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Contemporary education faces multiple challenges derived from the social, technological and cultural changes of our time. In this second issue of 2025, the journal brings together research that demonstrates the constant search for new pedagogical strategies, the strengthening of student wellbeing and critical reflection on teaching practices in different educational contexts. The studies presented here converge in the same purpose: to improve the quality of learning from innovative, inclusive and humanistic perspectives.

The first article addresses the emotional difficulties experienced by high school students -stress, anxiety and demotivation-, proposing mindfulness as a key tool for integral development. Through a descriptive study with young Ecuadorians, it is shown that mindfulness can favor self-regulation and conscious reflection, although it is still necessary to deepen attention to bodily sensations and to strengthen the emotional vocabulary. This approach reveals the importance of integrating emotional education as part of the formative process, consolidating personal well-being as the basis for meaningful learning.

In a complementary line, the second paper analyzes the influence of artificial intelligence on the academic performance of Honduran university students of foreign languages. The findings show ambivalent perceptions: while AI has improved qualifications and facilitated tasks, it also poses risks by limiting autonomy and critical thinking. The need for a balanced and ethical use of these tools is emphasized, reinforcing the idea that technology should serve learning and not replace human effort and creativity.

The responsible incorporation of digital media is also a central theme of the third study, focused on early childhood education teachers in Paraguay. From a constructivist approach, the research highlights how technologies can favor early learning if applied with pedagogical criteria. The results show proactive, curious and flexible teachers who seek strategies to engage children in meaningful experiences. Nevertheless, the urgency of strengthening spaces for collaboration among colleagues, a key element for consolidating professional trust and the responsible use of digital resources, is underscored.

Writing and cultural identity are intertwined in the following research, developed in Ecuador, where a didactic guide based on oral stories improved writing skills in high school students. Through a didactic sequence, students learned to value writing as a reflective process, achieving more coherent and structured texts. This experience shows the formative power of local traditions as a vehicle for learning and cultural affirmation.

The fifth article reflects on reading as a constructive practice, analyzing the impact of a reading club on Ecuadorian adolescents. The research reveals the scarce student participation in this type of spaces, as well as the limited implementation by teachers. It aims to revitalize reading from personal experience and literary creation, promoting a communicative approach that fosters critical thinking and individual expression.

Attention to educational inclusion is approached from the study on Universal Design for Learning (UDL) in Chilean teacher training. The results indicate that, although there is general knowledge of the model, there are still weaknesses in its practical application due to lack of time, resources and institutional support. This reaffirms the urgency of strengthening initial training to consolidate truly inclusive and equitable practices in the classroom.

Another paper focuses on job stress in early childhood education teachers,

highlighting how environmental pressures can affect the educational climate and pedagogical quality. It is concluded that teacher well-being is an essential factor in ensuring healthy learning environments, which requires institutional strategies for emotional support and stress management.

In the university setting, a Chilean study on dental teachers analyzed the levels of engagement and self-efficacy, finding moderate but promising values. It is observed that postgraduate training strengthens social responsibility and academic management, suggesting that continuing education is indispensable to maintain motivation and quality in higher education.

From a linguistic perspective, another paper examines corpus-based instruction in teaching in Translation and Interpreting. Participants recognize the effectiveness of this approach in developing more precise language skills, and the experts consulted highlight its pedagogical potential. Further research is recommended to consolidate its implementation in language didactics.

A highly original theoretical approach closes this section, proposing the analysis of the human psyche as a complex dynamic system. Inspired by chaos theory, this study proposes that the educational trajectory can be modified even when the initial conditions are unfavorable. This perspective offers a hopeful message: education, far from being a linear process, is a web of possibilities where the timely intervention of the teacher can transform the formative destiny of the student.

Finally, two institutional studies provide reflections on educational management and leadership. The first, developed in Uruguay, demonstrates that distributed leadership promotes the professionalization and sense of belonging of the teaching staff, favoring collaborative pedagogical practices. The second, focused on technical education in Chile, shows how harmonization among higher education institutions has strengthened the employability and transparency of the education system, directly benefiting the most vulnerable students.

As a whole, the studies in this issue reaffirm that Latin American educational research is advancing towards a horizon of innovation, inclusion and social responsibility. The experiences presented invite us to rethink teaching from the perspective of human integrity, technological ethics, shared leadership and the valuation of cultural knowledge. Education, in its essence, remains the space where knowledge becomes transformation.

Antonio Pantoja Vallejo  
*Editor Jefe / Editor in chief / Editor Chefe*

## **MINDFULNESS: A TOOL FOR THE COMPREHENSIVE DEVELOPMENT OF HIGH SCHOOL STUDENTS**

### **MINDFULNESS: UNA HERRAMIENTA PARA EL DESARROLLO INTEGRAL DE LOS ESTUDIANTES DE BACHILLERATO**

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#### **ABSTRACT**

##### **Keywords:**

behavioral problems, emotions,  
stress, mindfulness.

High school students face numerous challenges during their education, such as stress, anxiety and negative emotions, difficulties that significantly affect academic performance, behavior and emotional well-being. Given this scenario, it is crucial to implement tools such as mindfulness that promote their comprehensive development. In this context, the present research aimed to determine whether high school students can develop greater awareness of the present moment, without making judgments about their thoughts and emotions, and responding more reflectively to their experiences. To obtain a detailed and quantitative view of the phenomenon, a descriptive field study was carried out. The sample consisted of high school students from an Ecuadorian educational institution. Through the administration of a survey, the information was collected. The analysis of the data reveals a promising start in the development of mindfulness among students, however, it reveals the need to delve deeper into specific aspects. Although there is a good awareness of actions, it is essential to strengthen attention to bodily sensations, environmental stimuli and mental processes. In addition, it is important for students to increase emotional vocabulary and develop effective communication skills, to build greater resilience and establish healthier relationships with themselves and with others.

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#### **RESUMEN**

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**Palabras clave:**

problemas de conducta,  
emociones, estrés, mindfulness.

Los estudiantes de bachillerato se enfrentan a numerosos desafíos durante su formación, como el estrés, la ansiedad y las emociones negativas, dificultades que afectan significativamente el rendimiento académico, la conducta y el bienestar emocional. Ante este panorama, resulta crucial implementar herramientas como el mindfulness que promueva su desarrollo integral. En este contexto, la presente investigación tuvo como objetivo determinar si los estudiantes de bachillerato pueden desarrollar una mayor conciencia del momento presente, sin emitir juicios sobre sus pensamientos y emociones, y respondiendo de manera más reflexiva a sus experiencias. Para obtener una visión detallada y cuantitativa del fenómeno, se llevó a cabo un estudio de campo descriptivo. La muestra estuvo conformada por estudiantes de bachillerato de una institución educativa ecuatoriana. Mediante la administración de una encuesta, se logró recopilar la información. El análisis de los datos pone de manifiesto un prometedor inicio en el desarrollo de la atención plena entre los estudiantes, sin embargo, revela la necesidad de profundizar en aspectos específicos, si bien existe una buena conciencia de las acciones, es fundamental fortalecer la atención a las sensaciones corporales, los estímulos ambientales y los procesos mentales. Además, es importante que los estudiantes incrementen el vocabulario emocional y desarrollen habilidades comunicativas efectivas, para construir una mayor resiliencia y establecer relaciones más saludables consigo mismos y con los demás.

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## **Introduction**

Behaviors are observable and measurable actions performed by individuals in response to internal or external stimuli; these actions can be simple or complex and are influenced by a variety of factors, such as learning, genetics, social environment and cognitive processes. According to Skinner (1975), it is any performance of an individual that can be objectively observed, Bandura (1997), points out that it is the interaction of an organism with its environment, including both the observable responses and the internal processes that mediate them.

The behavioral difficulties experienced by students today are the result of an intricate interplay of psychological (anxiety, depression, stress, trauma, among others), biological (neurodevelopmental disorders, genetic factors, physical health problems, sleep disorders, among others) and social factors (unfavorable socioeconomic environment, exposure to violence, discrimination, conflictive interpersonal relationships, major family changes such as divorce or moving, inadequate parenting styles and unrealistic social expectations).

It is essential to recognize the multifactorial nature of these difficulties in order to design effective and personalized interventions, taking into account that the family, school and community, as well as individual experiences, play a crucial role in the manifestation and severity of the aforementioned problems.

Behavioral problems, which usually begin in childhood (lying, cheating, copying, etc.) and worsen in adolescence (stealing, etc.), are characterized by opposition to social norms and authority figures. These behaviors, persistent and varied according to age, can generate disturbances in the environment, adaptive difficulties and aggressive behaviors, if not properly addressed, can have long-term consequences on interpersonal relationships and individual well-being (Serrat, 2018).

In this order of ideas, behavioral problems in childhood and adolescence are repetitive patterns that violate social norms and the rights of others, manifesting themselves in aggressiveness, destruction of property, lying, stealing and disobedience (American Psychiatric Association, 2013). Its causes are multifactorial, involving genetic, neurobiological, psychological, familial and social factors (Barkley, 1997; Patterson, 1982), affecting academic performance, social relationships and personal development. Therefore, early intervention (cognitive-behavioral therapy, social skills training, family therapy and, sometimes, pharmacotherapy) is essential to prevent chronicity and improve prognosis (Barkley & Wasserstein, 1997).

The dimensions of conduct problems (hyperactivity, disruptive behaviors, aggressiveness, dissocial disorders, oppositional defiant disorder, and violence) in childhood and adolescence represent a set of interrelated characteristics that underlie a wide range of disruptive and antisocial behaviors. These problems, as Patterson (1982) points out, often develop following dysfunctional family interaction patterns and are maintained through social learning processes.

1. **Hyperactivity:** is a behavioral expression of a dysfunction in the brain's self-regulatory systems (Barkley & Wasserstein, 1997). The causes of hyperactivity are multifactorial, including genetic, neurobiological (alterations in neurotransmitters and brain structure), and environmental (prenatal exposure to toxins, parenting style) factors. Characterized by a persistent pattern of inattention, impulsivity, and excessive motor activity, students with hyperactivity have difficulty sustaining attention on tasks, interrupt others, and constantly fidget, affecting academic performance, social relationships, and self-esteem (Custodio, 2018).

2. Disruptive behaviors: according to Freire (2012), these are those inappropriate behaviors that generate delays in the educational process and create inappropriate situations in the classroom, affecting interpersonal relationships. In that order of ideas, Calvo (2003), Cárdenas (2019), Jurado de los Santos and Justiniano Domínguez (2016), agree that disruptive behaviors interrupt and deteriorate the teaching and learning process, differentiating them from aggressive behaviors. Abellán (2020), Álvarez et al. (2016) and Díaz-Aguado (2005), note that the concept of disruptive behavior has been used broadly, including from mild disruptions to serious challenges to students and teachers. For their part, Jurado de los Santos and Justiniano Domínguez (2016), point out that an unstable family environment is the basis of students' disruptive behavior, which is reflected in the lack of academic support and the lack of parental presence, negatively affecting academic performance.

Students with disruptive behaviors exhibit patterns of behaviors that interfere with their learning and social relationships. According to Barkley & Wasserstein, (1997) and Hinshaw (2007), these students often experience difficulty paying attention, controlling their impulses, and following rules. Impulsivity, aggressiveness and defiance of authority are common characteristics (Waschbusch et al., 2007), these behaviors can have a significant impact on student academic performance and emotional well-being, as well as classroom climate (Saco-Lorenzo et al., 2022).

3. Aggressiveness: in the school environment is a complex and multifactorial phenomenon, which manifests itself physically, verbally or relationally, negatively affecting the emotional well-being, academic performance and social relationships of the students involved. Various factors, such as neurodevelopmental disorders, mental health problems, learning difficulties, dysfunctional family dynamics and a hostile school climate, contribute to its onset and perpetuation. Recent studies, such as those of Salmivalli et al. (2021), have made significant contributions to the understanding and prevention of bullying and aggression in school settings, have delved into the complexity of these social dynamics offering new approaches to address them.

To effectively address school aggression, evidence-based prevention programs, such as social skills and conflict resolution training programs, as well as individualized and family interventions, need to be implemented (Sabeh et al., 2017). Collaboration between teachers, psychologists, social workers and other professionals is essential to create safe school environments and promote the holistic development of students.

4. Dissocial disorders are becoming increasingly relevant in the field of behavioral problems. Its main characteristic is a repetitive and persistent pattern of behaviors that violate the rights of others and social norms. It is essential to intervene from childhood and adolescence to address these disorders, as they can have long-term consequences (Gonzalez et al., 2020).
5. Oppositional defiant disorder (ODD): is characterized by a persistent pattern of oppositional, defiant, and hostile behavior directed toward authority figures, Custodio (2018), notes that youth with ODD often actively defy adults, argue, get angry easily, and blame others for their problems. The causes of TND are multifactorial: genetic, neurobiological, environmental and parenting styles. Understanding this complex interaction between the various factors is critical to the development of effective interventions, which should focus both on modifying student behaviors and improving parenting skills and family dynamics.

6. Violence: according to the World Health Organization (WHO), violence involves the intentional use of physical force, power or threats against oneself or another person, this deliberate act causes various harms, ranging from physical injury to profound psychological consequences (developmental and emotional disorders). In addition, violence deprives victims of their rights and, in extreme cases, cause death (Roncero et al., 2017).

Identifying these dimensions is crucial to understanding the etiology and complexity of conduct disorders (American Psychiatric Association, 2013). According to Barkley (1997), hyperactivity, disruptive behaviors, aggressiveness, dissocial disorders, oppositional defiant disorder and violence are manifestations of the same problem with multifactorial roots, including biological, psychological and social factors. Bandura (1977) emphasizes the role of modeling and reinforcement in the development of aggressive and antisocial behaviors through a comprehensive approach (early interventions, multidisciplinary treatment, social skills training programs, cognitive-behavioral therapy, family interventions and modifications of the school environment).

Techniques to address cognitive-behavioral problems (CBT) are based on the premise that thoughts, emotions and behaviors are closely related, and that by modifying thoughts and behaviors, emotions are reflected in improved quality of life. Olivares and Méndez (2010) establish a classification of these techniques that allows them to be organized systematically and to better understand how they work (Table 1).

**Table 1**  
*Cognitive-Behavioral Techniques (CBT)*

<b>Techniques to Maintain and Increase Desirable Behaviors</b>	
<b>Ranking</b>	<b>Description</b>
Positive reinforcement	It consists of presenting a pleasant stimulus or reward immediately after a desired behavior, with the objective of increasing the probability that this behavior will be repeated in the future.
Token economy	It is a reinforcement system in which objects (tokens, points, etc.) are used as immediate rewards for performing desired behaviors. These tokens accumulate and can be exchanged for larger prizes in the long run
Negative reinforcement	It consists of eliminating an aversive or unpleasant stimulus immediately after a desired behavior, with the objective of increasing the probability that this behavior will be repeated in the future. It is important not to confuse it with punishment
Modeling	It consists of learning a new behavior by observing, imitating a model. The model can be a real person or a fictitious character
Molding	It is a gradual learning process in which successive approximations to a desired behavior are reinforced. Used when the target behavior is complex and needs to be broken down into smaller steps
Behavioral contracts	It is a formal agreement between two or more people (therapist, teacher and student) that clearly establishes the target behaviors, the consequences (reinforcements and punishments) and the conditions under which they will be applied.
<b>Techniques to Reduce Undesirable Behaviors</b>	
Extinction	Occurs when a previously reinforced behavior is no longer reinforced, resulting in a gradual decrease in the frequency of that behavior.
Time out of reinforcement	It is a behavior modification technique that involves the temporary removal of all opportunities for positive reinforcement as a consequence of inappropriate behavior.
Punishment	The presentation of an aversive stimulus after a behavior, with the objective of decreasing the frequency of that behavior
Differential reinforcement	It consists of reinforcing a specific behavior while extinguishing other similar behaviors.
Stimulus control	It is a technique that involves manipulating the environment to increase or decrease the probability of a specific behavior occurring.
About	It is a behavior modification technique that involves the person making a response



correction	that is incompatible or contrary to the problem behavior, and also repairing the damage caused by such behavior
Satiation	A technique that involves presenting a reinforcing stimulus in large quantities until it loses its reinforcing value
<b>Cognitive Techniques</b>	
Self instructions	These are internal verbalizations that are used to guide through difficult situations or to accomplish tasks. They are like an internal dialogue that helps to maintain focus and control emotions.
Thought arrest	It is a technique that consists of voluntarily interrupting negative or ruminative thoughts that generate anxiety or discomfort.
Troubleshooting	It is a process that involves identifying a problem, generating possible solutions, evaluating the options and selecting the best alternative
Self-control	It is the ability to regulate emotions, thoughts and behaviors to achieve long-term goals.
Cognitive restructuring	It is a process that consists of identifying and challenging negative and distorted thoughts, replacing them with more realistic and adaptive thoughts.
Self-regulation	It is the ability to control and direct one's actions, emotions and thoughts in a conscious and effective manner.

*Note.* Cognitive-behavioral techniques Olivares & Méndez (2010)

Cognitive-behavioral techniques (CBT) have evolved significantly with the incorporation of mindfulness. This practice, which involves observing thoughts and emotions without judgment, has been central to approaches such as Mindfulness-Based Cognitive Therapy (MBCT), developed by Segal et al. (2002). The integration of mindfulness into CBT allows students to develop skills to manage stress, reduce anxiety, and improve their quality of life (Segal et al., 2002).

In this sense, Moix et al. (2021) evaluated the effects of a mindfulness program on a group of students, noting that immediately after the intervention, youth in the mindfulness group experienced a significant decrease in symptoms of anxiety, depression, and stress.

Sabeh et al., (2017), highlights that the constant use of technology and various pressures, generates stress and tensions in children from an early age, triggering aggressive behaviors if not addressed properly and in time. Given this scenario, she proposes the implementation of mindfulness techniques as an effective tool to promote emotional regulation, empathy and peaceful coexistence in children. These studies demonstrate the need to integrate mindfulness in schools to improve the well-being of students, reducing aggressive behaviors, stress and anxiety to improve the quality of life of students, laying the foundation for healthy emotional development.

To define Mindfulness it is necessary to mention Buddhism, which is a tradition more than 2500 years old that has provided a whole host of teachings related to the mind. It is a term that refers to the ability of all people, in the particular case of students, to act in a reflective and conscious way, educating through meditation their self-awareness and acceptance (Brito & Araya, 2016).

Zabat-Zinn (2016) formulated the bases of Mindfulness practice, which are based on seven factors (Table 2) that are closely related to the attitudes of non-judgment, patience, student mentality, confidence, non-effort, acceptance and yielding, which are not independent, on the contrary, they will depend on the degree to which each person is able to cultivate the others, so it is necessary to cultivate them with awareness.

**Table 2**  
*Mindfulness Factors*

Factors	Description
Do not judge	It is necessary to assume an impartial position of the lived experiences, for this it is important to become aware of all those internal and external experiences that very often trap the individual, however, the important thing is to learn how to get out of them.
Patience	Applying Mindfulness allows the human being to cultivate patience (mind and body), which is necessary when disturbing memories and events come to mind. It is to be open to every moment or situation and above all to accept it in its entirety.
Beginner's mentality	"Or mind ready to see everything as if it were the first time", it is important to feel free of those expectations based on previous knowledge, to take into account that each of life's events are different and unique, that is why it is important to look with new eyes.
Trust and confidence	Developing self-confidence and trust in one's feelings is a fundamental part of the preparation for meditation, it is important to trust one's intuition.
Not making an effort	Every person is always focused on doing or achieving something, in Mindfulness it is different "it is not doing", it sounds contradictory however this leads to a new version of ourselves in which the effort is less to become better.
Acceptance	From Mindfulness acceptance is to see things as they are in this moment, that is the only thing that should count, not the before or after, but the present, thus creating the necessary conditions for healing. Accepting does not mean agreeing with everything (erasing values, principles, customs) or that everything is to people's liking, or that nothing matters.
Yielding	Exercising the attitude of yielding, also known as non-attachment, is important for the practice of Mindfulness, in this sense to yield is to let things, situations or events be as they are and accept them as they are.

*Note.* Table prepared with data taken from the book "Vivir con plenitud las crisis" (Full Catastrophe Living).

Kabat-Zinn, 2013.

The practice of mindfulness in adolescents offers a wide range of benefits ranging from improved mental health to better academic performance. By cultivating mindfulness, young people develop crucial skills such as stress and anxiety management, emotional regulation, concentration and empathy. This translates into higher self-esteem, healthier interpersonal relationships and a better ability to cope with the challenges of adolescence. In addition, mindfulness can help prevent mental health problems such as depression and anxiety, promoting overall well-being and a higher quality of life.

Addressing the need to minimize behavioral problems and their relationship to various psychological variables such as stress, anxiety and well-being, the present study set out to identify whether these students can cultivate a greater awareness of the present, without judging their thoughts and emotions, and responding more reflectively to their experiences.

## Method

The present study was framed within an empirical-analytical approach, using a descriptive field research design. The sample, of a non-probabilistic and intentional nature, was composed of 350 students of the Bachillerato General Unificado (BGU) of an Ecuadorian educational institution. This methodological choice allowed exploring and describing the facets of mindfulness in the studied population (Hernández-Sampieri & Mendoza, 2018).

Once the literature associated with the Facets of Mindfulness (FFMQ) was reviewed, the version translated by Quintana Santana, (2016) was selected and applied

The Five Facets of Mindfulness Questionnaire (FFMQ) is a psychological instrument that assesses the ability to practice mindfulness through five dimensions: observing our experiences without judging them, describing them in simple words, acting with awareness in the present, not making value judgments about ourselves or others, and not reacting automatically to stimuli. It is composed of 39 items grouped into the 5 facets, some of which are direct (D) and others inverse (I). It is a useful tool for measuring mindfulness practice and its relationship with various psychological variables such as stress, anxiety and well-being (Baer et al., 2006).

