie et al., 2020; Scherer et al., 2020).

Likewise, it is recommended to incorporate learning strategies in university curricula that allow teachers to learn how to encourage their students in the classroom during the treatment of thematic topics during the process of teacher training (Andrade et al., 2020). For all of the above, during this training period, educational stimuli must be implemented that allow the link between theory and practice to be concretized, where the daily life of future work is lived and the approach to one's own work performance is promoted (Cadamuro, 2023).

Among other requirements, it can be added that teacher training today requires professionals who are capable of researching, mainly on their own pedagogical practices (MINEDUC, 2021). For this reason, it is recommended that training institutions educate their students to become researchers of their own action, display a correct use of oral and written language, learn to be critical, equipped with argumentative skills and promoters of truth (Correa & Carbajal, 2021). It has been found that students in training as teachers who have been prepared in reflective skills have better results when assuming professional responsibilities, such as: planning, intervening and evaluating, therefore, a better academic performance (Khanam, 2019; Zahid & Khanam, 2019).

Undoubtedly, there are numerous efforts to train education professionals who are qualified to intervene according to the needs of the context. However, it is necessary to strengthen reflective skills, which are constant throughout the training process. This will facilitate awareness of the work of teachers and the ductility to solve problems that are common to education professionals (Ngololo & Kanandjebo, 2021). In addition, reflective practices allow us to learn to situate ourselves in the perspectives of those in authority (Albalawi, & Nadeem, 2020). When the knowledge provided during the initial phase of the process is not relevant, meaningful and contextualized to the practical reality, it is most likely that there will be diminished results in future education professionals.

There is a need for more practical knowledge about diversified teaching (Godinho et al., 2023; Boothe & Schaefer, 2022). Undoubtedly, the link between the university and the educational organization must be a determining factor during teacher training and, particularly, to understand the importance of educational activities that integrate theory and practice in a balanced way. It is also an essential guideline during university education, the feedback placed during the continuum of academic programs, since it is crucial to signify even more, the learning acquired by the students in training (Hortiguera et al., 2015). Collegiate education must be deployed from the context of the school institutions that serve as a center of practice (Poveda et al., 2021). It is necessary to implement authentic experiences, which facilitate the adaptation of the roles they must fulfill in the present and the future (Booth & Schaefer, 2022). Initial Teacher Training (FIT) has mutated from the roots, which includes a greater proportion of practical training experiences in school institutions, but the implementation and systematization of the bidirectional process between these 2 organizations is not verified (Bastías-Bastías & Iturra-Herrera, 2022).

In the attempt to have indicators that allow university teaching to be qualified, the scarce development of research works that address the perception of the student-centered learning environment during teacher training is verified. In this sense, it is possible to establish a dichotomy where, on the one hand, there is the negative perception that implies that students reject, for the most part, routine classes, noisy environments, low participation and lack of methodological innovation (Jam et al., 2013). On the other hand, a positive perception can be identified, since the previous knowledge of the students has been taken into account and they are interested in transformative proposals contextualized to the occupational field. The latter results in a higher degree of academic engagement, so the student-centered teaching and learning process represents an approach that recognizes participation, collaboration, and autonomy.

In the study carried out by Silva et al., 2022, factors positively perceived by students in relation to teacher management are addressed. On the other hand, in the research carried out by Kartal, 2020, which is directly related to the characterization of the university classroom climate with a focus on the student, no statistically significant differences were found between the male and female genders at a level of $\alpha = 0.05$. There was a statistically significant difference in attitude scores towards cooperative learning.

The overall perception of the educational climate is more positive than negative, although there is a part of the student body that perceives the presence of difficulties (Moncada et al., 2014). Research that focuses on university teaching and the environments that are generated in it provides a logical rationale for teachers to focus on increasing student perceptions (Jones et al., 2022).