1. Observation (O): This facet refers to the ability to pay attention to thoughts, feelings and sensations of the present moment, both internal (thoughts, emotions, bodily sensations) and external (sounds, smells, sights), in an open and non-judgmental manner. The items in this facet are: 1, 6, 11, 15, 20, 26, 31 and 36, all of them direct
2. Description (D): It involves labeling experiences in a simple and objective way, without embellishing or over-interpreting them. The items in this facet are: (2, 7, 27, 32 and 37) direct and (12, 16 and 22) inverse.
3. Acting with Conscience (ACC): This facet focuses on performing daily activities with full attention, being present in each moment and not being carried away by the wandering mind. The items in this facet are: 5, 8, 13, 18, 23, 23, 28, 34 and 38, all inverse.
4. Absence of Judgment (AJ): It involves accepting experiences as they are, without labeling them as "good" or "bad". The items in this facet are: 3, 10, 14, 17, 25, 30, 35 and 39, all inverse.
5. Absence of Reactivity (AR): This facet refers to the ability to respond to internal and external stimuli in a flexible and non-automatic manner, avoiding impulsive emotional reactions. The items in this facet are: 4, 9, 19, 21, 24, 29 and 33, all of them direct.

According to Hernández-Sampieri & Mendoza (2018), the instrument to be used in quantitative research must be valid and reliable. In this study the instrument was validated and its reliability was established by Aguado et al. (2015); Cebolla et al. (2012); Baer et al. (2006); Baer et al. (2012); Olivera and Gonzalez (2018); Quintana (2016), reporting reliability values of 0.88 for the total scale, and for each facet: O = 0.81; D = 0.91; ACC = 0.89; A J= 0.91; and AR = 0.80

With the intention of responding to the purpose of the research, a descriptive analysis of the data was carried out, and after collecting the information, it was organized and tabulated. The results obtained were presented in a clear and concise manner through a table, which allowed a deep and meaningful interpretation of the results.

## **Results and Discussion**

The Five Facets of Mindfulness Questionnaire (FFMQ) is a fundamental tool in mindfulness research and clinical practice, developed by Baer et al. (2006), this instrument allows for an accurate and reliable assessment of an individual's tendency to respond to life experiences with mindfulness through five interrelated facets: observing, describing, acting with awareness, non-judgment and non-reaction.

The main objectives of the FFMQ are: (a) assess individual levels of mindfulness and its factor structure (Baer et al., 2006); (b) explore relationships between mindfulness and other psychological and physical variables, such as well-being, anxiety, and stress (Brown & Ryan, 2003); and (c) predict response to mindfulness-based interventions

(Fernandez, 2019). In addition, the FFMQ allows monitoring progress in mindfulness training programs and comparing levels of mindfulness among different population groups, thus contributing to a better understanding of the benefits of this practice in various contexts.

This questionnaire has 39 items (Table 3) distributed in five facets, the student must opt for five response alternatives: never or rarely true (A), rarely true (B), sometimes true (C), often true (D), very often or always true (E). The maximum score of the questionnaire is 195 and the minimum is 39. There are direct (D) and inverse (I) items, in the inverse items high scores mean a lower level of mindfulness.

Each facet of the FFMQ provides specific information on a particular aspect (observing, describing, acting with awareness, not judging and not reacting), without implying a dependency between them. Together, these facets provide a comprehensive view of mindfulness skills and allow for the identification of specific areas for personal development.

**Table 3**

*Application of the Facets of Mindfulness Questionnaire (FFMQ)*

NO	Items	A	B	C	D	E
<b>OBSERVATION (O)</b>						
1D	As I walk I become aware of the sensations of my body moving.	13,8	14,6	5,9	12,2	12,2
6D	When I shower or bathe, I notice the sensations of the water on my body.	13,2	10,7	14,9	9,8	14,6
11D	I become aware of how food and beverages affect my thoughts, body sensations and emotions.	14,7	10,8	11,1	12,2	12,2
15D	I pay attention to sensations, like the wind in my hair or the sun on my face.	11,4	11,1	16,6	16,3	12,2
20D	I pay attention to sounds, for example, the ticking of clocks, the chirping of birds or passing cars.	11,9	14,5	9,5	15,4	9,8
26D	I notice the smells and aromas of things.	10,8	13,5	15,1	9,8	12,2
31D	I notice visual elements in art or nature such as colors, shapes, textures, or patterns of light and shadow.	11,5	13,2	12,8	14,6	14,6
36D	I pay attention to how my emotions affect my thoughts and behavior.	12,7	11,7	14,1	9,8	12,2
<b>DESCRIPTION (D)</b>						
2D	I am able to find the right words to describe my feelings.	11,5	14,1	16,4	12,8	8,2
7D	I can easily express my beliefs, opinions, and expectations in words.	12,7	13,2	21,4	4,4	4,1
12I	It is difficult for me to find words to describe what I think.	12,5	4,4	11,8	22,2	21,6
16I	I have difficulty thinking of the right words to express how I feel about things.	15,4	13,8	9,6	18,3	19,7
22I	When I have a sensation in my body, I find it difficult to describe it because I can't find the right words.	4,8	2,6	14,9	24,6	21,0
27D	Even when I feel very upset, I find a way to put it into words.	15,4	17,4	7,4	5,1	4,9
32D	I have a natural tendency to put my experiences into words.	14,8	15,9	9,6	7,0	7,4
37D	I can describe how I feel at any given moment, in quite some detail.	12,9	18,6	8,8	5,5	13,1
<b>ACT WITH CONSCIENCE (ACC)</b>						
5I	When I'm doing something I get distracted easily.	5,4	14,4	14,1	14,1	11,0
8I	I do not pay attention to what I am doing because I am daydreaming, preoccupied with other things or distracted.	15,2	13,4	11,4	13,5	11,9



13I	I am easily distracted.	9,8	8,2	8,7	13,6	13,7
18I	I find it difficult to be focused on what is happening here and now, in the present.	14,1	10,3	11,6	12,9	12,6
23I	I have the impression that I "set the autopilot" without being very conscious of what I am doing.	10,9	10,3	16,1	11,0	12,5
28I	I perform activities without being really attentive to them.	16,3	10,3	9,3	12,6	13,6
34I	I perform work or tasks automatically without realizing what I am doing.	14,1	15,5	12,8	11,4	12,8
38I	I catch myself doing things without paying attention.	14,1	17,5	15,9	11,0	11,8
<b>ABSENCE OF JUDGMENT (AJ)</b>						
3I	I criticize myself for having irrational or inappropriate emotions.	15,9	19,0	10,2	12,8	12,3
10I	I tell myself that I shouldn't feel the way I feel.	13,6	14,3	12,6	12,8	12,1
14I	I think some of my thoughts are not normal or are bad and I should not think that way.	11,4	9,5	9,1	13,2	12,6
17I	I judge whether my thoughts are good or bad.	11,4	16,7	12,6	12,3	12,5
25I	I tell myself I shouldn't think the way I do.	11,4	9,5	14,2	12,4	12,4
30I	I think some of my emotions are bad or inappropriate and I shouldn't feel them.	13,6	11,9	13,4	12,3	12,5
35I	When I have thoughts or images that disturb me, the appraisal about myself is good or bad, in line with the content of that thought or image.	11,4	9,5	11,8	12,1	13,2
39I	I reproach myself when I have irrational ideas.	11,4	9,5	16,1	12,0	12,4
<b>ABSENCE OF REACTIVITY (AR)</b>						
4D	I perceive my feelings and emotions without having to react to them.	11,4	13,0	15,4	10,9	15,8
9D	I observe my feelings without getting caught up in them.	11,2	12,8	14,9	16,4	13,6
19D	When I have thoughts or images that disturb me, I "stop" and notice them without being carried away by them.	11,4	11,9	16,2	16,4	11,3
21D	In difficult situations, I can stop without reacting immediately.	10,3	14,7	13,9	14,5	20,4
24D	When I have thoughts or images that disturb me, I manage to calm down after a short time.	11,2	14,3	12,1	16,4	15,8
29D	When I have thoughts or images that disturb me, I am able to notice them without reacting.	11,3	14,6	11,5	14,5	13,6
33D	When I have images or thoughts that disturb me, I notice them and let them go.	33,2	18,7	16,0	10,9	9,5

*Note.* This table presents the percentages for each of the items applied to the sample.

From the data provided, it is observed in Table 3 that students, in general, present difficulties in observing (they have difficulty paying attention to bodily sensations, environmental stimuli and emotions in a conscious manner); describing (they have difficulty finding the right words to express their feelings and thoughts); acting with awareness (they tend to perform activities automatically, without paying full attention to what they are doing); absence of judgment (they criticize themselves for their thoughts and emotions); and absence of reactivity (they find it difficult to regulate their emotional responses and avoid reacting impulsively).

In relation to the observing facet, most students have difficulty paying attention to bodily sensations, environmental stimuli and emotions in a conscious manner, this is because their attention is divided, which makes it difficult to focus attention on a single thing. This can lead to superficial observation and decreased awareness of bodily and emotional sensations (Brown & Ryan, 2003). In addition, there is a tendency for the wandering mind, i.e., for thoughts to wander into the past or future, interfering with students' ability to remain present in the moment and observe their internal and external experience (Killingsworth & Gilbert, 2010). These results coincide with Chimbo (2023), when he points out that attention is indispensable for the teaching and learning process.

A significant percentage of students struggle to find the right words to express their feelings and thoughts, as they lack the emotional vocabulary necessary to accurately express their feelings and thoughts, making it difficult to identify and understand their own internal experiences (Harris, 2009). In addition, concern about being judged or evaluated may inhibit students from sharing their thoughts and feelings openly and honestly.

In the facet acting with awareness, it is observed that most students have automatic behaviors, which makes it difficult to perform tasks with full attention, i.e., in a conscious and present manner (Baer et al., 2006). Added to this is the pressure to obtain good academic results, leading students to perform tasks in a hurried and careless manner, without paying attention to the quality of their academic work.

In the facet absence of judgment, it is observed that a considerable percentage of students judge themselves negatively for their thoughts and emotions, which hinders self-acceptance (Langer, 2007). While critical thinking is a valuable skill, when it becomes overly self-critical, it generates a great deal of stress and anxiety, compounded by the perfectionism that can lead students to set high standards for themselves, generating frustration and discouragement when they cannot achieve them.

In the facet of non-reactivity, which is one of the fundamental pillars of mindfulness, which refers to the ability to observe one's thoughts and emotions without judging them or reacting automatically, it is observed that most students find it difficult to regulate their emotional responses and avoid impulsive behaviors. However, numerous studies, such as that of Steinberg (2004), show that many students lack this ability. Academic pressure, lack of education in social-emotional skills and family patterns contribute to this difficulty. As a result, students experience difficulties in regulating their emotions, which manifests itself in disproportionate reactions to stressful situations, interpersonal conflicts and poor academic performance. By cultivating mindfulness, students can develop greater emotional awareness, reduce stress and improve their social skills, which in turn promotes holistic development and greater well-being.

**Table 4**  
*Distribution of FFQM facets in the total sample*

Facets	Never or rarely true (A)	Rarely true (B)	Sometimes true (C)	Often true (D)	Very often or always true (E)
Observe	21,3	36,3	29,4	9,2	3,8
Describe	18,3	27,5	24,2	19,2	10,8
Acting with conscience	8,6	7,3	27,1	34,2	22,8
Non-Prosecution	4,6	3,5	15,8	50,2	26,0
Non-Reactivity	28,7	34,2	28,2	4,5	4,5

*Note:* This table contains the percentages of each FFQM in the total sample

In relation to Table 4, which corresponds to the FFQM facets of the total sample, the following is observed: Students show a tendency not to pay attention to bodily sensations, environmental stimuli and emotions consciously, the majority (36.3%) indicate that they are aware of these aspects. In addition, they have difficulty finding the right words to express their feelings and thoughts, with 27.5% (27.5%) falling into the rarely true category. These results coincide with the studies of Brown & Ryan (2003). This lack of attention to internal experiences could be related to the demands of modern life,

characterized by multitasking and constant distraction (Twenge & Campbell, 2009).

On the other hand, unlike the previous facets, students report a high level of awareness in their actions, the majority (34.2%) indicate that often true, indicating that they perform activities automatically, without paying full attention, with are inverse scores means that they present a lower level of mindfulness. According to Bishop et al. (2004), mindfulness involves not only being aware of actions, but also of thoughts and emotions.

In this order of ideas, students show a tendency to judge their thoughts and emotions, a (50.2%) indicate that often, they criticize themselves for their thoughts and emotions, presenting a low level of mindfulness, which is consistent with previous research findings suggesting that self-criticism and emotional reactivity are common obstacles to cultivate mindfulness (Kabat-Zinn, 1994).

Finally, students have difficulty regulating their emotional responses and avoid reacting impulsively, a very significant percentage of (34.2%) indicate that they rarely truly perceive their feelings without having to react to them, suggesting a lack of emotional awareness and a tendency to respond disproportionately to emotional stimuli, this lack of emotional regulation brings as long-term consequences so it is crucial to address this problem proactively and from a holistic perspective. This aligns with findings from previous studies that have linked low mindfulness with higher levels of anxiety and depression (Bishop et al., 2004).

## **Conclusions**

Finally, the conclusions of the article will be presented in a last section, followed by the main conclusions. Where appropriate, limitations and proposals for continuity will be included. The analysis of the data reveals a diversity in the students' profiles, evidencing a good start in the development of mindfulness, but also highlighting areas of opportunity. While many students show good awareness of their actions, it is necessary to deepen the practice of paying attention to bodily sensations, environmental stimuli and mental processes. In addition, it is crucial to enrich students' emotional vocabulary to facilitate the expression of their inner experiences and foster the development of effective communication skills. The study suggests that, although there is genuine interest in mindfulness, it is necessary to design specific pedagogical interventions to foster attention to objects, the enrichment of emotional vocabulary and the development of communicative skills, in order to enhance the emotional well-being and holistic development of students.

To foster an integral development of mindfulness in students, it is essential to promote unconditional acceptance of all experiences, both positive and negative, without value judgments. The high level of self-criticism evidenced in the students suggests a tendency to evaluate their thoughts and emotions negatively, which generates stress and anxiety. At the same time, it is necessary to develop emotional regulation skills, encouraging more conscious and flexible responses to internal and external stimuli. The results of the study reveal a tendency to react impulsively to emotions, indicating a low capacity to manage them effectively. By cultivating acceptance and emotional regulation, students will be able to develop greater resilience, improve their psychological well-being, and establish healthier relationships with themselves and others.

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**STUDENT HONESTY AND THE ROLE OF ARTIFICIAL  
INTELLIGENCE IN TASK SUBMISSION IN FACE-TO-FACE  
FOREIGN LANGUAGE CLASSES**  
**HONESTIDAD ESTUDIANTIL Y EL PAPEL DE LA INTELIGENCIA ARTIFICIAL  
EN LA PRESENTACIÓN DE TAREAS EN CLASES PRESENCIALES DE LENGUAS  
EXTRANJERAS**

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**ABSTRACT**

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intelligence, academic honesty,  
foreign languages.

Artificial intelligence (AI) technology is significantly influencing how students in the foreign languages program at the National Autonomous University of Honduras (UNAH) complete their assignments. This study explores the perception and use of AI tools among university students in face-to-face foreign language classes. The research follows non-experimental, ex post facto field methods, using a mixed exploratory-descriptive approach with a self-selected sample of 37 subjects in a single cross-sectional design. A mixed, self-administered questionnaire with both closed and semi-closed items was applied, focusing on the use, impact, and perception of AI in the academic setting. The study analyzed students' behaviors and attitudes regarding the validity and reliability of their assignments. The findings reveal that AI use in the academic environment presents both benefits and risks. 64.7% of students believe excessive AI use can limit the development of autonomous skills and negatively impact competencies like critical thinking. Additionally, AI is perceived as lacking personalization, hindering deep learning. AI supervision is considered stricter in face-to-face environments, highlighting the need for better regulation in virtual settings. While 55.9% of students report improved grades due to AI, many feel it does not significantly contribute to language skill acquisition. The study concludes that a balanced and ethical use of AI in education is essential.

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**RESUMEN**

**Palabras clave:**

validez, confiabilidad, inteligencia  
artificial, honestidad académica,  
lenguas extranjeras.

La tecnología de inteligencia artificial (IA) está influyendo significativamente en la manera en que los estudiantes de la carrera de lenguas extranjeras de la Universidad Nacional autónoma de Honduras (UNAH) completan sus tareas. Este estudio explora la percepción y el uso de herramientas de IA en estudiantes universitarios en clases presenciales de lenguas extranjeras. La investigación llevada a cabo se inscribe dentro de los métodos de investigación en aprendizajes de lenguas como un estudio no experimental ex post facto de campo, de nivel mixto exploratorio-descriptivo, sobre una muestra autoseleccionada de

37 sujetos en corte transversal único, a la que se le aplicó un cuestionario mixto auto-administrado con ítems, tanto cerrados como semicerrados sobre el uso, impacto y percepción de la IA en el ámbito académico, se analizaron comportamientos y actitudes de estudiantes respecto a la validez y confiabilidad de sus tareas. Los resultados revelan que el uso de inteligencia artificial (IA) en el entorno académico presenta tanto beneficios como riesgos. Un 64.7% de los estudiantes señala que el uso excesivo de la IA puede limitar el desarrollo de habilidades autónomas y afectar negativamente competencias como el pensamiento crítico. Además, la IA es percibida como poco personalizada, lo que impide un aprendizaje profundo. La supervisión del uso de IA es vista como más estricta en entornos presenciales, lo que plantea la necesidad de mejorar la regulación en modalidades virtuales. Aunque la IA ha mejorado las calificaciones para un 55.9% de los estudiantes, muchos creen que no contribuye significativamente a la adquisición de competencias lingüísticas. El estudio concluye que es esencial un uso equilibrado y ético de la IA en la educación.

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## **Introduction**

The emergence of digital tools and artificial intelligence has transformed the way academic tasks are presented and developed. In the context of foreign language teaching, students have access to multiple technological resources that can facilitate the learning process, but also raise concerns about the validity and reliability of the tasks presented. Academic honesty is a crucial component in ensuring fair and meaningful assessment of student performance, and the influence of AI raises questions about its impact on the development of real foreign language competencies.

This study aims to explore how AI is being used by foreign language students at UNAH in the presentation of assignments and how this affects the perception of validity and reliability by teachers and students. The aim is to analyze whether the use of AI contributes to an improvement in learning or whether, on the contrary, it favors behaviors that affect academic integrity.

To complete the theoretical framework of the article "*Validity and Reliability in the Digital Age: Student Honesty and the Role of Artificial Intelligence in Task Submission in Face-to-Face Foreign Language Classes*", a literature review of recent studies addressing academic honesty, the use of artificial intelligence (AI) in education, and how these factors affect the validity and reliability of assessments in the context of foreign language teaching is essential.

### ***Academic Honesty and Validity in Foreign Language Testing***

Academic honesty in the educational context is crucial to ensure the validity of learning outcomes and the authenticity of the competencies developed by students. According to Tertiary Education Quality and Standards Agency (TEQSA) (2017), academic integrity is defined as a commitment to act ethically and honestly in all aspects related to education. Honesty in the submission of assignments is essential to maintain confidence in the assessment processes and to ensure that students' actual skills are assessed.

The study by Löfström, E., & Bosström, K. (2021), on challenges related to academic integrity; the authors found that easy access to online resources, translation tools, and information sharing platforms, such as forums or social networks, pose significant challenges to academic integrity. This is because these tools facilitate plagiarism, lack of originality and misuse of material without the development of autonomous skills in the target language. Both teachers and students perceive that the use of technology in language tasks can sometimes affect the authenticity of the results. Students tend to see the use of digital tools as a way to facilitate their work, while teachers express concern about the authenticity of the skills demonstrated.

The authors suggest that it is crucial to develop pedagogical strategies that promote academic integrity, such as:

- Educate students about the ethical implications of using digital tools in language learning.
- Create activities and assessments that value the learning process and are difficult to complete with automated tools.
- Encourage autonomy and the development of real language skills, minimizing dependence on digital tools to complete tasks.

Teachers should establish clear communication about expectations around academic honesty and design assignments that assess both the process and product of learning to detect and prevent technology misuse.



In conclusion, Löfström & Bösström's study highlights the need to balance the use of digital tools with the promotion of academic integrity in foreign language learning, and proposes didactic approaches that can help mitigate the risks associated with technology misuse.

### ***Use of Artificial Intelligence (AI) in Education***

The rise of AI has brought significant benefits to the teaching-learning process, such as content personalization and quick access to relevant information. However, it also raises questions about its impact on student autonomy and the authenticity of their work. Selwyn (2019) argues that AI can generate both opportunities and challenges in education, depending on how it is used and the ethics with which it is incorporated into the learning process.

In their study entitled "Should robots replace teachers? AI and the future of education," examines the potential effects of artificial intelligence (AI) in education, analyzing both its benefits and risks. The study focused primarily on how AI transforms teaching and learning, and how these transformations may influence the future of education. In the results, the following were found

AI has the potential to adapt content and teaching methods to the individual needs of students. This can facilitate more personalized and effective learning. AI tools can take on administrative and routine tasks, such as grading exams, managing records and evaluating papers. This allows teachers to focus more on teaching and interacting with students. AI can provide fast and efficient access to educational resources, in addition to offering support through virtual tutors and learning platforms that facilitate knowledge acquisition.

Selwyn raises ethical concerns related to the use of students' personal data and privacy. AI technologies rely on large amounts of data, which raises questions about how that data is collected, stored and used.

While AI can automate certain aspects of teaching, there is also debate as to whether it can replace the complexity of human teaching, especially in the development of social-emotional skills and critical thinking. There is concern about the influence of AI on student autonomy, as excessive use of these tools could lead to a decrease in the development of problem-solving and independent thinking skills. Selwyn argues that while AI has the potential to transform education, it should be seen as a tool to complement teaching and not as a replacement. It emphasizes the need for a balanced approach in which technology enhances the capabilities of teachers and fosters meaningful interaction between students and teachers.

The study recommends a critical and ethical approach to AI implementation, ensuring that these technologies support the needs of students and teachers in an inclusive and fair manner. In addition, Selwyn suggests that educators should develop competencies to manage and evaluate the use of AI in the classroom, avoiding over-reliance and ensuring the integrity of the educational process.