MATERIAL AND METHODS

The present study can be categorized from a comparative quantitative approach, whose level of depth is descriptive and inferential, with a prospective record. This consisted of collecting opinions regarding the perceptions that people experience during the process of university teacher training. Mainly what underlies the student-centered approach and with the regime factor identified in the 2 levels, which are: Daytime and Evening, therefore, it was sought to verify if it is the study regime that characterizes some type of state in the dependent variable, whether it is negative, neutral or positive. It is possible to outline this research through the following diagram:

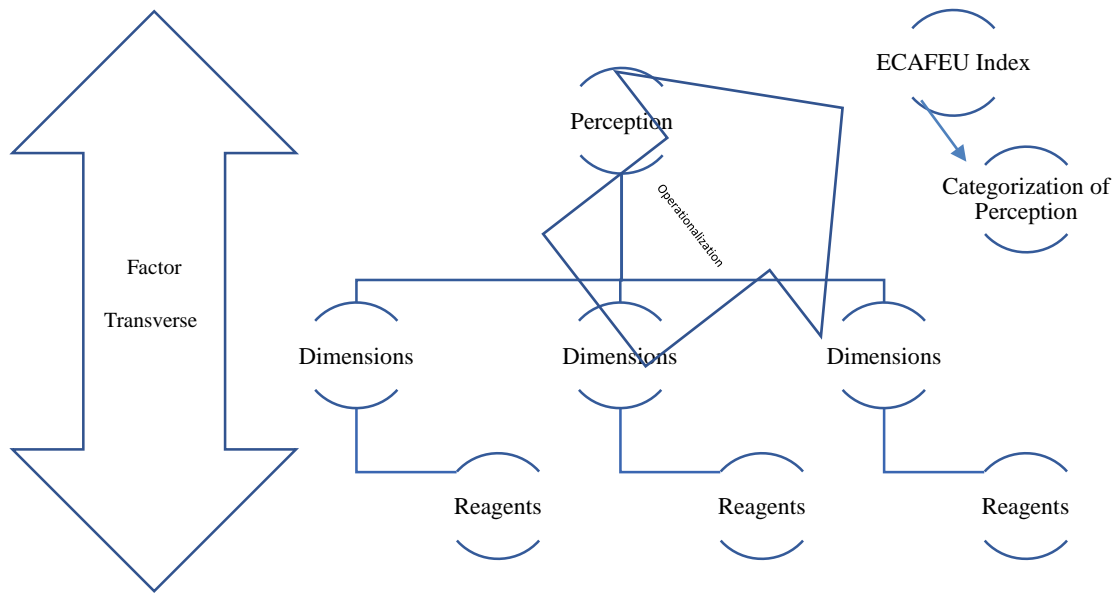


Figure 1 Inferential methodological strategy and its operationalization

Note. To facilitate the interpretation of the results, this strategy has been recorded. By means of which, the perception index can be calculated. As schematized, the sixty reactants underlie each of the twelve dimensions. In the same way, the cross-sectional factor is graphed, which can be modified according to the variables that need to be studied.

Hypothesis

Hypothesis 1: A student-centered teaching climate is significantly dependent on the study regime ($\alpha = 0.05$).

Hypothesis 2: A student-centered teaching climate has a significant impact on students' perception of the dimensions of the ECAFEU scale ($\alpha = 0.05$).

Hypothesis 3: The category of perception is directly and significantly related to the dominant dimensions of the ECAFEU scale ($\alpha = 0.05$).

Procedure

To carry out this study, authorization was obtained from directors and academics to enter the classrooms and apply the Teaching and Learning Climate Scale (ECAFEU) to university students. After approval, the students were informed about the voluntariness of their participation. Likewise, it was revealed to them that their confidentiality and anonymity would be respected throughout the investigative process. Likewise, it was explained regarding the chain of protection of the data and its processing, as well as the way to pour their opinions into the respective consultation instrument. Subsequently, the questionnaires were applied in the classroom, managed by 2 assistants. The participants took between twelve and sixteen minutes to complete the instrument and, at the end, the files were given to the assistants, who noted the omission of some data or had not answered a certain question. To determine the reliability of the ECAFEU instrument, Cronbach's α and McDonald's ω tests were applied.

The group of The study to whom the instrument was applied, according to a random sample, belongs to the She has a degree in Pedagogy in Basic Education, located at a private university in Santiago de Chile. In order to facilitate the interpretation and analysis of the scores obtained, 3 categories of perception are defined. This classification has been structured from the frequentist perspective, to avoid zero frequency levels, as detailed below: The ECAFEU Index has been established as a mechanism for operationalizing the scores, it is configured on a scale of 0 to 1 to facilitate the interpretation of the results in percentage terms, where 0 is the most lowered and 1 represents the maximum perception. The level of perception has been categorized into 3 levels, which are identified as: a) negative perception [0.00-0.316]; b) neutral perception [0.316-0.760] and c) positive perception [0.760-0.867]. This specification makes it possible to explore in detail whether the dominant dimensions, ascended or descended, change or are shaped differently depending on the level of perception. To facilitate the interpretation of the results, a perception index will be used, which will allow a more precise view of the opinion of the students, in relation to dimensions linked to the centrality of learning.