The study concludes that AI presents both opportunities and challenges for the future of education, and stresses the importance of considering ethical, pedagogical and social aspects when integrating these technologies into teaching and learning processes.

### ***AI and its Effect on Task Submission***

The use of AI to complete tasks has raised concerns about the validity and reliability of the assessments. Buckingham Shum et al. (2018) note that while AI can facilitate the learning process, it can also affect students' perception of effort and skill

development. AI can help improve writing, translation and grammar, which can lead to the results presented not accurately reflecting the learner's actual language skills.

The study by Buckingham Shum et al. (2018), entitled "Artificial Intelligence, Learning Analytics, and Ethics: A Question of Trust," analyzes the impact of artificial intelligence (AI) and data analytics tools in higher and secondary education, emphasizing ethical dilemmas and the perceived validity and reliability of assessments. This study found that AI and data analytics can provide detailed, real-time feedback, which helps personalize the learning experience. These systems allow students to know their strengths and weaknesses, which can lead to an improvement in their academic results.

AI tools are increasingly used by students to complete assignments, improve writing, translate texts and check grammar. This use has a direct impact on the quality of the work submitted and the educational experience of the students. The widespread use of AI to complete tasks raises questions about whether the tasks delivered truly reflect students' skills and competencies. This affects the perceived validity and reliability of the assessments, as the results may not correspond to the student's actual effort or skills. The use of AI also introduces ethical challenges, such as the possibility of over-reliance on digital tools and the potential for diminished academic integrity. The ability of AI to automatically improve work and correct errors could lead to assessments that do not reflect students' actual proficiency in certain content, such as language skills or understanding of subject matter.

The study notes that while AI tools can be valuable for learning, trust in these systems by teachers and students is critical for them to have a positive effect. Lack of understanding of how these technologies work can lead to mistrust and questions about their ethical and fair use. It is important that educational institutions develop clear policies on the use of AI and learning analytics to ensure academic integrity and promote ethical and responsible use of technology. This includes educating students on how to use these tools properly and ethically.

The study suggests that AI should be used as a support for learning and not as a substitute for fundamental skills. The integration of AI in education must be accompanied by a balanced approach that encourages learner autonomy and that technological tools are used as a means to enhance learning, without compromising the authenticity of assignments and assessments.

In summary, Buckingham Shum et al. (2018) highlight that while AI and data analytics have great potential to enrich learning and teaching, there are significant concerns about their impact on the validity and reliability of assessments, ethics in their use, and the need to foster a culture of academic integrity in an increasingly digitized educational context.

### ***Approaches to Promote Integrity and Accountability in the Use of IA***

In foreign language teaching, it is crucial to promote an ethical and responsible use of technology. Soto-Santiago et al. (2020) suggest that, in addressing the issue of academic integrity and the use of AI, teachers should encourage discussions about ethics, develop activities that evaluate both the learning process and the learning product, and implement plagiarism detection strategies.

The study by Soto-Santiago et al. (2020), entitled "Digital Literacy and Academic Integrity: The Role of Technology in Higher Education," explores the relationship between digital literacy, the use of technology (especially AI), and academic integrity in the context of higher education in Puerto Rico and other Latin American regions.

The authors point out that digital literacy is key to fostering the ethical use of technology. When students understand the implications of using digital tools and

respecting intellectual property, they are better able to avoid dishonest practices, such as plagiarism or misuse of AI to complete assignments. There is a need to educate students on how to use technology ethically. This includes teaching them to distinguish when it is appropriate to use AI tools and how they can complement (but not replace) their learning processes.

Some challenges encountered in promoting academic integrity with the use of AI:

**Difficulties in monitoring the use of technology:** Teachers and institutions face the challenge of identifying when students are using AI tools inappropriately. This can be especially difficult with the growth of platforms and applications that perform complex tasks such as grammar correction, text paraphrasing and real-time translation.

**Influence of academic culture:** The study highlights that the promotion of academic integrity is influenced by cultural and social factors. In Latin American contexts, attitudes towards technology and education may vary, requiring specific approaches to teaching and promoting digital ethics.

The authors recommend designing tasks and assessments that focus on the learning process and not only on the final product. This allows teachers to assess students' actual skills and encourages self-reflection and commitment to autonomous learning. Incorporating discussions and activities focused on digital ethics and academic integrity into curricula can help raise awareness among students about the appropriate use of technology and the potential consequences of misusing digital tools. The implementation of plagiarism detection tools and resources to monitor the use of technology is suggested as part of a preventative approach to maintaining academic integrity. In addition, the authors highlight the importance of establishing clear policies on the use of AI and digital technologies in the performance of tasks and assessments.

The study by Soto-Santiago et al. (2020) highlights that promoting academic integrity in the age of AI and digital tools requires a combination of digital literacy, ethics education, and assessment design focused on the learning process. Emphasizes the need for approaches adapted to the cultural and technological context of students to encourage the responsible and ethical use of technology in higher education.

### ***Impact of Technology on Foreign Language Assessment and Teaching***

Assessment in foreign language teaching has been impacted by technology and the use of AI tools, leading to debates about the validity and reliability of these assessments. Chapelle & Voss (2020) discuss how technology can be both an ally and a challenge in language teaching, and highlight the importance of designing tasks and assessments that promote authentic learning.

The study by Chapelle & Voss (2020), entitled "Validity Argument in Language Assessment: The Role of Technology," examines how technology affects foreign language assessment, specifically addressing the validity and reliability of assessments in educational contexts that incorporate digital tools.

The study shows that the use of technology has significantly transformed foreign language assessment practices. Traditional assessments (such as written and oral exams) are being supplemented or replaced by online tests, automated correction software, and other digital tools, offering new opportunities to measure language skills.

The authors stress the need to ensure that the technology used in language assessments maintains a high degree of validity. This means that tests must accurately measure students' actual language skills and reflect practical language use, without the technological medium distorting the results.

1. Benefits and challenges of using technology in evaluation:

- Benefits: Technology allows for more efficient, accessible and adaptable assessments to meet the needs of students. For example, online tests can automatically adjust to the student's skill level, allowing for a more personalized assessment.
  - Challenges: However, reliance on technology can present challenges in terms of interpreting the results. Factors such as students' familiarity with digital tools, the quality of the technological resources and the possible automation of certain answers may affect the validity and reliability of the assessment.
2. Role of technology in different language skills:
- The authors discuss how technology affects the assessment of specific skills (such as listening, speaking, writing, and reading comprehension). Each skill can benefit from different technological tools, but also faces unique challenges. For example, listening tests may be more effective in a digital format that allows audio playback, but speech and pronunciation assessment presents challenges for automated assessment technology.
3. Recommendations for effective technology integration:
- Balance between technology and learning objectives: Chapelle & Voss propose that technology should be integrated in a way that serves learning and assessment objectives, not the other way around. Assessments should be designed with both the potential of technology and the need to measure actual language skills in mind.
  - Development of digital competencies for students and teachers: To ensure the validity of assessments, it is crucial that both students and teachers develop digital competencies. This includes the ability to use technology tools effectively and an understanding of how these tools impact the evaluation process.

The study concludes that technology has the potential to enrich foreign language assessment, provided that a critical approach to its implementation is maintained and the validity of the assessments is assured. Careful and balanced integration of digital tools can improve the accuracy and adaptability of assessments, but ethical, technical, and pedagogical challenges need to be addressed to maintain the reliability and validity of the results.

## **Method**

### ***Design***

The research carried out is part of the research methods in language learning as a non-experimental ex post facto field study, at a mixed exploratory-descriptive level, on a self-selected sample of 36 subjects in a single cross-section, to which a mixed self-administered questionnaire with items, both closed and semi-closed, was applied. Although the sample is small, it provides an initial perspective that could be compared with similar studies in other contexts.

In addition to the response frequency of each item, presented in tabular and graphical form, mean difference, variance, correlational and factorial analyses were also carried out, which will allow us to establish significant response patterns.

### ***Participants***

The study was conducted with students of Foreign Languages, specifically English and French. These classes were selected because they constitute the environment in

which I work as a teacher. This environment has allowed me to closely observe teachers' concerns regarding the authenticity of assignments submitted by students, as well as the possible use of artificial intelligence (AI) tools in their development.

### ***Instrument***

For this research work, the questionnaire was used as the research instrument. This questionnaire was posted online through Google Form (<https://docs.google.com/forms>). The first approaches to the questions originated with representations of the teaching practices of colleagues and practitioners during chat sessions and at conferences. Informal interviews were conducted with language students, which helped with the creation of the options to be included in the questionnaire. Six procedures were used to validate the questionnaire:

Construction of the questionnaire, expert validation, application of the pilot test, Cronbach's alpha, application of the questionnaires and analysis of the results. Five objectives were proposed for this questionnaire:

- a. Collect information on AI tools used by students for academic assignments and projects in their language classes.
- b. Collect data concerning how often and on what types of assignments students employ AI tools in their academic work.
- c. Collect information on perceived threats to validity and honesty in academic work as a result of the use of AI tools.
- d. Collect information on students' opinions on the level of supervision in the use of AI in different learning modalities (face-to-face vs. virtual).
- e. Gather feedback on the perceived benefits and disadvantages of using AI tools in the context of foreign language learning.
- f. Gather suggestions from students on how AI tools could be incorporated and better utilized to enhance their academic and language learning experience.

The questions in the questionnaire were designed in accordance with the research objectives and taking into account the population to be studied, the circumstances of the application and the characteristics of the software used. Different types of questions were used: dichotomous questions giving only one option of two yes/no answers; closed polytomous or categorized questions in which the respondent selected different answers; numerical and open-ended questions.

### ***Data Analysis***

As for the data collection and analysis process, the following steps were carried out:

- a. Development and implementation of a questionnaire to collect prior information about students' perceptions of the role and impact of AI tools in the academic and language learning environment from the students' perspective.
- b. After developing the first version of the questionnaire and obtaining the responses for the pilot evaluation, an invitation was sent to the authorities, professors, graduating students and experts of the Language Department of the UNAH to take the questionnaire and provide feedback. The questionnaire was voluntary and anonymous to try to control for possible limitations of the pilot study.
- c. The Googleform online service was used to create a first questionnaire, which was accessed through a link, since this company allows choosing totally flexible templates to carry out the survey in an individualized manner and to choose the format considered most appropriate. Before conducting the pilot study, three experts in language teaching were consulted: two teachers of English and one teacher of French. These specialists

reviewed the format of the instrument and provided comments to ensure its validity and reliability in the measurement of the established variables. After the implementation of the instrument, the data collected were processed, organized, coded and statistically tabulated, thus ensuring a rigorous and structured analysis.

Being an exploratory-descriptive study, the responses to the questionnaire were processed using different analysis techniques. First of all, we considered describing each of the items separately, in order to know the frequency distribution of the answers given by the students; this was done through the elaboration of tables and graphs, and allowed us to answer the research questions.

## Results

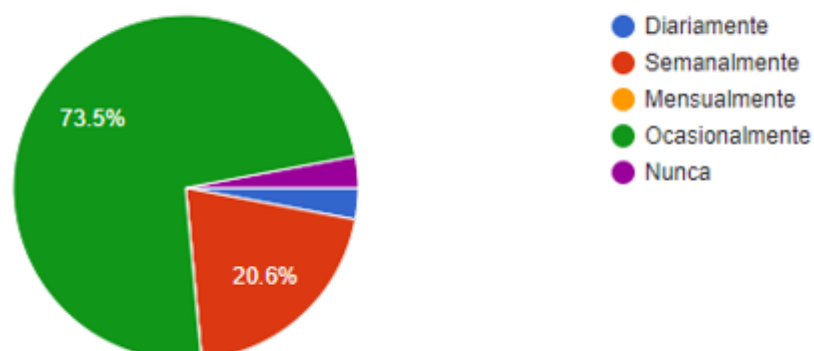
The incorporation of artificial intelligence (AI) tools in education has revolutionized the way students approach their academic tasks, especially in foreign language learning. These technologies, ranging from automatic proofreaders to text generators and virtual assistants, offer a wide variety of resources that facilitate written production, organization of ideas, and formal presentation of work. While these tools are widely valued for their ability to improve the technical quality of tasks, their use has raised concerns about their impact on authentic learning and the acquisition of language skills.

This study aimed to analyze students' perceptions of the use of AI tools in the context of their foreign language classes, assessing both perceived benefits and limitations. Through a survey, we explored how students use AI to improve their assignments, its impact on the quality and structure of submitted work, and the possible technological dependence that may arise in the process. In addition, the implications this use has on the authenticity of language skills were investigated, with a focus on how AI may affect active practice and knowledge retention in language learning.

The results reveal that while a significant percentage of students recognize the value of AI in optimizing their work, there is growing concern about its potential to undermine the development of autonomous and authentic language skills. This highlights the need to balance the use of technology with pedagogical strategies that foster deep and active learning in foreign languages.

**Figure 1**

*Frequency of AI use*



The results reveal that the majority of students (73.5%) use artificial intelligence (AI) tools occasionally, while (20.6%) do so on a weekly basis. This data reflects that more than 90% of students resort to AI with some frequency, indicating a considerable integration of technology in their academic process.

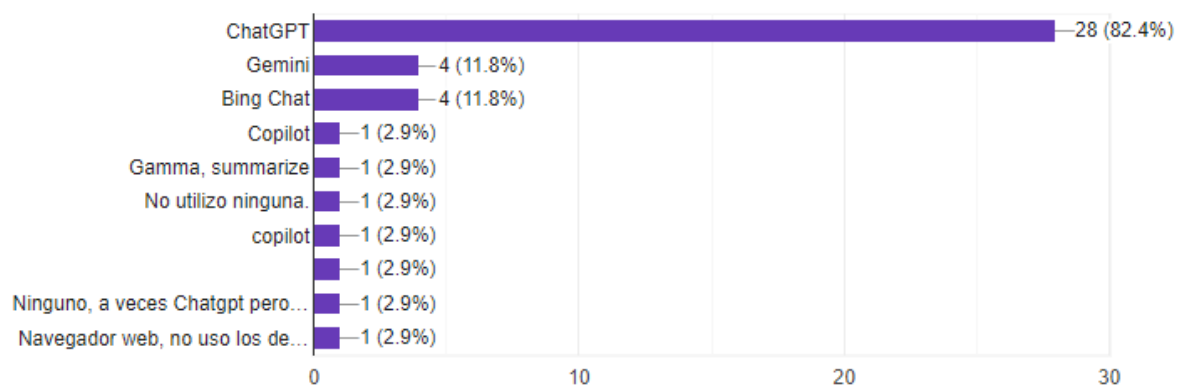
Although daily use of AI is not common, this moderate-frequent usage pattern suggests that students are using these tools primarily for specific academic tasks, such as research, data analysis, idea generation, or the production of written content. These results are consistent with other studies, such as Löffström & Bosström (2021), which show that students tend to adopt AI in a targeted and selective manner, rather than using it intensively and on a daily basis. This reflects the ad hoc nature of academic tasks requiring technological assistance and the tendency of students to employ AI only when needed for particular activities.

In addition, the moderate frequency of AI adoption may be linked to the perception of AI as a complementary tool in the educational process, rather than as an indispensable resource in day-to-day life. Students seem to resort to these tools mainly when they need additional support for information gathering, complex data analysis or idea generation, especially at times when the academic load is higher, such as before exams or in the preparation of research papers.

This finding underscores the increasingly important role of AI in higher education and raises the need for further exploration of how these tools can be optimized to provide greater academic support without generating over-reliance.

**Figure 2**

*Most commonly used AI tools*



The study shows that ChatGPT is the most widely used artificial intelligence tool among students, with 82.4% of respondents indicating a preference for this platform. It is followed by Gemini and Bing Chat with 11.8% each. This predominance of ChatGPT could be related to its ease of access, as it is a widely available and easy-to-use platform, characteristics that students highly value in technological tools. In addition, ChatGPT's popularity has increased due to its ability to generate fast and accurate responses, which improves the efficiency of academic tasks.

These results are consistent with previous studies that highlight the tendency of students to prefer tools that provide an intuitive and user-friendly experience. According



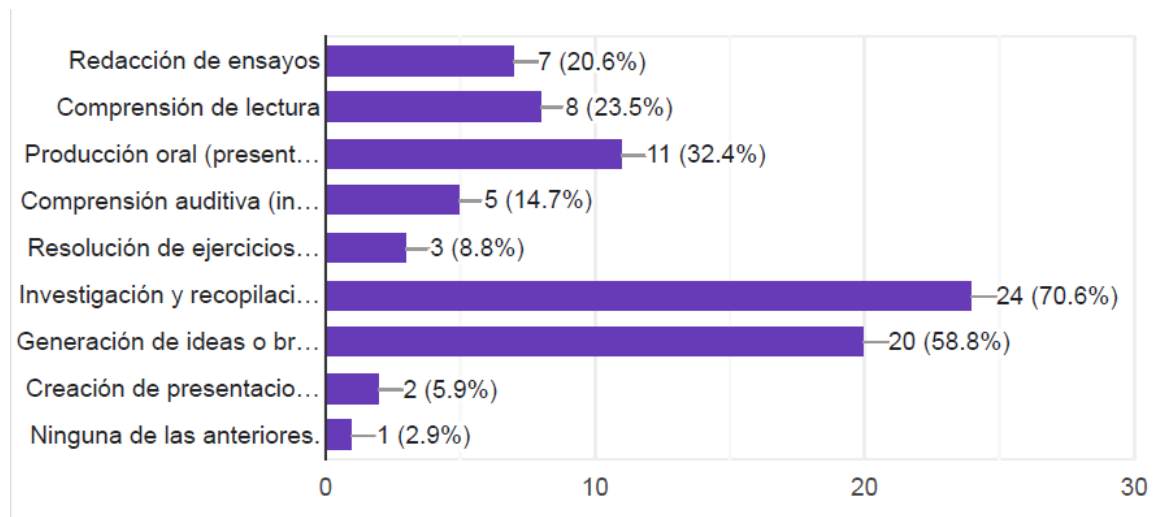
to Buckingham Shum et al. (2018), platforms that combine ease of use with fast delivery of accurate results tend to be the most popular among users, especially in educational settings, where speed and accuracy are essential for research and problem solving.

In addition, the widespread use of ChatGPT may be due to its versatility in a variety of applications, from information gathering to idea generation and written production. This suggests that, beyond ease of use, students are recognizing the value of ChatGPT as a comprehensive tool that allows them to address multiple aspects of their studies efficiently.

This finding underscores the need to further explore how students interact with these tools and the impact they have on their academic performance, which could guide future decisions about the integration of AI technologies in the educational setting.

**Figure 3**

*Types of Tasks*



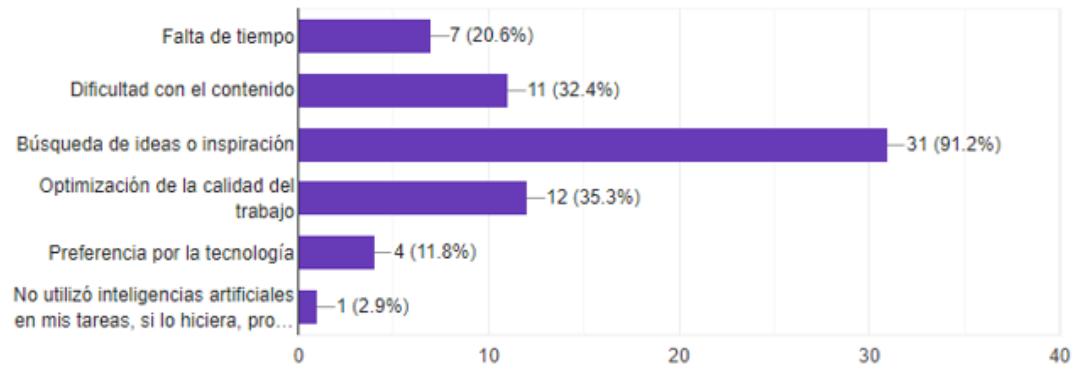
The study identified that artificial intelligence (AI) tools have a significant impact on various aspects of the educational process. The data reveals that the majority of respondents use these tools primarily for research and information gathering (70.6%), reflecting the relevance of AI in the accessibility and efficiency of obtaining up-to-date and accurate knowledge.

Likewise, the use of AI for idea generation stands out (58.8%), suggesting that these tools play a crucial role in supporting creativity and critical thinking, facilitating innovation and the development of original solutions in various disciplines.

To a lesser extent, AI tools are also used in oral production (32.4%), highlighting their usefulness in the development of communicative skills, such as pronunciation, fluency and correction of oral discourse. This use, although less frequent than the previous ones, underlines the potential of AI to complement language learning and improve users' language proficiency.

This finding is evidence that, although AI tools are used in a variety of ways in education, there is a strong focus on supporting research and innovation, with potential growth in areas such as speech production and communication skills development.

**Figure 4**  
*Reasons for use*



This finding highlights several key reasons why students turn to artificial intelligence (AI) tools in their academic process. The most common reason is the search for ideas or inspiration, reported by 91.2% of respondents, underscoring the creative function of AI as a source of support for generating novel ideas and enriching critical thinking. This trend indicates that students see AI as an effective way to overcome creative blocks and find new perspectives that they can apply to their academic work.

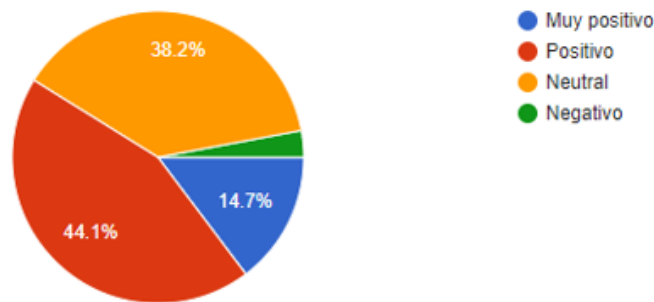
In addition, 35.3% of students use AI for the optimization of the quality of their work, implying that these tools are perceived as a means to refine and improve the accuracy of their assignments, from correcting grammatical errors to refining writing style or organizing ideas. This finding highlights the growing importance of AI not only as a creative resource, but also as a tool to ensure academic excellence.

Difficulty with the content is another significant reason for resorting to AI, mentioned by 32.4% of students. This suggests that AI is being used as a compensatory resource to address complex or difficult to understand topics, offering clear and accessible explanations that help students overcome barriers in their learning process.

Finally, 20.6% of students indicated lack of time as a reason for using AI, highlighting the role of these tools in time management and academic efficiency. This is consistent with previous research, such as that of Selwyn (2019), who identifies that quality improvement and time savings are common motivations among students to adopt technological tools in their studies. The ability of AI to provide quick responses and optimize the academic process allows students to meet tight deadlines without compromising the quality of work.

Taken together, these findings reinforce the idea that AI tools are consolidating as multifaceted resources, which not only improve the efficiency and quality of work, but also serve as a key source of academic support in areas where students face difficulties, either due to lack of time or complexity of content.

**Figure 5**  
*Impact on task quality*



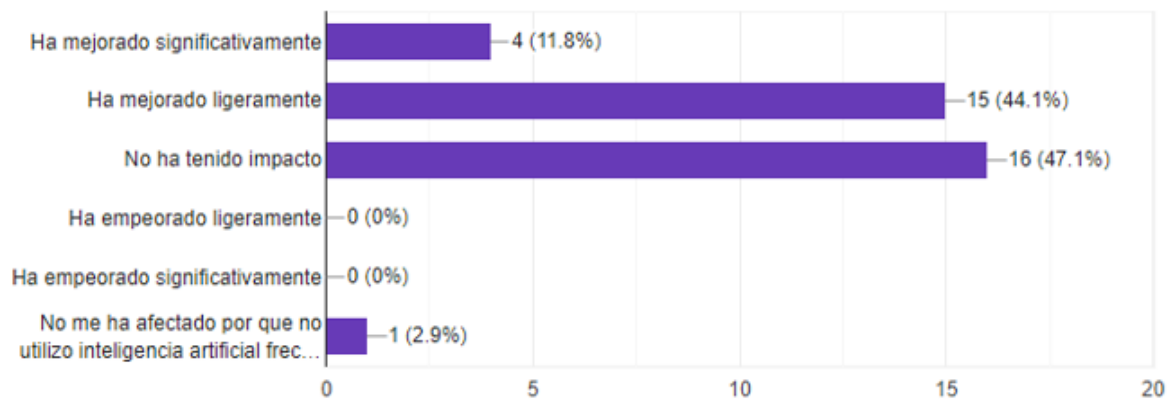
The study reveals that 44.1% of students believe that the use of artificial intelligence (AI) tools has a positive impact on the quality of their academic papers, especially improving aspects such as presentation and structure. These students value AI for its ability to organize ideas coherently, correct grammatical and stylistic errors, and help them present more polished and professional work.

However, the study also highlights that a significant percentage of respondents acknowledge that the use of these tools may have limitations. Some students express that AI, while useful in formal aspects, may restrict their deep understanding of the content, suggesting that over-reliance on it may affect the authenticity of learning. This is in line with concerns raised in previous studies, such as that of Soto-Santiago et al. (2020), who warn about the risk that the frequent use of technological tools may generate a more superficial learning based on efficiency rather than on the critical assimilation of concepts.

This finding highlights a paradox in the use of AI in academic settings: on the one hand, students value its ability to improve the final product of their work, but on the other, they recognize that there may be a decrease in the depth of their conceptual understanding. This reflects the need to find a balance in the use of these tools, so as to take advantage of their benefits without sacrificing the quality of learning.

In addition, this finding may suggest that students are becoming increasingly aware of the benefits and risks associated with AI. While they value the support it provides in improving the formal quality of their tasks, they are also attentive to possible limitations in their intellectual and personal development. This highlights the importance of designing educational strategies that more consciously integrate AI tools, encouraging a more critical and reflective use that promotes both quality improvement and deep learning.

**Figure 6**  
*Effect on the learning process*



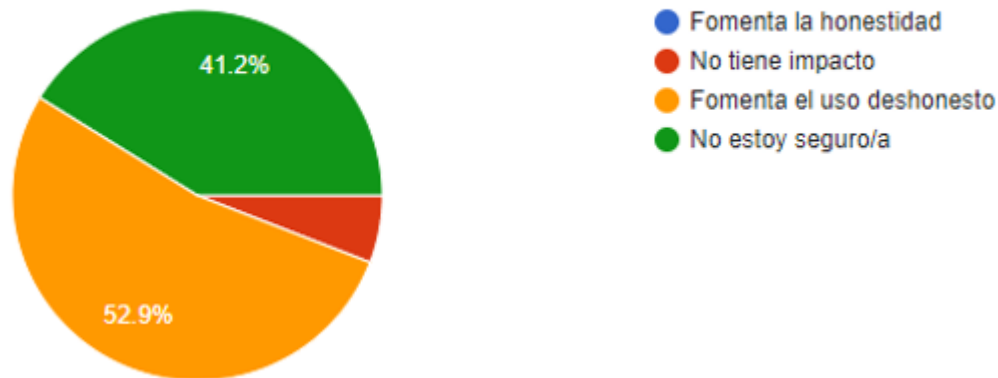
Most of the students in the study report that the use of artificial intelligence (AI) tools has little impact on their language learning and acquisition process. Although they turn to AI to improve the quality of their tasks, many do not see these tools as having a significant impact on deep language learning. This finding suggests that, for students, AI is seen more as a technical support tool than as a pedagogical resource that fosters language proficiency. Despite its usefulness for grammatical correctness, improved presentation of ideas and text structure, students seem to perceive that AI does not directly contribute to their development of communicative skills or their understanding of the language at a more advanced level.

On the other hand, the perception of the impact of AI on academic performance is more diverse. 44.1% of students believe that there has been an improvement in their grades, either significant or slight, reflecting that AI can help optimize certain aspects of their assignments and papers, such as clarity of ideas and error correction, elements that are likely to have a positive impact on their academic evaluation. These students value AI as a resource that facilitates the quality of the final product, allowing them to obtain better results in written assignments or presentations.

However, 47.1% of students indicate that AI has not had a noticeable impact on their learning process. This could be related to the nature of their use of these tools, mainly for task optimization rather than as an instrument for active language practice or deepening linguistic concepts. This group of students may be using AI in a more mechanical way, without exploiting its full potential for autonomous learning or the development of more complex language skills.

This finding highlights a duality in students' perceptions of AI: although many recognize improvements in the quality of their work and grades, they do not necessarily feel that these improvements translate into deeper learning or noticeable progress in their language acquisition. This highlights the importance of designing pedagogical strategies that more effectively integrate the use of AI to support both academic development and language learning, enhancing its use not only as a technical tool, but also as a resource to foster critical thinking, creativity and linguistic competence.

**Figure 7**  
*Influence on academic honesty*



The majority of students (52.9%) perceive that the use of artificial intelligence (AI) tools in academia encourages dishonest behavior, reflecting a growing concern about academic integrity in an environment where these technologies are becoming more common. This finding suggests that many students see AI as a way to automate tasks in ways that could reduce the authenticity of their work, turning to technology not only as a support, but as a direct substitute for academic effort, raising serious ethical challenges.

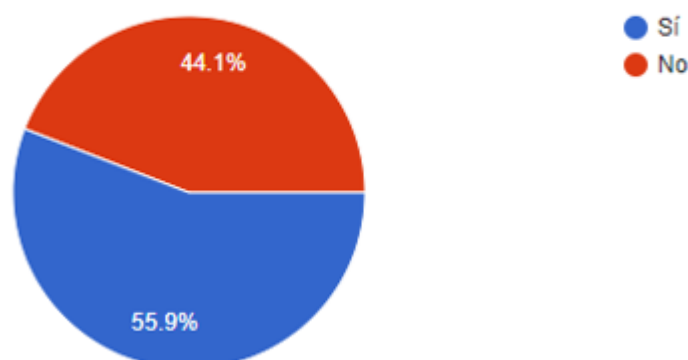
In addition, a considerable portion of students believe that teachers cannot easily identify the use of AI in the tasks presented, which may be contributing to a more frequent and uncontrolled use of these tools without fear of consequences. This perception highlights the technology gap that can exist between students and teachers, with the former feeling more familiar with emerging technologies and the latter facing difficulties in detecting when and how they are used.

In this sense, many students consider that the regulation of AI use should be clearer and more structured by teachers, suggesting that there is not enough guidance or control in the use of these tools within the classroom. This lack of regulation may be generating an over-reliance on AI, contributing to the inappropriate use of technology to the detriment of genuine learning and the development of critical skills.

These findings are aligned with studies such as Chapelle & Voss (2020), which warn about the tendency of students to rely excessively on technology to complete academic tasks. This unregulated use may ultimately compromise students' ability to develop autonomous thinking and authentic academic skills as they rely more on technology to perform tasks that should foster active learning and cognitive effort.

Therefore, this study highlights the need to establish clear policies around the use of AI in the educational context, promoting an ethical and conscious use of these tools. Teachers must take a more active role in the regulation and technological education of students, providing both boundaries and guidance on how to use AI in a way that complements, but does not replace, the learning process. This would reduce the risks of dishonest behavior and, at the same time, optimize the educational potential of AI within an ethical and responsible framework.

**Figure 8**  
*Impact on ratings*



Some 55.9% of students surveyed believe that the use of artificial intelligence (AI) tools has had a positive impact on their grades. This data underscores the role of AI in optimizing academic results, as it allows students to improve the presentation of their work and ensure that it conforms to the required formal standards, such as grammatical correctness, coherence in structure and clarity in the exposition of ideas. However, despite this benefit in academic assessment, there is a discrepancy regarding its impact on the learning process.

44.1% of the students consider that, although AI improves the formal quality of the final product, it does not significantly affect their acquisition of the foreign language. This indicates that many students perceive AI as a useful tool to refine and better present their assignments, but not necessarily as a resource that fosters deep learning or enhances their language skills. Reliance on these tools for quick corrections or to generate structured content seems to limit active interaction with the language, which is essential for foreign language acquisition and proficiency.

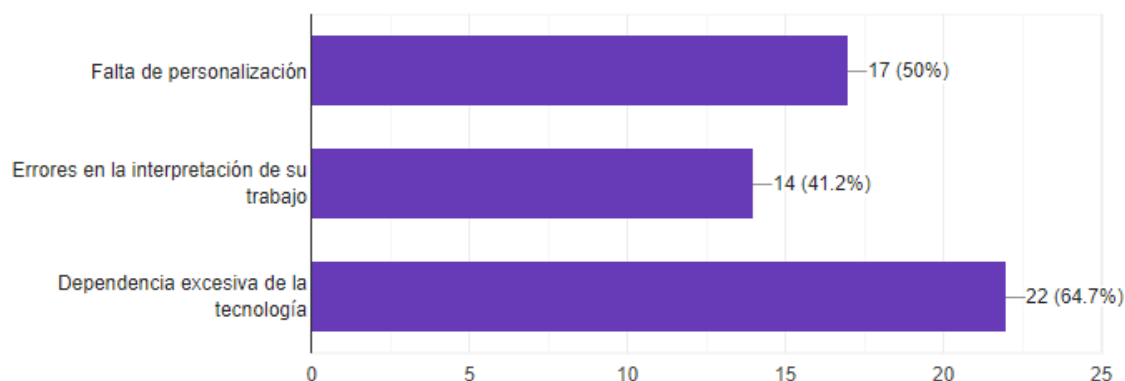
This finding reflects a possible imbalance between the positive impact on academic performance and genuine learning. Although AI can facilitate better presentation of work, the process of learning a language requires active practice, critical reflection and cognitive effort, aspects that are not always promoted by the use of AI. In fact, the constant use of these tools could be decreasing students' active participation in their own learning process, as they rely on technology to perform tasks that previously required more personal dedication.

This phenomenon aligns with research indicating that the use of AI in education can have a mixed effect: improvement in immediate outcomes, but a limitation in long-term learning. While students see tangible improvements in their grades, this benefit may be superficial, as it does not necessarily reinforce the fundamental language skills that are necessary for real language proficiency.

Thus, this finding suggests that while AI is a powerful tool for improving visible academic performance, it is crucial that teachers and students understand the importance of balancing its use with methods that promote deeper immersion in foreign language learning. This could include activities that integrate AI in a more active and participatory way, so that students not only improve their results, but also develop their communicative skills and comprehensive understanding of the language.

**Figure 9**

*Threats to the Validity of the Assessment:*



The study points out that one of the main perceived threats in the use of artificial intelligence (AI) tools is over-dependence on technology, identified by 64.7% of students. This finding suggests that many students recognize that, while AI can be a useful resource, there is a risk that its continued use can undermine the development of autonomous skills and limit students' ability to meet academic challenges without technological assistance. Over-reliance on AI could reduce personal initiative and problem-solving skills, skills that are critical not only for academic learning, but also for long-term career development.

Another major threat is the lack of personalization in the use of AI tools, which can affect the student's ability to develop more authentic learning tailored to their individual needs. While AI can offer quick solutions and efficient responses, many times these responses lack a personalized approach that considers each student's specific learning style and areas of development. This can lead to the learning process becoming a mechanized exercise, where students simply receive predetermined answers rather than engaging in a reflective and critical process that fosters true mastery of concepts.

The combination of technological dependence and lack of personalization can lead to superficial learning, where students complete tasks without really understanding the topics addressed in depth. This phenomenon can limit students' ability to develop advanced cognitive skills such as critical thinking, creativity and independent decision making. In addition, the lack of opportunities to personalize learning can inhibit the development of an academic self-identity, as students are not having enough space to experiment with different approaches and discover what their most effective learning style is.

These threats are aligned with previous research that warns of the dangers of overuse of technology in education. Studies have pointed out that while AI can be an effective tool to improve efficiency and accuracy in certain tasks, its prolonged use without proper pedagogical integration can have a negative impact on student autonomy and their ability to learn in an active and self-regulated manner. Instead of being a complement to skill development, AI could become a crutch that impedes academic and personal growth.

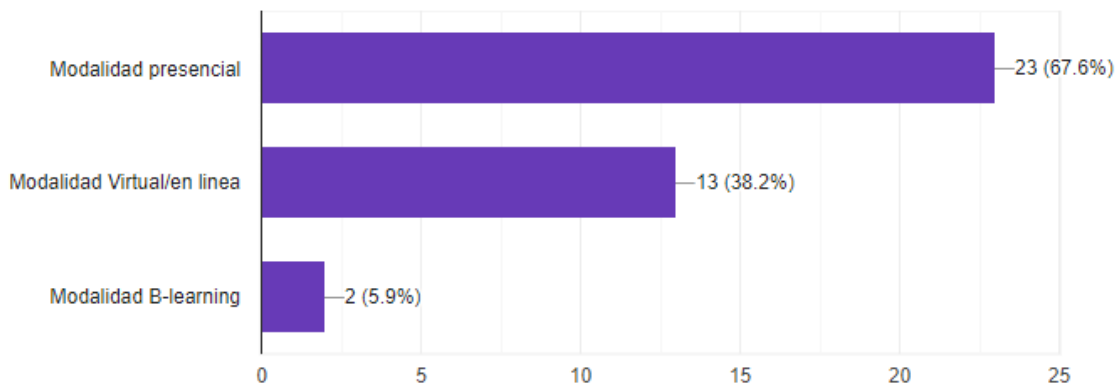
In summary, these threats highlight the importance of using AI in a balanced and strategic way, ensuring that students do not become overly dependent on technology and that they continue to develop autonomous and authentic skills through personalized learning methods. To achieve this, it is essential that teachers incorporate AI within an educational framework that fosters self-regulation, critical thinking, and individual



reflection, allowing students to use technology as a complementary resource, but not as a substitute for their intellectual effort.

**Figure 10**

*Supervision and Responsible Use Modality*



The study reveals that supervision of the use of artificial intelligence (AI) tools is significantly stricter in the face-to-face modality, with 67.6% of students indicating that professors exercise greater control over the use of these technologies in face-to-face classes. This increased level of vigilance may be due to the ability of teachers to directly observe how students interact with the AI during the development of activities, which allows for closer monitoring and early detection of inappropriate behaviors such as the misuse of these tools to copy content or to avoid personal effort in the completion of tasks.

In contrast, students perceive that in non-face-to-face modalities, such as online or hybrid learning, supervision is much more lax, which can lead to more unrestrained or irresponsible use of AI. The lack of control in these virtual environments could encourage dishonest behavior, such as plagiarism or over-reliance on technology to perform tasks automatically. This underscores the importance of designing appropriate monitoring strategies for online learning environments so that students feel equally committed to using AI ethically and responsibly.

Students also recommend a more critical and conscious approach to the use of these tools, suggesting that AI should be seen as a support for autonomous research and not as a tool for copying content without personal effort. This recommendation reflects a growing realization that AI, when used correctly, can enhance the independent learning process, helping students explore new ideas, organize information, and develop analytical skills. However, the risk of AI being used simply to reproduce content without reflection remains high if more thoughtful and critical practices are not promoted in its implementation.

Critical use implies that students should be encouraged to actively interact with AI, using it not only to generate answers, but also to evaluate, interpret and contextualize the information obtained. This approach encourages autonomous learning and self-regulation, allowing students to benefit from technological support without compromising their ability to develop deeper intellectual skills. In addition, strict supervision, both in the face-to-face and virtual contexts, must be accompanied by technology education on the limits and ethical potentialities of AI use, ensuring that students understand their responsibility in the use of these tools.

This finding is aligned with the growing concern about how new technologies can affect academic integrity if not used appropriately. Previous studies highlight the importance of fostering an ethical and critical use of technology, where AI is not a crutch that replaces effort, but a complementary resource that enhances intellectual curiosity

and independent thinking. Thus, the successful integration of AI in education depends on both adequate supervision and thoughtful pedagogy that empowers students to use these tools responsibly and constructively.

The results of this study are consistent with previous research that identifies both the advantages and risks of using AI in educational settings. The work of Selwyn (2019) and Buckingham Shum et al. (2018) also highlight the potential of AI to improve learning efficiency, but at the same time caution against lack of authenticity and possible over-reliance on the technology. In addition, studies such as that of Soto-Santiago et al. (2020) highlight the need to foster digital and ethical literacy in the use of AI, educating students on how to use these tools responsibly to complement their learning.

To improve validity and reliability in the assessment of language skills, it is recommended to incorporate pedagogical strategies that evaluate both the process and the product of learning. The inclusion of tasks that are difficult to complete with AI could contribute to more authentic skill development. It is important to develop clear policies and guidelines on the use of AI in academic settings. Creating activities that promote critical reflection and original production will help minimize dependence on technology. In addition, training teachers in the ethical and educational use of these tools is crucial to ensure that they become a resource that enhances learning and not a substitute for the student's personal effort.

## **Discussion and Conclusions**

The findings presented in this study shed light on the changing dynamics in the use of artificial intelligence (AI) tools within the academic environment and their positive as well as negative implications for learning. From the data obtained, it is possible to identify a number of key trends and challenges that require attention from teachers, students and educational institutions.

### ***Technology Dependence and Its Impact on Learning***

One of the most salient issues is the concern about over-reliance on technology. A significant percentage of students (64.7%) recognize that the constant use of AI may limit their ability to develop autonomous skills and authenticity in their learning. This finding is particularly important as it reflects an emerging trend towards the use of AI as a substitute for personal effort, which may negatively impact the acquisition of cognitive skills such as critical thinking, problem solving and creativity. In the long run, this could lead to a generation of students who are more technologically dependent and less able to face challenges independently.

The lack of personalization in the use of AI has also been identified as a threat. While AI can provide quick and accurate answers, many learners perceive that these solutions tend to be generic and not tailored to their individual needs, preventing authentic and meaningful learning. This highlights the need to develop AI tools that can better adapt to students' learning styles, promoting a more reflective and contextualized interaction with the content.

### ***Monitoring and Regulating the Use of AI***

Another important finding indicates that students consider supervision of AI use to be stricter in the face-to-face modality (67.6%), while in virtual environments they perceive less oversight. This situation could facilitate the inappropriate use of these tools, such as plagiarism or excessive automation of tasks. The discrepancy observed between

face-to-face and virtual modalities underscores the need to implement effective and equitable supervision strategies in both contexts. This would make it possible to encourage an ethical use of AI by learners, regardless of the learning format.

Students also recommend a more critical and conscious use of AI, where these tools are employed as a support for autonomous research rather than a resource for copying content. This approach suggests that students are aware of the benefits of AI, but also recognize the associated risks if it is not used thoughtfully. Promoting responsible and ethical use of AI should be a priority for teachers, who should integrate this technology within a pedagogical framework that promotes self-regulation and critical reflection in the use of digital tools.

### ***Impact on Academic Performance***

Although 55.9% of students believe that AI has had a positive impact on their grades, there is a notable discrepancy regarding its impact on the learning process. Many students (44.1%) feel that, while AI improves the presentation of their final papers, it does not contribute significantly to foreign language acquisition. This imbalance between visible grade improvement and genuine learning poses a major challenge for teachers, who must find ways to use AI not only to improve immediate academic performance, but also to foster deep and lasting learning.

AI, when used strategically, can enhance the educational process by helping students organize information and generate ideas, but its use must be complemented by activities that promote active interaction with the content. AI integration should focus on engaging students critically in their learning, rather than relying on technology for automatic and superficial responses.

In summary, the findings suggest that, although AI tools have the potential to improve certain aspects of academic performance, their excessive or inappropriate use may limit deep learning and the development of autonomous skills. It is essential that teachers and educational institutions adopt a more balanced and regulated approach to AI integration, promoting an ethical and conscious use of these tools.

To optimize the educational potential of AI, it is essential that academic policies set clear boundaries and encourage a reflective pedagogy that engages students in active learning. The goal should be to use AI as a complementary resource, not as a substitute for personal effort or critical reflection. With the right approach, AI can be a powerful tool to enrich the educational process without compromising the academic integrity and autonomy of students.