Instrument

For this research, the Teaching Climate Scale Conducive to Student-Centered Learning (ECAFEU) was used (González-Maura, et al. 2019). This instrument consists of twelve dimensions and sixty reagents, 5 for each dimension. A Likert scale is used to determine the degree of agreement or disagreement of the students with respect to the statements presented to them. The categories and nomenclatures are as follows: TD, which stands for "Strongly disagree"; D, "Disagree"; NA/ND "Neither Agree Nor Disagree"; A "Okay"; and TA, "Strongly agree." The scores assigned to each category of the scale are as follows: TD= 1; D= 2; NA/ND = 3; A = 4; and TA = 5.

Dimensions of the ECAFEU

1. Dialogic communication between teachers and students.
2. Affective relationships between students.
3. Accompaniment and guidance of the student in learning.
4. Cooperative learning.
5. Autonomous learning.
6. Organization and discipline.
7. Environmental conditions.
8. Methodological innovation.
9. Link between theory and professional practice.
10. Values.
11. Assessment of learning.

12. Satisfaction with the teaching-learning process.

RESULTS

Descriptive Statistics

The total population of students who take this program is 234 people, 68 correspond to the day regime and 166 to the evening modality. The final sample consisted of 194 students, representing 82.90% of the total enrollment of the degree. Therefore, 59 students were sampled in the day modality, who represent 86.76% of the total number of enrolled students, and for the evening modality, 135 students were surveyed, representing 81.32% of this group. These figures respond to criteria of representativeness, size and randomness.

In descriptive terms, considering the gender factor, the sample size was distributed by 83% of students belonging to the female group, 16% to the male group and 1% to the other. In relation to the conditional distribution of the regime according to the current year, this is detailed in the following table:

Table 3 Frequency by regime and year of study

Regime	Year of study					Cumulative Frequency
	First	Second	Third	Room	Fifth	
Diurnal	15	6	9	16	13	59
Evening	31	44	21	10	29	135
Total	46	50	30	26	41	194

Note: The marginal distribution for the current year shows a drop in the fourth year.

On the other hand, the descriptive statistics for the scores corresponding to each dimension and the ECAFEU Index are presented in the following table:

Table 4 Descriptive statistics by dimension and ECAFEU index

Dimension	Stocking	OF	Form Asymmetry	Kurtosis
Dialogic communication between teachers and students	3.994	0.804	-0.8106	0.637
Affective relationships among students	3.904	0.757	-0.6931	0.950
Accompaniment and Guidance of the student in learning	4.054	0.778	-1.0665	1.931
Cooperative Learning	4.101	0.714	-1.1326	2.557
Autonomous learning	4.205	0.696	1.8365	5.941
Organization and discipline in the development of the teaching-learning process	3.980	0.839	-1.0332	1.458
Ambient conditions	3.279	0.976	-0.0376	-0.705
Methodological innovation	4.018	0.833	-0.9715	1.292
Link between theory and professional practice	4.154	0.783	-1.3444	2.779
Values	4.190	0.762	-1.5980	4.162
Evaluation	3.867	0.799	-0.4957	0.369
Satisfaction in the teaching-learning process	4.129	0.796	-1.6176	4.215
ECAFEU Index	0.798	0.129	-1.2009	3.290

Note. From the point of view of centrality and, in particular, using the average, it is established that the autonomous learning dimension has the highest average score, while environmental conditions, the lowest. On the other hand, in terms of variability, the behaviors are similar, highlighting the greater homogeneity in the cooperative learning dimension, and the greater heterogeneity in environmental conditions.

A more exhaustive review allows us to establish, in terms of form and using asymmetry, that, in general, all dimensions present negative asymmetry. This implies a tendency towards high values in each dimension, except for the environmental conditions dimension, which exhibits a symmetrical behavior. Similarly, in kurtosis, the only dimension that presents a platycurtic kurtosis (weak degree of concentration, consistent with heterogeneity) is the environmental conditions dimension. The others are considered leptocurtic (high degree of concentration in relation to the average). The following sections determine whether these descriptive differences can be identified as significant.