### ***Future Lines of Research***

The findings of this study open up multiple opportunities for future research, particularly in the field of artificial intelligence (AI) integration in education. Below are some key lines of research that could be pursued to further explore the impact of AI on learning processes, academic ethics and autonomous skills development.

#### **1. Long-term impact of the use of AI in deep learning**

While this study reveals a discrepancy between improved grades and deep learning, studies exploring the long-term effects of AI use on cognitive and language skill development are needed. Future research could examine how frequent use of AI affects knowledge retention and skill transfer to more advanced and complex contexts. It would also be important to analyze whether students who use AI on a regular basis develop surface learning patterns and how these patterns impact their ability to master more complex concepts in later phases of their education.

#### **2. Personalization of AI tools in learning**

One of the main concerns identified in the study is the lack of personalization in AI tools. A relevant line of research would be to explore how personalization of AI platforms can enhance student learning. This would include research into AI tools that can adapt to individual learning styles, offer more contextualized feedback, and provide more personalized guidance for specific tasks. This type of study could help identify how tools can be developed that offer more authentic and deeper learning, rather than simply improving the presentation of tasks.

### 3. Development of pedagogical strategies for the critical and ethical use of AI

Given that students recommend a critical and conscious use of AI, an important line of research would be to explore pedagogical strategies that promote the ethical and reflective use of these tools. This could include the development of technology curricula focused on training students to critically evaluate AI-generated information, recognize its limitations, and foster autonomous learning. In addition, it would be valuable to investigate how these strategies can be integrated into various academic areas, especially in fields such as the humanities and social sciences, where critical thinking and deep interpretation are key.

### 4. Evaluation of the effectiveness of supervision in the use of IA

The difference in monitoring AI use between face-to-face and virtual modalities raises questions about the effectiveness of current monitoring strategies. Future research could focus on developing and evaluating innovative methods for monitoring the use of AI in online and distance learning environments. This would include exploring the use of advanced technological tools that allow teachers to more efficiently detect the use of AI in academic tasks, as well as strategies that promote student responsibility and self-regulation in the use of these tools.

### 5. Relationship between the use of AI and the development of autonomous skills

This study reveals that reliance on AI can affect students' ability to develop autonomous skills. A crucial line of research would be to examine how the use of AI affects the development of competencies such as critical thinking, creativity and problem solving. Future studies could explore how regular use of AI influences self-regulation of learning, as well as identify what types of tools or methodologies help balance technological assistance with autonomy development.

### 6. Comparative analysis between different groups of students

Another interesting line would be to carry out a comparative analysis between different educational levels or cultural contexts to see how the perception and impact of AI on learning varies. This type of research could examine whether students in specific disciplinary areas, such as the exact sciences versus the humanities, exhibit different usage patterns and whether these influence their learning and academic development differently. In addition, a comparison between students from different cultural backgrounds could provide valuable information on how social norms and academic expectations affect the way AI is perceived and used in education.

### 7. Effects of AI use on academic integrity and ethics

Given that many students in the study acknowledge that AI may encourage dishonest behaviors in the academic context, it would be essential to further investigate how AI integration affects academic integrity and what measures may be effective in promoting ethical use. This could include studies on the implementation of educational policies that encourage responsible use of technology and explorations of how to educate students about the ethical risks associated with inappropriate use of AI.

### 8. Exploration of new evaluation models integrating AI

With the increased use of AI in education, a key line of research would be to explore new assessment models that effectively integrate technology. Future research could focus

on how to design more dynamic assessments that not only measure students' ability to produce results, but also their learning process and their critical interaction with AI. This could include assessment of critical thinking, creativity, and the ability to analyze and contextualize AI-generated information.

## Conclusion

These lines of research have the potential to expand the understanding of how AI is transforming the educational landscape and offer innovative solutions to address current challenges. The goal of future research should be to optimize the use of AI in education, ensuring that it promotes not only academic achievement, but also deep, ethical and autonomous learning. With a rigorous, multidimensional approach, future studies may shed light on how to take full advantage of AI capabilities without compromising students' intellectual development and academic integrity.

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## USE OF TECHNOLOGICAL MEANS AND CONSTRUCTIVIST APPROACH USE OF TECHNOLOGICAL MEDIA AND CONSTRUCTIVIST APPROACH

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### ABSTRACT

**Key words:**

technology,  
constructivism,  
teaching,  
strategies,  
education.

Digital connectivity is transforming life, and education cannot remain aloof from this phenomenon. In this context, the importance of the role of schools and teachers is highlighted, as they have a significant impact on early childhood. This study identified the relationship between the technological media used by initial-level teachers from five educational institutions in Paraguay and the constructivist teaching-learning approach, analyzing the methodological tools used to involve students in a responsible technological process. The study employed a descriptive, correlational, and non-experimental design, using a questionnaire and a semi-structured interview. The results revealed that the use of technological media expands access to educational content at a low cost, motivating and enabling more meaningful and effective learning. From a constructivist perspective, this study provides a deeper understanding of the positive impact technology can have on child development. The findings highlighted the development of effective and relevant strategies in initial education, emphasizing proactivity, flexibility, curiosity, and initiative as key teacher skills. Additionally, the need to strengthen spaces for peer exchange, help-seeking, and collaborative learning was emphasized, enabling teachers to gain greater confidence and security in the responsible use of technological media.

### RESUMEN

**Keywords:**

tecnología,  
constructivismo,  
docencia,  
estrategias,  
educación.

La conectividad digital está transformando la vida y la educación no puede permanecer ajena a esto. En este contexto se señala la importancia del rol de la escuela y los docentes, ya que ambos ejercen gran impacto en la primera infancia. El presente estudio explora la relación existente entre los medios tecnológicos utilizados por docentes de Nivel Inicial de cinco instituciones educativas de Paraguay y el enfoque de enseñanza-aprendizaje constructivista, analizando qué herramientas metodológicas utilizan para involucrar a sus estudiantes en un proceso tecnológico responsable. La presente investigación se desarrolló bajo un diseño no experimental, enfoque mixto cualitativo-cuantitativo, con predominancia cualitativa. El tipo de estudio seleccionado fue descriptivo, correlacional. Para ello se empleó un cuestionario y una entrevista semi-estructurada diseñados para la investigación, ambos fueron aplicados a la población seleccionada mediante muestreo no probabilístico de tipo incidental.



Desde el enfoque constructivista, este estudio invita a comprender con mayor profundidad y compromiso el impacto que puede tener el uso de medios tecnológicos en el desarrollo de los niños. Los resultados revelaron cómo las escuelas desarrollan estrategias eficaces y pertinentes en la Educación Inicial, destacando la proactividad, la flexibilidad, la curiosidad y la iniciativa como habilidades claves de sus docentes. Además, se resaltó la necesidad de fortalecer espacios entre colegas para intercambiar experiencias, pedir ayuda y aprender juntos. De este modo los docentes ganan mayor confianza y seguridad para el uso responsable de los medios tecnológicos.

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## Introduction

Early Childhood Education faces one of the most important challenges: discovering how to integrate technology to enhance learning. Teachers must be aware of the risks associated with technological media and act as capable and competent professionals. It is essential that they optimize the digital literacy process in the classroom and minimize harmful effects. Currently, the use of technological media is crucial for the development of many 21st century skills. Early Childhood Education is a relevant factor in social development because the functions that the school is entrusted with are substantial; therefore, it must be prepared to offer adequate training and preparation for future citizens.

The constructivist approach provides a favorable scenario for teachers to develop quality educational proposals. This approach considers the development of key skills such as autonomy, creativity and critical thinking. In addition, it offers a flexible and enriching methodological framework that adjusts to different educational realities. In this way, each student can direct his or her own learning, which generates a meaningful experience. The figure of the teacher in this approach guides and facilitates the process, in order to promote active and autonomous learning.

The study was descriptive, correlational and non-experimental, with a mixed qualitative-quantitative approach, predominantly qualitative. It takes as its universe and sample the population of early childhood teachers from five private educational institutions in Paraguay, whose educational styles promote the implementation of constructivist teaching-learning methods. A non-probabilistic incidental sampling was used, covering 70% of the sample, so that the data collected would reflect the attitudes of the selected population in a representative manner. For the collection of information, questionnaires and interviews were used, previously validated by a panel of experts. These instruments were applied respecting ethical and reliability principles and the voluntary participation of teachers.

The findings of this research provide valuable information to guide the development of effective methodological strategies to improve educational practice at the early childhood level, considering three fundamental areas: development of adequate digital competencies, strengthening the teacher's confidence in the use of technological media, and creation of spaces for professional exchange and collaboration.

### ***The Company. Knowledge and Learning***

In recent years, screens have taken on great importance, becoming protagonists in many scenarios. Since the COVID-19 pandemic, the relationship with technology has undergone a significant change: its potential has been proven, but the strong dependence of human beings on them has also become evident (Consultoría de Investigación Social y Comunicación - GAD3, 2021). However, technological media play an extraordinary role in the educational field, so teachers must develop key skills that allow them to develop appropriate proposals with maturity and reflection (Marzal et al., 2021). Understanding education as an integral process implies conducting an analysis of how technological media can complement the educational process, the goal is to foster the maximum development of Early Level students in a technological and interconnected society, balancing time in front of screens with activities such as play, contact with nature, physical exercise, family bonding and socialization (L'ecuyer, 2017).

The time of use of the different technological media has increased notably, differing only in the purpose of the same. Teachers' interest in incorporating technology into the

classroom has also grown, but many times they are not sure how to do it or do not have the necessary tools.

The main interest of this research focuses on how teachers link technological media to the teaching-learning process, from a constructivist approach, for its innovative character to transform education and generate creative and collaborative spaces in the educational community (GAD3, 2021) (GAD3, 2021).

The school plays a fundamental role in the development of many fundamental skills needed to live together in society (Torres et al, 2017). Children are most often initiated in the use of devices from an early age; but they do so informally and without proper guidance, thus becoming a vulnerable population in a risky and potentially harmful scenario for their development. The school is a key space to incorporate technology, enhance thinking, self-regulation and social awareness. In turn, it considers the development of science, technology and innovation and places it as a fundamental axis of economic growth and social progress (Rubio and Jiménez, 2021).

### ***Technology. Impact on Child Development***

Technological media have a stronger impact on the most vulnerable populations such as children (Marzal et al., 2021). This study seeks to raise awareness about the importance of digital literacy as a priority in the educational agenda, in the development of policies and in the elaboration of institutional guidelines (Pérez, 2020). The motivation to carry out this research arises from the need to approach the subject at early ages with a broader perspective. The need for children to develop digital skills is a reality, so this research reflects on how to help professionals, teachers and academics in the creation of meeting spaces to prepare the next generations for a world that is already driven by technology.

The best tool a teacher has is the way he or she looks at his or her students. Technological media are nothing more than an element that motivates and facilitates the teaching process (O'Connor, 2018). In addition, these media favor the development of an education based on constructivism (Ramírez et al., 2020). The relevance of the topic of study points to the approach of aspects related to the understanding of a technological culture that involves innovation processes (Decoud, 2021). It is not enough to deliver technological means to students or to optimize a laboratory, but it is necessary to generate a training plan in line with the challenges posed (Miranda, 2018) that introduces 21st century pedagogical approaches in schools and takes care of training teachers who do not have adequate preparation (Acuña et al., 2022).

Early Education plays a decisive role for children, but today's society requires rethinking the school model towards one that generates collaborative work spaces connected to the social and cultural environment, incorporating technological means as part of the teaching-learning process (Juntos por la Educación, 2023). It emphasizes the need to maximize efforts in teacher training, research, and the establishment of collaborative work networks to foster a safe and responsible digital educational experience (Quiroga et al., 2019).

Initial education is a crucial stage in which basic learning is developed (Vega, 2022). It is essential not only to lay the foundations for healthy development, but also to promote a more just and equitable society (Together for Education, 2023).

### ***Constructivist Proposal***

Constructivism is a theory about knowledge, according to which the human mind functions as a filter of the different information that reaches the individual, in order to favor meaning construction processes (Reyero, 2019). His ideas are strengthened by the

need of human beings to maintain more active relationships with their constantly changing environment. Knowledge is under permanent construction and finds meaning in interactions with society (Rubio and Jiménez, 2021).

The constructivist school has all the necessary elements to position itself as a protagonist of social transformation. However, pedagogical change does not come only from the mere application of technologies (Tamayo et al., 2023) but through the use of varied strategies that combine virtual and non-virtual tools. These strategies make it possible to take advantage of the physical and technological resources available, in order to enhance the development of skills that serve as a basis for future learning (Vega, 2022).

Constructivist theory focuses on the construction of knowledge through activities based on rich experiences in context (Reyero, 2019), technological means can be very useful if integrated with appropriate methodologies. The use of technological media should not replace important developmental processes such as movement, nature exploration, outdoor activity, family interaction, natural curiosity, and interaction with other children (GAD3, 2022), but should provide support for developing independence, taking an active role, analyzing information, problem solving, and communicating effectively (Reyero, 2019).

### ***The Teacher as a Key Element***

The use of technological media and the information available alone do not guide; As mentioned above, the work of the teacher is important, since he or she has a fundamental role in accompanying children in the development of their skills according to the demands of the 21st century (Decoud, 2021; Carneiro et al., 2019). Moreover, teachers face the great challenge of reinventing themselves and renewing their ways of teaching, opening up to a rather unknown world (Wehrle, 2020). Teachers accompany the potential of the next generations by offering meaningful pedagogical proposals, in which students can advance in the development of their digital competencies, but also in the consolidation of personal and social skills (Díaz et al., 2021).

Technology must be balanced with other interesting proposals, such as outdoor play, communication with peers and movement (Casablanco et al., 2021). Teachers must be up-to-date to be able to use appropriate strategies (Barrera et al., 2020), but many do not have the necessary competencies or do not feel prepared to design and implement technology-rich learning environments (Barrera et al., 2020) (GAD3, 2021). Preschool children have been exposed to screens since birth and will be exposed to them throughout early childhood as something inevitable; therefore, their use should be guided and accompanied by the adult (Padilla, 2020). Families, for their part, are at a bit of a loss as their children advance by leaps and bounds (Díaz et al., 2021). Children need empathetic adults who are capable of strengthening their self-esteem (Ramírez et al., 2020).

The objective of this research is to determine the degree of relationship between the variables constructivist teaching-learning method and the use of technological media in early childhood teachers of five educational institutions in Paraguay.

In order to pose the problem, we seek to answer the research question: Is there a relationship between the variables constructivist teaching-learning method and the use of technological media in early childhood teachers of five educational institutions in Paraguay?

## Method

### **Research Design**

The present research was developed under a non-experimental design, mixed approach, with qualitative predominance seeking to obtain a deep understanding of the subject of study guided by the theory of constructivism constructivism. The methodology used was based on the collection and analysis of data through the application of questionnaires and interviews. This approach was chosen in order to explore in detail the experiences and perspectives of the participants.

*Type of research:* descriptive - correlational - non-experimental

### **Research Hypothesis**

H<sub>1</sub>: The existing correlation of the level of relationship between the constructivist teaching-learning method and the teacher's use of technological means is positive.

H<sub>0</sub>: The existing correlation of the level of relationship between the constructivist teaching-learning method and the teacher's use of technological means is not significant.

### **Population and Sample**

*Area:* The research will be carried out in 5 private schools with constructivist teaching-learning methods, located in Paraguay, in different neighborhoods of Asunción.

*Universe:* The study population consisted of 113 preschool teachers from five private educational institutions in Paraguay. These teachers are distributed in clusters corresponding to each school as follows: In institution 1 there are 22 teachers who are part of the study. Institution 2 has 25 teachers, while Institution 3 has 23 teachers, Institution 4 has 19 teachers and Institution 5 has a total of 24 teachers.

*Sample:* Considering that the universe is small (113 teachers), we tried to cover a large part of it, obtaining a sample of 70% of the teaching staff at the Initial Level. The margin of error was considered to be 3%, with a confidence level of 95%, hoping that the sample, composed of 79 teachers, faithfully reflects the attitudes of the selected population and aiming to obtain significant results. The type of sampling used for the selection of the participants of this study is non-probabilistic, accidental or by convenience.

Likewise, the *inclusion criterion* was to be a practicing Early Childhood teacher in one of the selected institutions and to have at least one year of classroom experience in order to participate in the study. The teachers who decided to participate also gave their informed consent, accepting their voluntary participation in the project. *Exclusion criteria* were established as having less than one year of classroom experience, not being an early childhood teacher or not being an active member of the selected educational communities. In addition, we excluded those teachers who, even though they met the inclusion criteria, were not willing to participate or did not give their consent.

The research focused on the study of the relationship between technological media and the constructivist method. The following variables were defined for this purpose:

*Dependent Variable: Constructivist method.* A teaching and learning method that assumes that knowledge is a mental construction, the result of the cognitive activity of the learner. The constructivist method was measured using a questionnaire in the educational context.

*Independent Variable: Technological means.* Digital development tools characterized by their interactivity, diversity, digitalization, interconnection and innovation, which facilitate and enrich the teaching and learning process. In this study, its use was examined

through a semi-structured interview designed as an instrument to assess the variable in a general educational context.

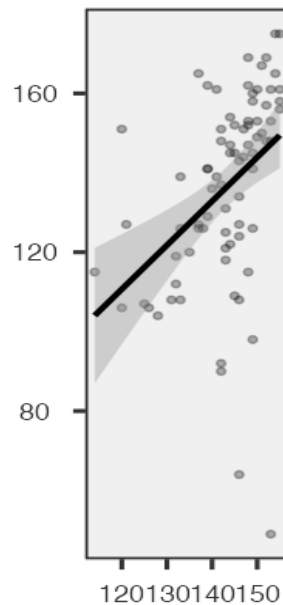
For this research, two instruments have been developed in order to achieve the proposed objectives. The first instrument is the *Technological Media Utilization Questionnaire*. This questionnaire is based on a semi-structured interview designed to gather information on various aspects relevant to the use of technological media and the experience of teachers in educational institutions. Some of the issues addressed include the educational style of the institution, type of professional training, teaching area, years of teaching and the technological means they use they use. The second instrument is the *Questionnaire on Constructivist Teaching-Learning Method*, this questionnaire is a simple and specific self-report to evaluate the approach to teaching practices in the educational context. It consists of items that explore personal, methodological and attitudinal aspects relevant to constructivist teaching practice, allowing teachers to reflect on their pedagogical approach and its application in the classroom.

## Results

When analyzing the *general objective*, which consisted of determining the degree of relationship between the variable's constructivist teaching-learning method and the use of technological media in early childhood teachers in five educational institutions in Paraguay, it was found that there is a positive relationship between the two, as can be seen in Figure 1. This relationship suggests that as teachers orient their teaching from the constructivist method, they tend to use more technological means to support learning.

**Figure 1**

*Correlation between teaching-learning methods and the use of technological media.*



Pearson's correlation analysis revealed a positive relationship of moderate magnitude, with a correlation coefficient of  $r = 0,410$ . According to the criteria proposed by Cohen (1988), this value indicates a significant association indicating that the use of the constructivist method and the incorporation of technologies in the classroom can be complementary to favor learning. In this sense, it is observed that teachers, by adapting to the new teaching-learning culture, developed stronger digital skills (Acuña et al., 2022). Furthermore, the above suggests that those who adopt a constructivist approach in their teaching tend to be more willing to integrate technologies into their pedagogical practice (Rubio and Jiménez, 2021).

From this relationship it can also be understood that the use of technological means can be an effective complement for those teachers who currently work from a constructivist method (Espinoza, 2023) (Espinoza, 2023). This finding has significant implications, as it suggests that, in order to ensure the effectiveness of the strategies proposed, teachers must be familiar with constructivism.

Linear regression analysis revealed a very strong relationship between the independent variables and the use of technological media in the classroom. The model yielded a correlation coefficient of  $R^2 = 0.870$ , which indicates that approximately 87% of the variability in the use of technological media can be explained by the variables included in the model (teaching-learning methods, training center, teaching area, age of students and years of teaching practice).

This result suggests a statistically significant and large relationship, although it is important to note that linear regression shows association, not causation. In other words, it cannot be said that these variables directly cause a greater use of technological media, but they are related in an explanatory way within the model.

The teachers mentioned that the knowledge acquired was acquired through teacher refresher courses, training in specific tools and sharing experiences with colleagues. Some mentioned being self-taught and having developed skills more strongly during the pandemic. In the teaching area, some teachers have different roles and forms of contracting. These variables should also be studied considering job stability,

professional trajectory as this could be related the possibility of acquiring own technological means (Tirocchi, 2019).

Another relevant variable to consider is the professional experience of teachers. The trajectory, as presented in Table 1, plays a fundamental role in the incorporation of technologies in the classroom. Teachers with more seniority tend to have more consolidated knowledge, which, together with their accumulated experience, allows them to integrate various technological resources in a more effective and relevant manner, depending on the pedagogical objectives they are pursuing. This experience has not only been strengthened through practice, but also through continuous training and the exchange of knowledge with peers (Avalos, 2020). In this sense, diversity in the years of professional practice contributes to enriching the pedagogical discussion and collaboration among teachers, favoring innovation in the teaching-learning processes (Fuenzalida, 2020).

**Table 1**

*Frequency of years in the teaching profession*

<b>Years in practice in teaching</b>	<b>Frequencies</b>	<b>of Total</b>	<b>accumulated</b>
0 to 5 years	13	16.5%	16.5%
11 to 15 years	20	25.3%	41.8%
16 to 20 years	8	10.1 %	51.9%
6 to 10 years	23	29.1%	81.0%
More than 20 years	15	19.0%	100.0%

Regarding the degree of training, it was observed that 55.7% of the teachers have a bachelor's degree, 21.5% have teacher training, 16.5% have continued their postgraduate studies and 6.3% have attained other degrees as shown in Table 2. In general, most of them have a solid academic background for teaching. This is reflected in their commitment to continuous improvement, as evidenced by the interest of many in continuing to improve their skills through postgraduate studies. In the interviews, teachers highlighted the importance of mastering different technological tools and mentioned their participation in updating and professional development programs aimed at improving their pedagogical practice (Quiroga et. al., 2019).



**Table 2**  
*Frequency of professional training degree*

Degree of training	Frequencies	% of Total	% Accumulated
Bachelor's Degree	44	55.7%	55.7%
Master's Degree	13	16.5%	72.2%
Another	5	6.3%	78.5%
Faculty	17	21.5%	100.0%

The analysis of the center of studies where teachers obtained their professional training reveals that 79.7% have completed their studies at university. These results suggest that access to quality university training allows teachers to develop adequate competencies to face the challenge of designing more complete and enriching pedagogical proposals. In this context, teachers use various technological tools and platforms to plan their classes, design materials and create virtual learning scenarios.

84.2% research on educational models that incorporate technological means to enhance early childhood learning. Among the most frequently used technological media are the projector, notebook, computer, as well as tablets and cell phones. As for platforms or applications, they mentioned Padlet, Lumosity, YouTube, Word Wall, Google Classroom, Meet, Drive, Magic School, Ed Puzzle, Prezi, Canva, Genially, Progentis. Other technological resources also mentioned were loudspeakers, televisions and sound players (Tirochi, 2019). When referring to the type of material, teachers mentioned games, videos, music, web questionnaires, informative documents and slides (Díaz, et al., 2024).

### ***Personal Dimension***

Most teachers use technological means in their personal lives (Leliwa and Marpegan, 2020). 81% reported feeling competent in its use and having a high level of confidence (Rubio and Jiménez, 2021). Likewise, 70.9% have their own devices that allow them to incorporate technologies in their pedagogical practices, which provides them with opportunities to experiment, build or adapt their teaching strategies (Mateus, 2023). On the other hand, 68.4% say that these tools facilitate the performance of teaching tasks, optimize planning and teaching processes and improve time management. All of this contributes to increasing professional well-being, familiarity with technology and raising the quality of education (Rubio and Jiménez, 2021).

Work experience has a significant impact on the safety to use technological means (Quiroga et. al., 2019). Therefore, it is essential to strengthen personal skills that allow a more effective use of these tools (Reyero, 2019). In this sense, teachers maintain an attitude of permanent inquiry, which fosters the learning of competencies and the development of research in the educational field (Decoud, 2021). In addition, 75.9% of teachers are constantly looking for tools to further advance their professional practice. Another relevant aspect is flexibility, as 72.2% of respondents state that they are able to adapt content to the interests and needs of students (Juntos por la Educación, 2023).

88.6% of teachers have knowledge of the constructivist approach, which has an impact on educational quality by generating meaningful experiences for students (Acuña et al., 2022) by generating meaningful experiences for students (Acuña et. al., 2022). On the other hand, 83.5% expressed the importance of proactive behavior in different

situations, considering it a characteristic of a positive learning culture (Bernal, 2020). In this type of culture, teachers feel prepared to face challenges, adapt to diverse realities and are open to innovate and renew their pedagogical practices (Decoud, 2011).

### ***Professional Dimension***

Most of them have carried out autonomous learning and exchanges among colleagues, in addition to seeking refresher and training courses. Teachers who had received training were more confident and secure in their ability to incorporate technology into their practice (Rubio and Jiménez, 2021). They also demonstrated greater openness and flexibility to adapt, which is related to the constant search for new tools and the capacity for dialogue (Espinoza, 2023). In both cases, 83.5% possess these key skills and use them in different situations in their professional practice.

To implement pedagogical strategies that include the use of technology, educators must be updated and trained to design clear objectives (Barrera et. al., 2020). 51.9% expressed that, in the last five years, they participated in refresher programs on innovative and participatory methodologies, recognizing the importance of keeping their knowledge up to date (Bernal, 2020).

### ***Institutional Communication***

Virtual institutional communication is a powerful tool that allows interaction between teachers and families. Most teachers have included in their practices to be in communication with families. The 59.4% accompanies virtual institutional communication scenarios such as groups and/or networks. In addition, 78.5% of them state that they communicate frequently with their families through technological means. On the other hand, 77% provide guidance on the proper use of educational platforms to children and their families to facilitate a more user-friendly interaction. The use of technology means that the information sent can be accessed more quickly, making it possible to take timely action more effectively. This is key for parents to manage accurate information about their children (Ramírez and Aguaded, 2020).

Active learning is a main focus, 96.2% of teachers state that they work on it (Bernal, 2020), and 79.7% use prior knowledge and experiences to lay the foundations of thinking (Reyero, 2019). In this scenario, technological media can offer enriching routes for the development of specific skills from a constructivist approach (Fuenzalida, 2020). In addition, the teachers surveyed put great effort into promoting fluency of ideas, flexibility and creative thinking. In this sense, 77.2% prepare children from a young age to solve everyday problems of their reality, strengthening their confidence and self-esteem (Fernandez, 2018).

### ***Pedagogical Dimension***

In the interviews, teachers mentioned that they put great effort and commitment in attending to, answering and channeling students' questions, concerns and curiosity, so that the natural process of inquiry finds its own rhythm, thus favoring meaningful learning. Likewise, avoiding the inappropriate use of technological media is as important as generating meaningful practices to take advantage of their potential. Pedagogical change does not arise simply from the application of technologies, but rather appropriate professional competencies must be developed (Tamayo et. al., 2023). In this sense, 86.1% of teachers included topics related to constructivism in their professional training, participating in training and constant updates (Fontal et. al., 2020). In addition, 92.4% investigate methodological strategies to enhance early childhood learning, while 72.2%

stimulate the development of critical thinking through simple questions. Finally, 98.8% consider the learning context to propose work strategies.

In this scenario, the professional trajectory is also favored, since they have the opportunity to improve their skills to perform in the context (Decuyper et al. 2021). Thus, 51.9% incorporate technological tools in the lesson plan according to the objectives, 98.8% identify the level of development of each child in the classroom, 89.9% take into account individual differences detected to plan the class. Most of them are competent to make adjustments according to the reality of their students. This is a fundamental point in the planning to attend to diversity, considering development levels, personal and group characteristics for the development of contents, activities and evaluations (Marzal et al., 2021).

### ***Attitudinal Dimension***

70.9% express that the discussion on the use of technological media occupies an important place, while 64.6% perceive themselves as teachers who transform their classroom practice by using these tools. These positive perceptions create an opportunity to create a more dynamic and stimulating learning environment for children (Fuenzalida, 2020). Likewise, 68% say they feel satisfied when incorporating educational strategies that include technological media or applications, and 60.8% observe an improvement in the learning process thanks to their use. This satisfaction refers to the positive value they attribute to the experience (Mateus, 2023). Finally, 73.4% consider that technological media encourage reflection and the development of children's thinking as long as they are accompanied by an adult reference (Avalos, 2020; Vega, 2022).

The constructivist approach provides a suitable framework for the incorporation of technological media in the classroom. 74.7% take into account the work time, respecting individual differences promoting the application of what has been learned. In addition, 83.5% stated that it promotes autonomy, while 79.7% expressed that it positively reinforces students' initiative. Most teachers use technology as a stimulus to encourage initiative and participation. The teacher's responsibility, professionalism and supervisory skills are essential for the child to understand, use technological media appropriately and regulate the time of use, thus obtaining benefits, taking care of the impact of excessive use (Mateus, 2023).

### ***Social Dimension***

Teachers put a lot of effort into promoting learning spaces where respect and empathy gain strength. 83.5% promote dialogue among students while respecting differences, and 81% promote cooperative learning among children. Technological media are an interesting resource to reinforce cooperative learning in the classroom, since they facilitate communication, promote collaborative work and contribute to the development of social skills (Casablanco et al., 2021).

The majority of teachers dedicate a large amount of time to the development of their students' collaborative skills, 78.5% promote teamwork and the development of social skills, considering the Initial Level a key school stage for the development of these skills. 96% of teachers state that they encourage interaction with each student's social and cultural environment, valuing technological media as a resource to help connect with their social and cultural environment (Ziegler, 2019). Teachers perceive technological means as effective tools to foster autonomy and motivation. In addition, 79.7% of them promote the responsible use of these technologies, taking into account the legal regulations in force, respecting the rights of children and their families. On the other hand,

73.4% share educational materials and resources in virtual environments or teams. This exchange takes place in both formal and informal spaces (Bernal, 2020).

## **Discussion and Conclusions**

The participating institutions have carried out significant transformations in their pedagogical proposals, which has implied the implementation of various innovation processes, with a special focus on teacher training. This research contributes significantly to the understanding of the integration of technological media in the Early Childhood Education classroom. It also lays a solid foundation for future research by highlighting the importance of the constructivist approach as a fundamental axis for articulating and constructing new educational realities. Technology is an integral part of the daily lives of teachers, who use it to communicate with families, exchange information with colleagues, plan, design classroom activities, prepare materials and share resources.

The teachers interviewed showed positive attitudes toward technology integration, but also identified significant challenges, which they must overcome to achieve sound pedagogical practices. Technology can be a powerful tool to promote students' construction of knowledge, but it is important that teachers design learning experiences that focus on problem solving and critical reflection from an early age.

This involves creating a learning environment that fosters collaboration, assertive communication and the development of key social skills at this stage, such as expressing emotions, interacting with peers, playing and understanding classroom norms. It is also necessary for teachers to accumulate classroom experience from a constructivist approach, with constant updating, in order to consolidate a high degree of professional competence so that innovation processes can be produced.

Planning and formative evaluation are fundamental for the effective inclusion of technological media in the classroom. The inclusion of technology alone does not guarantee improvements in the teaching-learning process. This is because their impact will depend, to a large extent, on their pedagogical use, as well as on the attitudes and beliefs that teachers have regarding their integration. The results of this study have important practical implications, highlighting the need for a thorough sensitization process to ensure that teachers feel comfortable using technological media so that they can then share their experiences with the support of the educational community.

Teachers are key figures in children's development and are also role models for the responsible use of technology, so they need to understand the importance of this role in guiding children's digital well-being. Therefore, it is essential that teachers develop personal tools and work with conviction to offer quality learning experiences. Likewise, it is essential that they can strengthen their personal confidence and security, since these elements are fundamental to face the challenge of integrating technological media in the classroom. In this way, they will be able to overcome the obstacles that currently hinder this process and move towards a more innovative and contextualized pedagogical practice. It is also true that many experiences remain isolated and lose impact, so systematizing experiences should be a priority.

In short, it is critical that teachers, schools and educational communities work together to harness the potential of technology to improve education. This requires a shared vision, strategic planning and effective implementation, including recording progress and improvements including the recording of progress and improvements. In this way, more inclusive, accessible and relevant learning environments can be created

for children, ensuring that education is a powerful tool for personal, social and economic development in society.

It is essential that educational researchers, teachers and technology designers work together to develop a viable approach to facilitate the integration of technology in Early Childhood Education. The results of this study contribute to this purpose by providing valuable information that highlights the need for a collaborative approach and the commitment of the entire educational community to achieve an effective implementation of technological media at this level. Research has shown that the active participation of teachers, principals and families is essential to support student learning and ensure the sustainability of innovative pedagogical practices innovative pedagogical practices.

Research in this area is especially relevant in early childhood, as this is a critical period of educational development when experiences can have a lasting impact on children's futures. The adoption of pedagogical methods that promote active learning, such as collaborative work, is fundamental to achieve meaningful practices. Undoubtedly, the appropriation by the teacher constitutes an essential pillar so that the constructivist approach in education can be adequately developed.

The results of this study were obtained in leading educational institutions in Paraguay, with students and teachers who have privileged socioeconomic environments and access to quality training. However, it is important to recognize that these results may not be generalizable to other contexts. However, these results can serve as a basis to help inform strategies to address local educational challenges, such as the digital divide, inequality in access to education, and the need to develop skills for the 21st century. The limitations of the study may stem from its design; as it is a qualitative study, the information obtained could be subjective and not fully reflect the views of all teachers in the region. It is also true that teachers may feel pressure to present themselves as competent professionals and may exaggerate or minimize their experiences with technology in the classroom to avoid criticism. This may lead to information that is not completely accurate and may distort the results.

In addition, the sample size limits the generalizability of the results, since the findings are from a small group of teachers and this may not necessarily be representative of the Paraguayan teaching population. It is important to note that the implementation of these strategies should take into account the specific needs and characteristics of each educational institution and community, so further research and evaluation is required to determine the effectiveness of these strategies in different contexts. It is also important to clarify that the present study focused on the school environment ~~as seen~~ from the teachers' perspective. To gain a more complete understanding of the use of technological media in the classroom, research from other perspectives is essential.

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**PRESERVING THE LEGACY OF THE ELDERLY: WRITING OF ORAL  
STORIES FROM THE CANTON OF EL PAN (AZUAY - ECUADOR)  
CONSERVANDO EL LEGADO DE LOS MAYORES: ESCRITURA DE RELATOS ORALES  
DEL CANTÓN EL PAN (AZUAY - ECUADOR)**

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**ABSTRACT**

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tradition, high school, didactic  
intervention

Esta investigación se enfoca en fortalecer los procesos de escritura mediante una guía didáctica. La intervención implementada, aprovechó como material educativo, los relatos de la tradición oral preservados en la memoria colectiva de los habitantes locales del cantón El Pan (Ecuador). Estas narraciones se consideran un valioso patrimonio cultural de la comunidad. El propósito central del estudio fue potenciar las habilidades de escritura en estudiantes de tercero de Bachillerato de la Unidad Educativa "El Pan" mediante la aplicación de una secuencia didáctica (SD). La metodología adoptó un enfoque cualitativo dentro del marco de investigación-acción buscando desarrollar las capacidades escriturales a través de la composición de mitos y leyendas que constituyen parte fundamental de las tradiciones del cantón. Los hallazgos obtenidos pueden observarse en las distintas fases de la secuencia implementada. Durante las etapas iniciales, los borradores revelaron deficiencias significativas en la construcción textual. Sin embargo, tras la intervención didáctica, se evidenció una transformación notable debido a que los textos finales demostraron mayor coherencia y cohesión, una estructuración adecuada de párrafos y una correcta aplicación de normas ortográficas, puntuación y acentuación. Este proceso permitió que los estudiantes comprendieran la escritura como una labor compleja que requiere dedicación, enfatizando la importancia del proceso de producción textual más allá del resultado final, aspecto frecuentemente descuidado en la enseñanza tradicional. La implementación completa de la secuencia didáctica logró perfeccionar y consolidar significativamente las competencias de composición escrita en los participantes.

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**RESUMEN**

**Palabras clave:**

escritura, secuencia didáctica,  
tradición oral, Bachillerato,  
intervención didáctica

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## **Introduction**

To speak of a didactic sequence (DS) implies a novel and innovative educational strategy. It is a method of teaching and learning that is absent in the educational context of the country, in the different disciplines, both in basic education and in high school. Therefore, the present research proposes a writing project that focuses on the process of written composition through the application of a SD that, according to Ramírez (2006), the didactic proposal should integrate specific activities that encourage the active and dynamic participation of students, promoting constant interaction during each training session in the classroom.

To make the work innovative, creative and novel, the oral tradition was brought into the classroom. In this sense, the process of written composition was applied through didactic intervention, both myths and legends that are present in the customs and traditions of the communities. Margarita Ramirez indicates: "we don't have to go far, nor do we have to invest in material and financial resources, we just need the human resource that is available in and around our classrooms: the students, their families and the community" (2013, p. 13). Thus, oral tradition narratives constitute a valuable pedagogical resource that can be effectively implemented in the development of written competence within the educational context, taking into account that oral tradition is a cultural and historical heritage that is kept in the memory of the inhabitants of the different communities.

UNESCO (2016) asserts, written expression meets diverse needs and encompasses multiple dimensions of the individual. It facilitates the collection, preservation and dissemination of a variety of information in a variety of everyday contexts. Through writing, communities are able to build their collective memory and establish a shared cultural legacy.

Likewise, the research focuses on the qualitative method, framed in action-research, with the objective of designing, elaborating and implementing a didactic sequence to improve and strengthen the writing process, through the composition and production of myths and legends that are part of the traditions and customs that are still preserved in the memory of the inhabitants of the communities of the canton of El Pan.

The didactic sequence was implemented with students in the third year of high school specializing in Science at the El Pan Educational Unit, specifically in the subject of Language and Literature, during teaching periods of forty minutes. A digital repository was created using the Google Classroom platform to collect the drafts elaborated during the application of the didactic sequence. This methodology resulted in a significant improvement of the writing skills of the participants involved.

Oral tradition and didactic sequence: The oral tradition has endured through time thanks to its intergenerational verbal transmission. According to UNESCO (2003), this intangible heritage comprises a wide diversity of oral manifestations such as proverbs, riddles, tales, children's songs, as well as legends and myths. These oral expressions and traditions function as vehicles for the transmission of collective knowledge, cultural and social values.

CRESPIAL (n.d.) states that orality has undergone transformations in response to its sociocultural context, contributing to the strengthening of our identity and sense of historical continuity, by establishing connections between the past and the future through the present. This process is essential for the preservation of cultural traditions among the members of a community.

As Ramírez (2012) points out, “oral traditions have existed since ancient times and have often been the only means that societies lacking means of recording have been able to use to preserve and transmit their cultural history” (p. 131). This cultural phenomenon acquires relevance because it has facilitated the transmission of narratives, knowledge and traditional values of the past that have been preserved in the collective memory of the communities.

Aspects of orality are myth and legend, which through their narratives offer interpretations of cosmic and existential origins, as well as events linked to the experiences of the inhabitants of various localities. Over time, these manifestations have been consolidated as fundamental components of the intangible cultural heritage of peoples (Rocha and Sierra, 2016).

Through oral tradition, the cultural, ancestral and ethnic identity of a specific community or region is consolidated. Velásquez (2019) points out that, “through orality children and youth; learn, construct and transmit the cultural values and memories of the community group to which they belong” (p. 15). The word as a dynamic element sustains the weight of tradition and ensures the temporal persistence of memory, forming in future generations the encounter of the individual with his own history. On this aspect, Velasquez (2019) points out that:

There are traditional communities, such as the indigenous people, where oral tradition is the main source of knowledge and information, more so than writing or reading. These communities are often referred to as oral societies; through orality, the details of daily life, traditions, customs and histories of the community are preserved (p. 9).

Amu and Gamboa (2019) argue that, some myths and legends are universal, they are adapted to the particular environment of each locality. However, different stories combine fantastic elements with certain beliefs, giving rise to customs, ideological systems and ritual practices that have given rise to certain enigmas in the human mentality. In this line, Rodríguez (2017) highlights the existence of communities with rich oral heritage, where stories about enchanted lagoons, supernatural apparitions and various ghostly manifestations persist in the memory of the elders.

For Ana Pelegrin, (cited in Gutiérrez 2016) “oral memory contemplates the cultural heritage and the transmission of popular knowledge of societies” (1982, p. 65). Over the course of history, many of the narratives of the community oral tradition have undergone transformations by the villagers. New elements contributed by the older adults have been incorporated into their stories. In a way, they have experienced a gradual loss of authenticity with the passing of generations. Popular tradition texts should not fall into oblivion as they contain the traditions and customs that have gradually faded from the collective historical memory (Rocha and Sierra, 2016).

A contemporary difficulty lies in the technological penetration that is displacing these narratives from the collective memory of youth, causing oral narratives to gradually fall into oblivion. The problem does not necessarily lie in a lack of student interest in learning about this oral tradition, nor in the lack of attractiveness of the stories. The abandonment of orality is created because there is no significant reason that leads to institutional educational spaces for its valorization and consequent permanence in the memory of current generations (Rodríguez, 2017).

Niño (2015) states that educational institutions should enhance each of these particularities by proposing academic activities aimed at training students to assume the role of leaders and defenders of their communities and the cultural manifestations that make up their collective identity. Oral tradition strengthens family ties and contributes to

the preservation of shared memory (Amu and Gamboa, 2019). To this end, Cuero and Longa (2019) suggest that:

(...) the oral transmission of ancestral knowledge becomes a very important learning method to achieve integral development, by allowing them to recognize their ethnic potential and cultural values. It is suggested to leave the classroom as the only space in which one learns to enjoy the natural environment and to continue building didactic strategies that allow us to offer relevant teaching (p. 11).

Myths and legends endure in the collective memory through oral transmission. This mechanism allows future descendants to access the cultural heritage contained in these narratives, guaranteeing their continuity through time and different generations.

The didactic sequence as a strategy for writing oral stories: Myths and legends have been incorporated as educational resources with the purpose of renewing classroom teaching practices and awakening students' interest in new teaching-learning methodologies based on oral tradition. López, Enabo, Moreno and Jerez (2003) argue that both myth and legend are an excellent starting point for fostering creativity and imagination in written production.

In students, a writer must be formed, with the intention of producing texts. enable the development of cognitive abilities that empower students to create and transform into written text, the oral tradition characteristic of their environment (Caicedo, Marín, & Méndez, 2017).

Various researchers (Chivita, 2015; Cárdenas, 2019; Hernández and Fabra, 2020) indicate that, through pedagogical interventions, students generate their own textual productions based on regional myths and legends transmitted by grandparents, uncles or other adults in the community, with the aim of compiling material that contributes to the intangible cultural heritage of rural areas. Students show receptivity and interest in improving their learning and openness to the suggestions and strategies implemented in each session, which involve planning, textualization, writing and revision skills; allowing them to reflect on their productions with the purpose of improving their written composition processes (Herbas, 2015).

According to Chivita (2015) "the development of learners' writing systems becomes more robustly evident while studying their spontaneous productions from narrative sequences" (p. 9). Focused on the writing processes that students develop throughout the didactic sequence. It is possible to state that:

This type of work establishes a constant dialogue between the student and the teacher as they generate relationships that allow them to work on the improvement of skills, not only in terms of written production but also in terms of communication, as it contributes to the improvement of the formal and conceptual aspects of writing (Cuero & Longa, 2019, p. 43).

It is essential to allow the family oral tradition to be integrated into educational spaces to enrich and strengthen students' creations. It is a valuable didactic resource to stimulate the teaching of writing through myths and legends. To share these oral narratives and establish links with cultural aspects and for students to value their literary heritage. Educators teach from their experiences, memories and experiences; transmitting those emotions to their students (Perea, Clemente, Nisperuza, 2018; Benavides & Urrea, 2019). Margarita Ramirez affirms that the oral tradition:

It allows students to create, build and recreate cultural, moral and ethical values individually and as a group; stimulating understanding and respect among people from different groups. Students have the opportunity to bring everyday knowledge and wisdom into the classroom, establishing a link between popular culture and scientific knowledge (2009, p. 27).