The Instrument

Regarding the estimation of the reliability of the instrument, it is established that, from the perspective of

Cronbach's statistics, the estimate is 0.977, and confirmatorily McDonald's ω 0.979. Both cases show high internal consistency of the instrument.

In terms of validity, confirmatory factor analysis is used, seeking evidence in the factor loads of each of the reactants at the corresponding dimensions. Previously, the necessary assumptions that justify the factor analysis are verified, these being the Bartlett statistic ($X^2 = 10819$, $gl = 1770$ and $p - \text{value} < 0.001$) and the KMO statistic, being in the latter, in all cases greater than 0.5, justifying a factor analysis. As a result of this analysis, the factor loads of each reagent confirm the dimension of belonging, as well as the independence between the dimensions, therefore, the instrument can be considered valid.

Inferential Comparisons

This section will be addressed in order to the research hypotheses proposed. It should be noted that the p -statistic (p -value or p -value) has been taken as a decision criterion, considering a significance level of 5% (0.05).

Hypothesis 1: A student-centered teaching climate is significantly dependent on the study regime ($\alpha = 0.05$).

In order to decide on the reference hypothesis and, as indicated in the methodological framework, the perception was operationalized through the definition of the ECAFEU Index and, on the other hand, the dichotomous factor regime, whose states are Diurnal and Evening. This scenario describes the use of contrast statistics for independent samples, therefore, the assumptions of normality and homogeneity are verified. Based on the Shapiro-Wilk statistic, it is established that the assumption of normality is not verified (p -value < 0.001). In addition, Levene's test for homogeneity of variance is not rejected (p -value = 0.734). Thus, it is concluded that the contrast test will be from the non-parametric Mann-Whitney U perspective, establishing that there are significant differences between the 2 levels of the reference factor (p -value=0.004). This implies that the regimen significantly affects the scores obtained in the index, and is also in favor of the daytime regime. In short, the reference hypothesis put forward is not rejected.

Hypothesis 2: A student-centered teaching climate has a significant impact on students' perception of the dimensions of the ECAFEU scale ($\alpha = 0.05$).

This hypothesis seeks to particularize the effect of the previous hypothesis, that is, to establish whether this differentiation is due to any of the particular dimensions. Repeated measures ANOVA was used as a test statistic from a non-parametric perspective (Friedman statistic) because the assumption of sphericity (p -value < 0.001) was rejected, concluding, in general terms, that there are significant differences between the scores of each dimension (p -value < 0.001). Consequently, it is interesting to determine which are the dimensions that mark the highest and lowest scores, and the point at which the significant differences are established.

The following table presents a descriptive synthesis of the scores in each of the dimensions.

Table 5 Behavior of marginal averages

Dimension	Stocking	USA	95% Confidence Interval	
			Inferior	Superior
Ambient conditions	3.28	0.0701	3.14	3.42
Evaluation	3.87	0.0574	3.75	3.98
Affective relationships among students	3.90	0.0543	3.80	4.01
Organization and discipline in the development of the teaching-learning process	3.98	0.0602	3.86	4.10
Dialogic communication between teachers and students	3.99	0.0577	3.88	4.11
Methodological innovation	4.02	0.0598	3.90	4.14
Accompaniment and Guidance of the student in learning	4.05	0.0558	3.94	4.16
Cooperative Learning	4.10	0.0512	4.00	4.20
Satisfaction in the teaching-learning process	4.13	0.0571	4.02	4.24
Link between theory and professional practice	4.15	0.0562	4.04	4.26
Values	4.19	0.0547	4.08	4.30
Autonomous learning	4.21	0.0500	4.11	4.30

Note. The dimensions are not presented in the same position as in the instrument, therefore, they have been hierarchized according to their average score and in this way visualize the differences in each of these.

Complemented with post hoc analysis and p-Tukey statistics, it is established that dimension 7 (environmental conditions) presents significantly lower scores than all dimensions. Regarding specific comparisons, dimension 3 (accompaniment and guidance of the student in learning) is significantly lower than dimension 5 (autonomous learning), similarly dimension eleven (assessment of learning) compared to dimension 10 (values).