Contemporary educators, regardless of their area of specialization, must be committed to presenting writing as an engaging activity for students, considering that, unfortunately, this practice has been categorized and perceived as complex, unappealing in both primary and secondary level educational contexts (Perea, Clemente, & Nisperuza, 2018). This situation constitutes one of the factors why students at higher educational levels arrive with notable deficiencies in the development of written compositions. It is for this reason that:

As teachers, the challenge of reaching the student is not easy, when we know that there are external factors that are accompanying the formation process of our students, agents such as dysfunctional homes, drug addiction problems, children immersed in and victims of countless conflicts; but that is where the challenge of giving meaning to our teaching practices lies, because as knowledge guides we not only have to fight against the lack of love or interest in the area of knowledge but also with all the factors already mentioned and that is when we must equip ourselves with a series of strategies that energize the training process. (Perea, Clemente and Nisperuza, 2018, p. 20).

Morote (2007) considers that the classroom should be “turned into a micro-space of reception, research, creation and recreation of orality, where written expression is liberated and aesthetic enjoyment is given place” (p. 88). It is for this reason that López, Enabo, Moreno and Jerez (2003) mention that, “when considering strategies for use in the classroom, we have to look for resources that make a significant contribution to student learning; in this constant inquiry we can find myths as a didactic resource” (p. 123). For all the above reasons, it is imperative to consider writing as a sociocultural practice that needs to be encouraged at all educational levels in order to improve writing skills from childhood and consolidate such knowledge in higher educational stages.

Oral tradition as Ecuadorian cultural heritage: Ecuador has a vast and heterogeneous cultural heritage. The various communities distributed in the different regions of the country preserve an extensive repertoire of myths, legends, customs and traditions that are still alive and well, especially among the elderly. These oral tradition narratives have been transmitted verbally through successive generations. All this cultural heritage is an integral part of the daily life of the inhabitants of each locality. The family structure functions as the fundamental nexus for the transmission of myths and legends, facilitating their preservation and resistance to disappear, despite the accelerated transformations caused by simultaneous technological advances.

The relationship between oral communication and writing shows significant variations among different ethnic and cultural groups. In Ecuador, certain communities in the Amazon region maintain a virtually unchanged oral tradition, as they have not experienced direct influence or substantial contact with writing systems. This phenomenon is particularly noticeable among the Awa and Waroni peoples, where the oral tradition is preserved in its original form, especially among the older members.

In contrast, in the Andean region, the oral tradition has undergone gradual transformations over time. In Kichwa communities, for example, modifications have occurred due to their close interaction with written culture, initially as a consequence of the Spanish conquest and subsequently due to the continuous contact with the mestizo population. Contreras argues that: “within the same indigenous peoples there are notable differences in their oral conditions, which depend on variables such as proximity to mestizo population centers and the age of the people” (2010, p. 12).

All the knowledge, practices and customs of a community or population are transmitted -whether intentionally or spontaneously- on a daily basis within the community social fabric, which allows young people to identify, accept and recognize

themselves as legitimate members of that community (Rueda, 2015). From Aguilar's perspective, the oral tradition constitutes:

An extensive narrative range that shows the diversity of cultures and cosmovisions that make up the Ecuadorian identity. In the country there are still ungrammatical cultures, as is the case of some Amazonian nationalities, which implies that oral tradition is the only way to keep their culture alive (2014, p. 3).

It is essential to recognize the value of the family oral tradition, which is based on the cultural framework and the symbolic universe of each family nucleus. In this context, the values, customs and knowledge that make up the family's cultural identity as an integral component of a community emerge. De la Cruz asserts that:

Today's society is going through a crisis of values and with it, the loss of customs and traditions of a certain people that are part of the national identity, thus causing the loss of the charm and history narrated in the mouths of our elders who keep them as treasures inherited by their ancestors and who jealously guard the experience of those times combining mysticism and veracity (2018, p. 5).

The approach to cultural heritage through oral tradition consolidates the identity of individuals as members of a community that maintains its vitality and continues to reinvent itself constantly in order to remain alive in the collective memory. A large part of the cultural identity resides in the conservation and dissemination of its mythical and legendary narratives, thus preserving the beliefs and cultural manifestations of its inhabitants. It is essential that the members of a community tell their stories and that the emerging generations know the stories, both historical and imaginary, linked to their places of origin.

Oral tradition in the educational context: Traditional oral manifestations can be transformed into a valuable pedagogical resource applicable at different educational levels. Oral narratives have persisted, adapting to the new existential conditions of contemporaneity. This situation shows that "oral tradition is a living, dynamic and current cultural fact that refuses to disappear thanks to the rich imagination and cultural development that the population possesses" (Santamaría, 2015, p. 8).

Vergara (2019) proposes a methodology oriented to the implementation of creative writing strategies through a workshop or structured sequence whose purpose is to enhance written expression through the development of written skills, seeking to integrate creative thinking in the planned activities and transform the student into a competent writer.

The writing workshop, implemented through didactic sequences that incorporate oral narratives, is an innovative strategy that is not frequently applied. These methodological resources require dedication and sustained work from both the educator and the student. Frequently, teachers limit themselves to using conventional activities or those suggested by official teaching materials, restricting themselves to following these guidelines, without incorporating innovations in their pedagogical practice. Arias (2013) suggests working through:

A textual production process, starting from real communicative situations, and working on all textual properties, such as adequacy, coherence, cohesion, grammar, stylistics, presentation, application; because only in this way will we be fulfilling all the requirements that the text must have for its message to be clear and precise (p. 12).

It is essential that students understand that writing is a dynamic process that involves reflection, construction and reconstruction of the text. To do so, it is necessary to follow a series of stages, such as planning, drafting, revision and publication. In the classroom, written production should be promoted in a collaborative and cooperative

manner, allowing students to learn from each other in a reciprocal way (Arias, 2013). In this context, Peña (2018) points out that the teacher must assume the role of guide and facilitator of knowledge, while students have to actively participate in the teaching-learning process. Teacher supervision and guidance is key to enhancing students' academic achievement, as their motivation is a determining factor in the development of writing.

The role of the teacher is essential to awaken the student's interest in writing. López (2016) says that, "motivation on the part of the teacher is important in the construction of written texts since, a motivated student develops his creativity, imagination, intelligence and skills to organize ideas in the best way and thus achieve the proposed goal" (p. 12). To achieve this, the educator must employ appropriate strategies that stimulate creativity and encourage the learner to write his or her own texts in an original and innovative way. It is essential that the learning of written composition does not limit the student's imagination, but, on the contrary, encourages his or her creative expression.

Through orality, the student gains access to the cultural heritage of his or her community, transferred from generation to generation through collective memory. In this sense, myths and legends can become valuable resources to strengthen writing. The application of a didactic sequence allows students to become familiar with the process of written composition in a progressive manner. Integrating orality in the classroom represents an innovative alternative in teaching, since it provides an authentic purpose to writing, beyond being just a school activity. In this way, in addition to knowing and valuing their culture, students turn writing into a meaningful sociocultural practice.

## **Method**

The participants involved in this writing project reside in various communities in the canton of El Pan, Azuay province (Ecuador). They are students in their third year of high school specializing in science at the "El Pan" Educational Unit, between the ages of 16 and 17. For the compilation of texts belonging to the oral tradition, the students established contact with elderly people, mainly direct relatives such as great-grandparents, grandparents, uncles and aunts; all of them original inhabitants of El Pan, who acted as transmitters of the local myths and legends.

In many societies, community elders serve as custodians and preservers of oral traditions. They are recognized as repositories of collective memory, as they are the transmitters of ancestral knowledge to new generations, giving continuity and importance to oral narratives to maintain community identity and cultural heritage, transmitted through verbal communication throughout the different eras (UNESCO, 2003).

This research is based on the qualitative method, which includes the study, use and collection of various empirical materials such as: case studies, personal experiences, life stories, interviews and observational texts. Thus, Marshall and Rossman (1999) argue that qualitative research is "pragmatic, interpretative, and grounded in people's experience" (p. 26), while Creswell (1998) defines qualitative research "an interpretive process of inquiry based on different methodological traditions" (p. 24). A distinctive feature of this method is that the researcher (teacher) actively participates in the research process through direct interaction with the students (subjects of study).

In addition, the study is part of the action-research paradigm, whose fundamental purpose is to solve everyday problems and optimize ongoing educational practices.

Hernández, Fernández and Baptista (2010) conceptualize action research as the analysis of a social situation with the objective of improving the quality of the intervention, through a research process with spiral stages; research is conducted simultaneously while implementing solutions to the identified problem.

As stated by Daniel Cassany (1993) "writing means much more than knowing the alphabet, knowing how to put letters together or sign an identity card. The student must be able to express information coherently and correctly for others to understand" (p. 13). In the writing process, students will implement a didactic sequence aimed at improving the production processes of narrative texts, specifically myths and legends. In this intervention proposal, Ochoa et al. (2010) point out the need to transform the conception according to which writing merely consists of putting thoughts on paper.

**Design of the didactic sequence:** The elaboration and implementation of the SD is a didactic tool that progressively transforms the linguistic abilities of the students. This methodology requires the learner to generate written products, avoiding routine or monotonous exercises (Díaz-Barriga, 2004). Dolz and Shneuwly (n.d.) indicate that, in SD, activities and exercises must be specific and, in each phase, allowing the student to understand that written texts can always be restructured and improved in a process of continuous improvement.

**Openness, prior knowledge:** The process begins with the activation of the students' previous knowledge, with the purpose of identifying their knowledge and deepening their linguistic competences regarding narrative texts, such as myths and legends: "the initiation activities allow opening the learning climate" (Días-Barriga, 2013, p. 6).

Brousseau (2007) indicates that the teacher formulates questions for students to answer based on their previous knowledge or by establishing contextual relationships. For this purpose, students are asked to answer questions such as: To which textual typology do you consider that myth and legend belong? Do you know any myth or legend? Who told you about it? Would you be interested in writing a myth or legend passed down by a local resident? Why is it significant to know the oral tradition of the communities in a given canton? The questions posed will activate in the students diverse stored knowledge, either by their previous academic training or by their daily experiences (Díaz-Barriga, 2013).

**Production of texts:** At this stage, students are guided in the composition and elaboration of texts, following the design established in the SD. This process includes several activities that are developed in each of its phases, with the purpose of strengthening writing skills and improving textual production.

**Planning:** The starting point for textual production is that the myth or legend is narrated by an adult from the community where the student resides. This allows to obtain an initial written version that constitutes the first draft to be developed during the didactic intervention. Moreno conceptualizes the written production process as:

The pleasure of facing a text in order to transform it becomes a great incentive to write. On the other hand, there is the fact that any activity of modifying a text must start from its understanding, both pragmatically, syntactically, semantically and stylistically. Without a previous analysis of the text chosen to transform it, such activities would not be possible (2008, p. 206).

**Individual writing:** Once the student has his or her first draft, as a subsequent activity, it is proposed to work on the narrative structure of the myth or legend (approach, development and denouement) with the objective of adequately configuring the textual production. At the same time, fundamental aspects such as coherence, cohesion, punctuation, grammatical constructions, elimination of redundancies and spelling correction are reviewed. García (2015) emphasizes that the writer must consider



orthographic aspects, lexical selection, syntactic construction and textual organization; paying special attention to the articulation and creative and original elaboration of the text according to the addressee (reader) of the textual composition.

**Group writing:** In order for students to analyze the myth and/or legend, a textual exchange strategy is suggested where students, organized in small groups, analyze the written compositions. In these learning communities, participants make suggestions and proposals for modifications to the texts under review. The fundamental purpose is to provide each student with the opportunity to enrich his or her textual production through the contributions of his or her peers, thus perfecting each narrative. According to Ochoa et al. (2010), a comprehensive review involves students developing the ability to evaluate whether the interrelationship between characters, actions, time, space, and events is cohesively articulated in the narrative structure. In this way, collaborative learning fosters a global evaluation of the texts, allowing the learners themselves to interact constructively to optimize the quality of the textual productions.

**Rewrite:** Recurrent reading is an indispensable practice for students to critically examine their own textual production and contrast it with previous versions, with the purpose of overcoming formal and substantive deficiencies in their compositions. In order to effectively supervise the writing process, it is essential for the teacher to provide models that exemplify correction methodologies, considering temporal and procedural aspects, thus facilitating the overcoming of difficulties inherent to textual production (Corden, 2003). This phase is oriented to students refining, modifying, eliminating and reorganizing textual elements in order to obtain a written product with a higher degree of elaboration compared to the initial drafts.

**Share in plenary:** The collective exhibition is a methodological strategy frequently implemented to receive constructive feedback on the work done. Ochoa et al. (2008) point out that after a group correction, students identify errors related to the structure of their productions and try to correct them. Once the rewriting of the texts produced by the students has been completed, it is proposed to share in plenary session the experiences related to the writing, revision and correction processes. This activity emphasizes the aspects that can be improved for the final presentation of the textual product.

**Final production of the text:** After having gone through the different phases of application of the didactic sequence aimed at obtaining a properly structured text, the student proceeds to the elaboration of the final version of his composition. This stage contemplates the integral consideration of elements such as the narrative structure of the myth or legend, the organization of paragraphs, textual coherence and cohesion, grammatical constructions, and spelling and accentuation aspects, dimensions systematically addressed during the didactic intervention. **Design registration and data collection:** Hernández, Fernández and Baptista (2010) state that the qualitative researcher employs various techniques to collect data, such as “unstructured observation, open-ended interviews, document review, group discussion, evaluation of personal experiences, recording of life stories and interaction with groups or communities” (p. 52). In order to adequately document and compile the textual productions generated by the students in each of the activities proposed during the implementation of the didactic sequence, a tripartite organization is established: the initial phase, the procedural development of the sequence and the culmination of the writing process.

In the initial phase, the primary narrative is obtained directly from the person who relates the myth or legend pertaining to his or her community. Subsequently, using this text as a foundation, a series of written productions are developed that evolve through the implementation of the didactic sequence, including individual writing exercises, collaborative revision processes and collective socialization sessions. Finally, a third stage

is devoted to the final elaboration of the text, methodically following the guidelines established in the didactic sequence.

In order to compile the written compositions generated through the implementation of the didactic intervention during the various class sessions, it was deemed necessary to structure a digital portfolio. According to Juan Carlos Barrera (2017):

A methodological strategy for monitoring and evaluation where different types of evidence are collected to show the evolution of the teaching-learning process. It allows to account for the learning generated by students, and in turn can be used as a form of qualitative monitoring of the process developed in the didactic sequence (p. 40).

For this purpose, the Google Classroom platform was used, through which the textual productions derived from the application of the didactic sequence in each of its phases were gathered, with the objective of evaluating the progress and fulfillment of the learning in the writing process.

Analysis strategies: The methodologies implemented in the written composition process were designed so that students conceptualize writing as a task that requires deep understanding and continuous improvement in each of the proposed phases.

### **Figure 1**

*Implemented phases of the didactic sequence*

Home - Opening	Development - Didactic intervention	Completion - impact of implementation
- Understanding and prior knowledge of the oral tradition (myths and legends), plan the first text that serves as a starting point for the implementation of the SD.	- Apply the didactic intervention: individual and group textual production, review, rewrite and share in plenary the written productions.	- Compare with previous versions to reinforce the writing process. - Final elaboration of the texts.

In order to carry out a rigorous analysis of the texts, it is appropriate to establish categories to identify the most significant and relevant elements of the data obtained through the didactic sequence. This facilitates the systematic analysis of both the composition and the production of narrative texts (myths and legends) elaborated by the students participating in this writing project. For this purpose, the following analytical scheme is presented.

**Figure 2**  
*Analysis of textual creations*

Category	Context
Consistency	The structuring of ideas must be coherent and ensure an appropriate relationship between the sentences that are written.
Cohesion	The development of the text follows a logical and well-organized outline, ensuring that ideas are presented in a clear and sequential manner.
Paragraphs	Each paragraph is built around a central idea, supported by secondary sentences, using punctuation correctly to improve the clarity and coherence of the message.
Spelling	It is essential to follow the spelling rules when writing, making sure to correctly apply the accentuation and spelling of words.

For Monje (2011) “the data collected need to be grouped into categories in order to be able to make comparisons and possible contrasts, so that the data can be conceptually organized and the information presented following some kind of pattern or emergent regularity” (p.195). In this perspective, a logical analysis is structured to enable the synthesis, confrontation and establishment of correlations between the textual productions generated by the students.

## Results

In accordance with the research methodology, to analyze the results of the implementation of the DS, the three moments proposed to carry out the didactic intervention were chosen: initial stage (planning and contextualization), development stage (implementation of the didactic intervention) and final stage (elaboration of the final text). For each phase, the compositions elaborated by the students were systematically examined, applying a scheme that contemplated the following dimensions: discursive coherence, textual cohesion mechanisms, paragraph structuring, spelling correction and adequate accentuation.

Home: planning and opening of the didactic intervention. - In this first stage of the (SD), the researcher-teacher presented to the participants the structure and objectives of the writing project. The starting point consisted in the elaboration of a preliminary version of the text, based on the oral narration provided by an adult from the community. This initial textual production constituted the base element for the subsequent development of the SD. To facilitate the analysis process, each participant in the target group was assigned a specific alphanumeric code.

Therefore, samples of frequent errors in the initial drafts produced by the students are identified and samples are extracted. In this phase, most of the textual productions showed a significant absence of punctuation marks, deficiencies in accentuation and

several spelling mistakes, as evidenced in the representative cases of the students identified as E.1 and E.4.

### **Figure 3**

#### *First draft*

*E. 1. "Mrs. Carmen Ajila says that a long time ago in a very distant forest there was a bear who had fallen in love with a woman who had a 15-year-old son".*

*E. 4. "The legend tells of a man who lived with the famous huaca was well known in the community of La Merced was a small woman with golden hair sitting on a large rock combing his long golden hair with a golden comb."*

On the other hand, written productions sometimes include commas, although these are not used appropriately.

### **Figure 4**

#### *Punctuation marks*

*E. 15. (...) Regina and Roberto went to Don Manuel's house to prepare a meal and wait for Maria and Rosario, who would arrive after mass.*

*At that moment Regina and Roberto told Don Manuel that they were going to call his son-in-law Meliton, so that he would be present at their celebration (...)*

There is an evident difficulty in elaborating sentences with adequate textual coherence and grammatical correctness. A predominant characteristic is the absence of paragraph composition, limiting itself to producing excessively long sentences where the comma is practically the only punctuation resource used. In addition, there is an inadequate temporal concordance in the verb conjugation, which compromises the cohesion of the discourse. An illustrative example is the use of the term "atrevio", which lacks the tilde, necessary (atrevió) to correctly establish the temporal reference and maintain coherence in the textual construction. These deficiencies are manifested in the textual productions of students coded as E.5, E.10 and E.17, which were selected as representative cases.

### **Figure 5**

#### *Textual composition*

*E. 5. "(...) once they arrived there, they tied the child's hands and feet and the devil, that is, the mirlas, swore to him that he would not disobey his mother and the child promised and swore that from now on I will obey my mother because I don't want the devil to carry me around."*

*E.10. "There was a girl grazing sheep in the mountains, near a lagoon, a lady appeared with a yellow skirt, yellow sweater, she appeared for about three days, then the parents went looking for them around the lagoon for about three days."*

*E. 17. "They began the journey from Sevilla de Oro through the foothills of the mountain and went to the black hill, (...), in the course of the journey they came across a mighty river called rio negro, in that river they had no way to pass, then they realized that the tarabita did not work so they knocked down a tree and the only one who dared to cross was Mr. Manuel Cabrera."*

The most frequent errors in the first version of the texts elaborated by the students include the absence of paragraphs and a limited use of punctuation marks; these

deficiencies hinder their comprehension. To address these difficulties, the teacher shares the students' textual productions in class, offering observations and analysis of the errors so that students can correct and improve their writing. As they progress through the process, suggestions and strategies are provided to eliminate, modify and refine their texts.

Development: application and didactic intervention. - After the initial elaboration of the story, a critical review of the productions is carried out. This reflective process allows students to develop metacognitive skills through the analysis of their own texts, generating learning that can be transferred to future compositions and avoiding the repetition of previously identified errors. The construction of the second draft involves a comparative exercise between versions, incorporating the recommendations provided for textual improvement.

The class sessions serve as spaces for clarification and resolution of questions arising from the analysis of the initial draft. This accompaniment to the student emphasizes the correct use of orthographic elements such as punctuation marks and accents, in addition to promoting textual organization in cohesive paragraphs. This contributes significantly to the production of texts with a higher level of order and compositional quality.

As they progress through the process, suggestions and guidelines are provided so that students can revise, modify and improve their texts. Coherence and cohesion are analyzed together, since coherence refers to the overall structure of the text, while cohesion implies the correct organization of sentences to form paragraphs. The following is an excerpt from E.9.'s text, which shows an improvement in coherence and cohesion compared to the previous stage.

## Figure 6

### *Coherence and cohesion*

*E. 9. It is said that 200 years ago, in the community of Toluca, there lived a lady named Lucrecia. She was a seamstress known for her excellent work in dressmaking. She lived with her two daughters, who enjoyed playing with dolls. The family was characterized by its greed and lack of religious beliefs.*

Similarly, it is essential to consider that a paragraph is made up of a set of sentences built around a specific topic, with a central idea and others that complement it. In the classroom, examples are presented to illustrate how a paragraph is organized using similar texts. Once the fundamental principles of paragraph construction have been explained, students will have to modify their texts. In order to assess the progress achieved in the organization of ideas and writing, the text of E. 12. is analyzed, which shows a remarkable progress. In such a text, the ideas are elaborated in a logical manner, following a scheme that includes a main idea and its supporting ideas. In addition, a proper use of punctuation marks is observed, as well as special care in spelling and grammar.