From the above, it is possible to conclude that a student-centered teaching climate has a significant impact on students' perception of the dimensions of the ECAFEU scale. In this way, the data support evidence so as not to reject the research hypothesis.

Hypothesis 3: The category of perception is directly and significantly related to the dominant dimensions of the ECAFEU scale ($\alpha = 0.05$).

To decide on the third hypothesis, as a first observation, it is possible to affirm that, at a descriptive level, each category of perception is identified with one of the dimensions, for example: students whose category of perception is negative, reach their maximum scores in dimension 5. In the case of the neutral level of perception, dimension 4 is highlighted, and finally for the positive categorization, dimension 1, which indicates that for each category of perception there is a dimensional profile. On the other hand, it is established that dimension 7 is common to the 3 levels of perception as the most descended.

In all dimensions, there are significant differences for the 3 levels of perception, this being accentuated in dimension 7. This allows us to infer that the results provide evidence in favor of the research hypothesis in question.

Interaction Analysis

This results section focuses on establishing significant joint effects, taking as a fixed factor the regimen, year of study and gender of the student.

For the year factor that is being studied, 3 perspectives of analysis are established, one related to the horizontal and marginal view, that is, it allows us to establish if there are significant differences between the years that the student studies, regardless of the regime. Based on the ANCOVA statistic, firstly, it is established that there are significant differences in longitudinal terms (p-value = 0.008). Secondly, marginally for the regimen, it is also established that there are significant differences (p-value=0.038), and finally, for the interaction between regime and year, the data also support evidence in favor of the significant interaction (p-value=0.010). In the latter case, as shown in the graph below, the daytime regime is positioned with significantly higher scores than the afternoon regime, standing out positively in the fifth year of the morning regime. In the case of the second, third and fourth years, the daytime program presented higher scores than the afternoon year, however, these are not significant differences. In the case of the first year, there is a particularity, which is also not indicative, the evening regime is positioned above the daytime regime.

Table 6

Factor	Sum of Squares	Gl	uadratic mean	F	p
Year of study	0.2110	4	0.0527	3.53	0.008
Regime	0.0650	1	0.0650	4.35	0.038
Year Studied * Regime	0.2062	4	0.0515	3.45	0.010
Waste	2.7496	184	0.0149		

ANCOVA- Table of Contents

Note: The last column on the right shows the p-values as decision criteria, in all cases portraying significant effects.

In accordance with the above, there is greater variability when analyzing the year factor that the student attends. In general, it is found that perception declines in the third year, in both study regimes. Positive perception rises in the fourth year and decreases again in the last year.

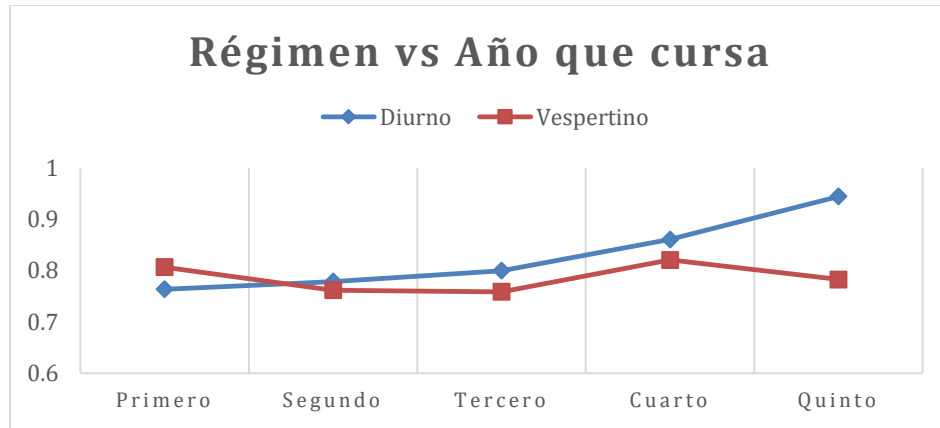


Figure 1 Regimen versus year of study

Note: Temporal representation of the interaction or joint effect of the fixed factor Regime and year in progress.

In line with these results, it is possible to verify -even more- the perception experienced by the sampled students, revealing differences between both regimes. In the case of daytime, there is a gradual ascent towards an increasingly positive perception of the centrality of learning, reaching its maximum expression in the fifth year. On the other hand, for the sample of evening students, the perception decreases in the second and third years of studies. Subsequently, there was a slight increase in the fourth year, with the perception experienced by the students in the last year of studies decreasing. These oscillations should serve as a source of information to delve into the causal factors of this instability.

Table 7 Estimated Marginal Averages - Year Studied * Regime

Regime	Year of study	Stocking	USA	95% Confidence Interval	
				Inferior	Superior
Diurnal	First	0.764	0.0316	0.701	0.826
	Second	0.779	0.0499	0.680	0.877
	Third	0.800	0.0407	0.719	0.880
	Room	0.861	0.0306	0.801	0.921
	Fifth	0.945	0.0339	0.878	1.012
Evening	First	0.807	0.0220	0.763	0.850
	Second	0.762	0.0184	0.726	0.798
	Third	0.759	0.0267	0.706	0.812
	Room	0.821	0.0387	0.745	0.897
	Fifth	0.783	0.0227	0.738	0.828

Note: The * symbol represents the interaction between the 2 factors in question.

Taking into account the interaction alluded to, it can be seen that in the case of the day regime there is a progressive increase in the perception lived by the students. However, for the evening regime, the fluctuations are not distributed upwards as in the diurnal, on the contrary, oscillations are evident according to the year that is being studied.

Table 8

Regime	Year of study	Stocking	USA	95% Confidence Interval	
				Inferior	Superior
Diurnal	Fifth	0.945	0.0339	0.878	1.012
	Room	0.861	0.0306	0.801	0.921
	Third	0.800	0.0407	0.719	0.880
	Second	0.779	0.0499	0.680	0.877
	First	0.764	0.0316	0.701	0.826
Evening	Room	0.821	0.0387	0.745	0.897
	First	0.807	0.0220	0.763	0.850
	Fifth	0.783	0.0227	0.738	0.828
	Second	0.762	0.0184	0.726	0.798
	Third	0.759	0.0267	0.706	0.812

Hierarchical Estimated Marginal Averages - Year Studied * Regime

Note: It is visualized how the regime, in interaction with the current year, outlines different hierarchical structures.

For the gender factor, marginally, the data support evidence in favor of significant differences between the declared genders (p -value=0.018), however, the interaction of this factor with the regime does not generate significant differences (p -value=0.751). The evening regime has lower scores compared to the daytime regime, which are not significant, as shown in Figure 1. In the case of those students who identify with the Other gender, the differences are greater, although they are not significant, given the high variability of the level of the factor.

Table 9 Ancova-Index

Factor	Sum of Squares	Gl	Quadratic mean	F	p
Regime	0.03825	1	0.03825	2.436	0.120
Gender	0.12863	2	0.06431	4.096	0.018
Regime * Gender	0.00900	2	0.00450	0.287	0.751
Waste	2.95205	188	0.01570		

Note: The last column on the right shows the p -values as decision criteria, in the latter case portraying the non-existence of significant interaction.

To deepen the analysis, the results will be focused on the connection of some factors that are associated with the perception experienced by the sampled students.

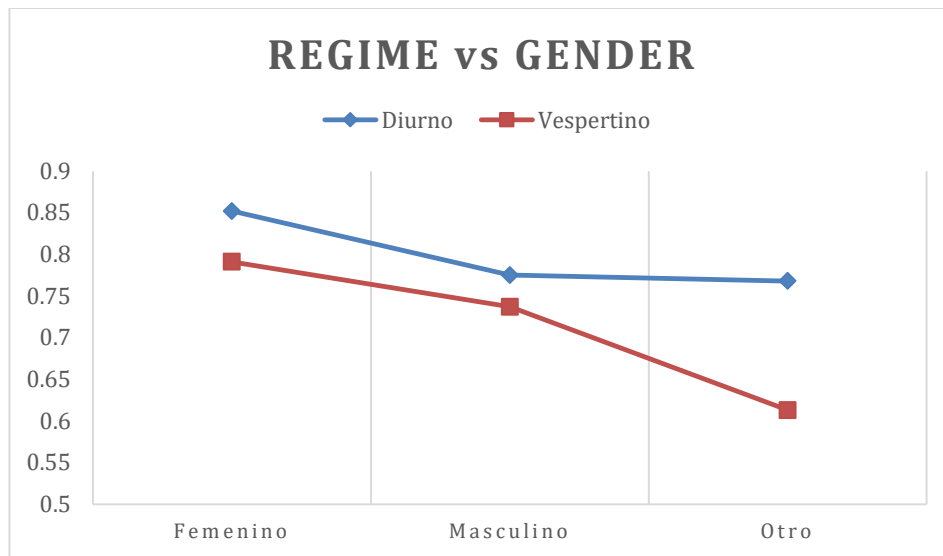


Figure 1 Estimated Marginal Averages Gender * Regime

Note: Temporal representation of the interaction or joint effect of the fixed factor Regime and Gender.

Through this result and taking into account gender, it is found that in both regimes the female group leads the positive perception regarding the centrality of learning. For men, the perception is still positive, but comparatively lower. The other gender has another point of view, the perception experienced is neutral.

Table 10 Estimated Marginal Averages - Gender * Regimen

Regime	Gender	Stocking	USA	95% Confidence Interval	
				Inferior	Superior
Diurnal	Female	0.852	0.0181	0.816	0.887
	Male	0.775	0.0418	0.693	0.858
	Other	0.768	0.0886	0.594	0.943
Evening	Female	0.791	0.0118	0.767	0.814
	Male	0.737	0.0267	0.684	0.790
	Other	0.613	0.1253	0.366	0.861

Note: The hierarchical structure in the 2 regimes is the same.

In the research carried out by Gonzales et al., 2019, it was possible to identify the 3 best evaluated dimensions, which were: autonomous learning, organization and discipline and cooperative learning. In the case of our research, the 3 dominant ascended dimensions correspond to: autonomous learning, values and the link between theory and professional practice. According to what has been pointed out, the dominant ascended dimension is autonomous learning, since it coincides in both studies. Therefore, students feel able to work independently and undertake the academic demands of the day autonomously. On the other hand, in the first study, the 3 worst evaluated dimensions were: environmental conditions, the link between theory and professional practice, and the assessment of learning. However, in the present study, the 3 dimensions that show decreased dominance correspond to: environmental conditions, evaluation and affective relationships among students. When comparing both results, we found agreement in the environmental conditions dimension. The main objections are the noisy spaces, the unstable lighting conditions and the rooms that are not equipped to deal with certain contents. Regarding the theory-practice link, the most questionable thing is the fact that an important group of students does not perceive this association, as they identify disjointed contents to the professional reality. It should be noted that the ECAFEU scale was applied in both studies.

CONCLUSIONS

After the analysis of the results, it can be concluded that the first hypothesis is not rejected, therefore, the regime significantly affects the scores obtained in the index, evidencing a higher level of perception during the day. The second hypothesis, like the previous one, is not rejected. In other words, a student-centered teaching climate has an impact on students' perceptions according to the dimensions of the ECAFEU scale. In the case of the third hypothesis, it is not rejected either, in all dimensions there are significant differences in the three levels of perception, accentuated mainly in the dimension of environmental conditions.

When comparing the gender and regime of the student body, it is evident that the female gender presents the highest scores, both in the day and evening regimes. That is, in general, they perceive the centrality of learning in a positive way. Next is the masculine gender, coinciding in both regimes. Finally, the other genre has the lowest scores, therefore, its perception is neutral.

It is worth noting the high scores in both tests of the ECAFEU Index, which when found with levels of significance $\alpha = 0.05$, confirms the important differences. This is not only due to a pattern of randomness, but also allows us to affirm the high perception that the sampled students have regarding the centrality of the teaching and learning process. Specifically, the autonomous learning dimension is evidenced with the highest score, confirming the level of competencies with which students perceive themselves when developing autonomous activities. On the other hand, the environmental conditions dimension presents the most significant differences and, in turn, is the dimension with the most decrease, being very similar in the 3 levels of perception.

Finally, the use of a multidimensional perception scale with twelve dimensions and 5 items per dimension allows us to obtain a detailed image of the participants' perception of their training process as teachers. It is important to add that the use of the perception index facilitated the interpretation of the results, providing a numerical value for each dimension evaluated. This provides invaluable information to better understand the subjective perception of students and its impact on the perception experienced in the university classroom.

The main limitations of the study focus on a single period in which the students were consulted, in addition, the season of the year or the phase of the training process they were experiencing were not considered in the analysis. For future research, it is recommended to apply the ECAFEU scale in different periods of the school year, in this way the panorama associated with students' impressions of the centrality of learning can be broadened.

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