## Figure 7

### Structuring and composition of ideas

*E. 12. Years ago, the cantonal center was troubled by constant rumors of witchcraft, Don Juan de Dios Bermeo being an emblematic case. This man suffered from persistent discomfort and acute bodily ailments; on one occasion, a stomach ache completely immobilized him, manifesting itself with such intensity that he did not know how to mitigate it. This incident quickly spread the claim: Don Juan de Dios Bermeo has been bewitched”, causing considerable alarm among the inhabitants of the canton.*

At the end of each draft in the different stages of the didactic sequence, a comprehensive review should be carried out to evaluate whether the text has improved with respect to the difficulties identified during the writing process. A constant reading of the written production avoids the repetition of errors and strengthens the development of writing.

For the elaboration of the second and third drafts, collaborative work is suggested, organizing students in groups or pairs. According to Tapia et al. (2012), this methodology offers several advantages, among which the following stand out:

The development of linguistic-communicative skills and the improvement of the social and cognitive skills of the trainees. This type of learning is described as a set of pedagogical procedures and techniques that lead the learner to learn concepts and develop socially (p. 558).

The purpose is to exchange texts. To this end, through a previous reading of the written compositions and through group work, they are expected to contribute ideas, make suggestions for improvement and propose adjustments in order to strengthen both the writing process and the quality of the text. The following are excerpts from the writings of students E.08 and E.15, in which progress is evident in comparison with the drafts elaborated in previous stages of the intervention.

## Figure 8

### Collaborative work review

*E. 08. Don Aurelio Flores narrates that a long time ago in the Osorrancho sector there lived a girl named Lucrecia. Of extraordinary beauty, light eyes and long hair, her defiant attitude towards her parents and constant disobedience provoked the appearance of a goblin. The goblin is described as a Maltese cholito of approximately seventy centimeters, extremely unpleasant to the eye, with a prominent nose, triangular forehead, bulging eyes and a disproportionately large hat.*

*One day, Lucrecia, disregarding parental orders to do housework, escaped to the Cayguas bridge to join her friends. (...)*

*E. 15. A farmer named Juan was watching his cattle in the paddocks when the sky darkened, foreshadowing an impending storm.*

*Concerned, he asked his daughters Rosa and Bertha to drive the animals to the farm. The young women quickly fulfilled the order, guarding the cattle in the stable. Suddenly, they noticed next to them a strange creature: a tiny being with a prominent nose, pointed ears and long gray hair.*

*Terrified, the girls screamed in desperation, but no one came to their aid. (...)*

Through collaborative work, it was observed that students showed attention to spelling and the proper use of punctuation marks in the written productions of their peers. In addition, when doubts arose about modifications or improvements in the construction of a paragraph, they consulted with each other to ensure that the most

appropriate and accurate words were used. The working group made justified corrections when they identified flaws in the coherence and cohesion of their texts. In addition, they used the previous versions to check the changes and verify whether they improved the final composition.

In the third draft, students were able to organize their texts by integrating the fundamental elements of oral tradition, such as protagonists, divine beings or heroes-products of the collective imagination over generations-, as well as the narration of historical or religious events linked to a specific community. During each stage of the didactic sequence, the research teacher provided continuous support to supervise and guide the development of the written composition.

Students' progress in writing was documented using Google's Classroom application. Through this platform, the evolution of the drafts generated during the didactic intervention was evidenced. These documents made it possible to analyze the written composition process and evaluate its progress in each of the phases. Likewise, constant revision facilitated the identification and correction of difficulties, ensuring that each new version of the textual production reflected a progressive improvement in the students' writing.

In the following text by student E. 09, his draft before the end of the didactic intervention, it can be seen that the narrative already follows an outline. In addition, the essential components that allow your text to become part of the oral tradition are identified.

## Figure 9

*Textual production - story structure*

<b><i>The enchanted lagoon</i></b>	<b><u>Title</u></b> <b><u>Approach</u></b>
<p><i>In the community of La Merced, there was a family composed of Juana and her parents. They owned a large flock of sheep. Juana went out every morning to the hill known as Maylas.</i></p> <p><i>One day, while she was herding her flock, Juana discovered among the imposing mountains a huge lagoon of crystal-clear water, visible from several kilometers away. As he approached, he noticed something shiny that caught his attention. He observed with curiosity and distinguished a lady resting placidly in a gigantic gold kettle. The girl marveled at the brightness of the lake. After this strange experience, he returned home and told his parents what had happened, who, without much surprise, explained to him that it was the huaca and warned him not to go near it.</i></p> <p><i>The next morning, Juana went to the hill as usual. Driven by curiosity, she approached the lagoon again, where she witnessed that lady again. Now she wore a skirt, a sweater with golden threads and held a golden comb in her hands, and her face was covered with a blanket embroidered with exquisite golden details.</i></p> <p><i>The huaca, sensing his presence, approached the shore. When they met face to face, he proposed to the young woman to stay, offering her several gold pieces in exchange. Juana fled in fear to the hut where she kept her flock.</i></p> <p><i>On the third day, following his usual routine, he left to herd his sheep. He was surprised to spot his mother on the road to the cabin. As he approached, he asked:</i>  <i>—What are you doing here, mother?</i>  <i>She replied:</i>  <i>—Follow me, daughter.</i></p> <p><i>Juana, overcome by doubts, decided to follow her. As he advanced behind her, he recognized the path. He looked his mother in the eyes and his face changed instantly when he realized that it was not his mother, but the huaca. In desperation she tried to flee, but the huaca held her firmly and dragged her into the depths of the lagoon. The parents did not know the fate of their daughter, who did not return home.</i></p>	<b><u>Knot</u></b>

*Years later, Juana returned home bearing gold relics of dazzling brilliance. He gave them to his parents, but in exchange, he had to live with the huaca in the Maylas lagoon. Juana left with the huaca and was never heard from again. Since then, the inhabitants of the community avoided approaching the lagoon, fearful of the appearance of the huaca.*

**Unraveling**

Finalization: the result of the implementation and final production of the texts texts. - In the final stage of the didactic sequence to achieve the textual product elaborated by the students, it was necessary to emphasize the revision of drafts through repeated readings and rewritings. Structure sentences and reformulate central and secondary ideas to achieve coherent and cohesive paragraphs. As Cassany (1990) points out, “it is not enough to teach how the final piece of writing should be, but to show and learn all the steps and strategies that make up the process of creation and writing” (p. 71). The educator-researcher encouraged reflection during each stage and phase of the pedagogical intervention.

As evidence of the above, a complete text developed by E. 12 is presented, which shows that the application of the SD achieved the expected impact, fulfilling the objective set out in this project: to optimize writing processes through the implementation of a didactic sequence.

**Figure 10**  
*Final production*

<b>First version</b> <b>Witchcraft</b>	<b>Final production</b> <b>Witchcraft</b>
<p>E. 12. “Here in the center of the canton lived Don Juan de Dios Bermeo, he always had body pains and once he had a terrible pain in his belly that almost killed him because it would not go away for a little while. Don Juan took every remedy and water they gave him but nothing helped, apart from the pain he was worried about the swelling that made him look pregnant. He always heard that he had been witched by people who loved him, with that pain he spent months but as he could not stand it anymore, he went to a witch doctor - healer, he told him what he had to do and he had to comply to the letter. The famous remedy was that the healer went to Don Juan's house at midnight, cleaned him with three eggs a day, then he made him walk through the little inferno and to finish he had to throw the eggs from the top of the ravine, what was strange is that when he threw the eggs and they fell they looked like bombs or something similar because they exploded like dynamite, then he had to return to his house without looking back for any reason, arriving at</p>	<p>E. 12 “Long ago, in the center of the canton of El Pan there were frequent rumors about witchcraft. Don Juan de Dios Bermeo was a notable case. He suffered discomfort and severe stomach pains so constant that they limited his mobility. The most widespread comment was: “Don Juan de Dios Bermeo had witchcraft done to him”, which alarmed the inhabitants of the canton considerably.</p> <p>Don Juan tried all possible remedies: medicinal plants, herbs, teas and everything that existed. Unfortunately, nothing relieved his pain, and he was especially concerned about the swelling he was experiencing.</p> <p>Rumors of witchcraft came mainly from people who despised him. Exhausted by this situation and his discomfort, he turned to a witch-healer for help.</p> <p>The treatment established that the curandero would visit don Juan's house at midnight, clean the house with three eggs and some plants, then walk to the top of the ravine to throw the eggs from there. Curiously, when they fell, the eggs exploded like bombs.</p> <p>Once the ritual was completed, they were to return without looking back regardless of the noises heard. As a final step, don Juan had to take a purgative whose effect provoked hallucinations of monsters and horrifying insects.</p> <p>After this process, Don Juan de Dios Bermeo experienced relief. The stomach bloating disappeared</p>



*the house the healer gave him a purgative that made him see all kinds of animals, insects and monsters. Some time passed and don Juan himself told how relieved he felt afterwards and how he is careful not to let her do witchcraft to him".*

*and he regained his well-being. Since then, he became more cautious, avoiding going out at night and interacting with strangers so as not to suffer the effects of another witchcraft again.*

## Discussion and Conclusions

The present research demonstrates that the didactic sequence based on oral tradition is an effective pedagogical strategy to improve writing processes in high school students. The results obtained corroborate that the use of myths and legends, typical of the community context, not only strengthens textual production, but also promotes the preservation of local cultural heritage. This methodology is consistent with Dolz and Schneuwly (1998), who state that didactic sequences allow students to reflect on their writing practices and, through rewriting, improve their textual skills in a meaningful way.

On the other hand, the implementation of the SD showed that writing is a reflective and progressive process that requires planning, textualization, revision and rewriting, as stated by Cassany (1999). In the early stages of the intervention, students' texts showed deficiencies in coherence, cohesion and spelling rules. However, after the application of the didactic sequence, a substantial improvement was evidenced in the final texts, which confirms that constant practice and feedback are key to the development of writing skills.

A significant finding was the positive impact of collaborative work on writing improvement. According to Vygotsky (1978), learning is a social and collaborative process, where students can improve their skills through interaction with their peers. In this study, group revision and rewriting allowed students to identify errors and correct their texts together, which facilitated a deeper understanding of the writing process.

Likewise, the use of oral tradition stories strengthened the bond between students and their cultural environment. UNESCO (2003) points out that oral tradition is an intangible heritage that must be preserved, and its integration in the classroom fosters a sense of belonging and cultural continuity. This is especially relevant in rural communities where orality plays a fundamental role in the construction of collective identity.

This research reaffirms that didactic sequences based on oral tradition are an effective strategy to improve writing processes, while promoting the appreciation of local cultural heritage. Writing should be understood as a dynamic and collaborative process, where the focus is on the construction and revision of content rather than on the final product, as argued by Richards (1990) and Cassany (1999).

The didactic intervention proposal satisfactorily achieved the established purpose. The implementation of the didactic sequence (DS) proved to be effective in enhancing and consolidating the participants' writing skills. The students involved in the research perceived the methodology applied as novel, particularly because the process of textual composition was based on oral tradition narratives compiled directly from older adults belonging to their community environment, showing progressive progress in each phase. The initial texts revealed significant deficiencies in their composition; however, after the application of the SD, the final productions underwent a remarkable transformation, characterized by the adequate articulation of ideas, the correct composition of paragraphs and the appropriate application of orthographic norms, punctuation marks and accentuation rules. Consequently, the didactic strategy implemented constituted an

effective response to the difficulties identified in the development of writing skills of the students participating in this project.

The implementation of SD allowed learners to look at writing as a procedure and not as an activity derived only from the final product, a practice often observed in traditional educational contexts. During the intervention process, participants developed a metacognitive awareness of the processual nature of written composition, which significantly enhanced their skills. The systematic articulation of SD activities -which included the elaboration of drafts, individual and collaborative writing, peer review, textual restructuring and critical reading at each stage of the process- up to the achievement of the final text, significantly promoted the students' protagonism in the construction of their own learning. The writing SD constituted a motivation for active participation and autonomy of the learner in his development as a competent writer.

According to Richards (1990), a teacher's success in the teaching of writing does not lie exclusively in the implementation of a specific methodology, but in his or her ability to create a conducive pedagogical environment where students can identify and recognize their potential and limitations as writers. In this context, the teacher's role goes beyond simply transmitting knowledge to become a facilitator of the cognitive process, encouraging students to develop their own strategies for written composition. This perspective positions the teacher as a mediating agent who guides and accompanies the teaching-learning process, conceiving writing as a sociocultural practice situated in authentic and meaningful communicative contexts for learners.

The students who participated in the intervention showed a remarkably favorable disposition from the initial phase of the presentation of the project to the final stage of the writing process. His behavior was characterized by a high level of commitment, responsiveness and proactivity; oriented to the improvement of his writing skills. It is significant to highlight that the motivational component constituted a determining factor during each class session, evidenced in the perception that students developed regarding the activities proposed throughout the application of the SD, which were not interpreted as curricular impositions, but as valuable opportunities for strengthening their skills in the area of written production. This positive attitude towards learning represents a favorable indicator that the implemented methodology exerted on the cognitive and affective predisposition of the participants.

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# ORIGINAL TALES READING CLUB FROM THE EXPERIENCES OF STUDENTS AGED 14-15 IN THE PUBLIC EDUCATION SYSTEM CLUB DE CLUB DE LECTURA DE CUENTOS INÉDITOS DESDE LA EXPERIENCIA DE LOS ESTUDIANTES DE 14 A 15 AÑOS DEL SISTEMA EDUCATIVO FISCAL

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## ABSTRACT

### Keywords:

reading club, original tales, personal experiences, constructivist learning

This article aims to analyze the importance of a reading club focused on unpublished short stories, based on the experiences of 14- to 15-year-old students at the Clemencia Coronel from Pincay Public Elementary School. Currently, the pace of reading has changed; it is now characterized by fluency, efficiency, and dynamism, as well as the use of technology. This has allowed for the incorporation of new types of texts and digitized books. However, a problem arises when there is no connection between reading and the brain, considering the necessary connection and stimulation for information reception and critical thinking. The methodology centered on action research with a qualitative approach. Data was collected through document analysis and a survey administered to 25 adolescents. This methodology revealed that a significant number of students have not participated in a reading club, hindering the development of their reading habits. Furthermore, it was evident that teachers do not incorporate content into reading clubs; therefore, the importance of guiding students in creating original stories that express their needs and feelings was emphasized. The public education system undoubtedly needs to be transformed into a more organized one, and it must also work with initiatives from the Ministry of Education that promote reading comprehension within the curriculum using a more communicative and experiential approach.

## RESUMEN

### Palabras clave:

club de lectura, cuentos inéditos, experiencias propias, aprendizaje constructivista.

Este artículo tiene como finalidad realizar un análisis sobre la importancia del club de lectura de cuentos inéditos desde la experiencia de los estudiantes de 14 a 15 años de la escuela de educación básica del fiscal Clemencia Coronel de Pincay. En la actualidad, ha cambiado el ritmo del lector, es decir, hoy en día se caracteriza por la fluidez, economía y dinamismo, además de apoyarse en la tecnología. Esto ha permitido la incorporación de nuevos tipos de textos y libros digitalizados, sin embargo, el problema surge cuando no hay relación entre la lectura y el cerebro considerando la conexión y estímulo para que surja la recepción de información y el pensamiento. La metodología se centró en una investigación-acción con un enfoque cualitativo. Para recoger los datos se empleó un análisis documental e instrumento como la encuesta dirigida a 25 adolescentes. Gracias a la metodología se pudo

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conocer qué gran cantidad de estudiantes no han participado en un club de lectura interfiriendo en su desarrollo del hábito lector. Por otra parte, se evidenció que los docentes no trabajan contenidos mediante un club de lectura, por lo tanto, se precisó la importancia de orientar a los estudiantes a la producción de un cuento inédito expresando sus necesidades y sentimientos. El sistema educativo fiscal, indudablemente, debe transformarse a uno más organizado, además de trabajar con Acciones del Ministerio de Educación que permita promover la comprensión lectora desde el currículo con un enfoque más comunicativo y experiencial.

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## **Introduction**

The motivation for reading in adolescents should be considered as the essence of the learning process because its importance lies in the fact that the brain increases at a faster rate important connections between networks that contribute to learning in different areas. However, for a long time an erroneous belief has prevailed that up to the age of 6 only neurodevelopment was strengthened, however, today it is known that adolescence is a new opportunity for the formation of mentally, socially and independently healthy adults, thanks to the fact that in the childhood stage functions that are completed in the following stages have already been strengthened. One of the most essential aspects of the book club is that adolescents are reunited with their feelings and emotions through the unpublished story, as established by Cadena and Jiménez Cadena and Jiménez (2018) cadena and Jiménez state about the participation of adolescents in the book club as a necessary meeting to comment or share their own experiences about readings, in other words, it can be mentioned as a literary gathering transforming education into a more innovative one, stimulating the reading skills of each student, in addition to encouraging them to produce stories from their own experiences.

Currently in Ecuador, students work with programs proposed by the Ministry of Education such as Juntos leemos (Together we read); however, there are difficulties due to the lack of guidance from teachers on the guidelines of the program and this has an impact on the good performance of the students. From the above arises the need to investigate more thoroughly about the opportunities provided when teachers work through book clubs with students, also the production of unpublished stories allows them to express themselves freely and in a suitable way to work with those needs that need to be valued.

It is important to emphasize that the purpose of this article is to achieve a depth with the different criteria of authors who have investigated similar topics to the present one, with the conviction that it will be essential for readers-teachers to approach from their experiences with adolescents the necessary topics for the development of the reading habit from the production of their own unpublished stories, in such a way that this scientific material fulfills to be a support to society.

### ***The Importance of Reading in Adolescents***

Reading is a process that transcends the knowledge necessary for adolescent students and contributes to strengthen thinking skills, reflection and content analysis. On the other hand, according to Cassany (1999) quoted by Ballesteros (2020) refers that the reading process should focus on a discussion of a text taken to a film or novel, through a dialogue that allows contributing to the constructivist process of adolescents. Reading does not have to be boring and long texts, but fragments or fictional comics that encourage the habit of reading, also create stories from their own personal, emotional, cultural and social experiences that sometimes because they are teenagers it is difficult for them to express feelings and thoughts on a daily basis.

The most complex stage in the human being is undoubtedly adolescence, because the brain has a flexibility to adapt and respond to new experiences, so it is predominant to take into account that not everyone achieves the same speed of development and this is where the stimulus received from an early age is required, since everything is connected cognitively and emotionally so that the results are to achieve reading habits.

According to Castro (2021) explains the following:



When we read, our brain begins to develop imaginative and concentration skills, since we usually visualize in our mind faces, places and/or situations, thus stimulating the brain more frequently and increasing our creativity. (p. 5).

These skills are atrophied nowadays because children and adolescents can be in front of devices for long periods of time, thus damaging the development of the brain, hence the importance of encouraging adolescents to immerse themselves in the magical world of reading, being essential that from the family, social, cultural and school environment, students are encouraged to develop the reading habit with group activities, competitive and according to their learning pace.

Reading has notably lost importance due to technological advances and has taken second place for young people, who are more interested in social networks or video games, and many times if they approach a book it is out of obligation rather than motivation, interfering in their development and brain function.

### ***The Adolescent Brain and Reading***

When reading, a specific area of the brain is automatically activated because neurons along with blood vessels are releasing nutrients for the comprehension of what they read. Castro (2021) explains that reading is a positive action for the brain to perform various actions, thanks to the areas of the brain that achieve coordination and essential communication articulating what is reading and the recognition of signs or graphics for interpretation, context and meaning.

There are functional brain imaging studies that allow us to understand the mechanisms of the brain and the cognitive phases of reading. Such is the case of the LCD (local combination detector) model, which encompasses knowledge of hierarchical neural levels with identification of graphic signs responsible for writing. Thus, Tegmark (2021) refers to “neural recycling,” offering an explanation such as “A cultural invention that fits the brain's architecture and how the brain ‘reinvented’ the functions of various cortical areas to respond to the cultural demands related to reading and writing” (p. 16). Within the left temporooccipital cortex, the fusiform gyrus is activated when the perception of different objects is developed and it is there where neuronal recycling explains those difficulties in reading.

Reading and the brain have an important connection if properly stimulated, since the gray matter plays an important role in the reception of information and thought, as Morgado establishes (2024) memory and reasoning are activated from their areas and meanings when reading. This clearly shows that the frontal lobe is responsible for constructing images of what is read and the occipital lobe for associating letters. In addition, this stimulating reading activity stimulates the brain by increasing blood flow and reactivating neural connections that are essential for strengthening memory, creativity, and imagination.

In adolescents it is important to take into account the difficulty or complexity of reading, since it generates greater benefit by providing a better stimulation of neurons, otherwise if what they are reading is too simple this does not generate significant learning, on the other hand, being transcendental this process generates thinking skills, making them reflective, critical and analytical of those essential contents for their lives.

### ***A Worldwide Look at the Reading Process in Adolescents***

According to the American Psychological Association, as stated by García (2022) in the United States, only 20% of adolescents read magazines, books or newspapers on a

frequent basis for entertainment, while 80% are immersed in social networks. In Colombia, according to the Survey of Cultural Consumption (ECC), 50.2% of people over 12 years of age read books, which indicates that a large part of the population is not interested in reading books or magazines. Reading is in crisis in Peru according to Economía Magazine (2023) Cultural Consumption Survey (ECC) (2020) or based on the Ministry of Education's Virtual Learning Assessment (EVA), which establishes that there is a 3-year learning delay, on the other hand, the International Student Assessment (PISA) establishes that 2 out of 10 Peruvian children only achieve reading comprehension, as well as Infobae, a newspaper focused on current issues, quoted by Coca (2022) the test allows measuring the performance of reading comprehension, considering that 49.4% of adolescents occupied the last position, therefore, improvements in the educational system are needed to rethink the opportunities provided on the importance of reading a book critically. Taking this analysis in Mexico reading has fallen in the last seven years. in 2016 82% of adolescents had a favorable reading habit, while in 2023 it declined to 68.5%, this is stated by the National Institute of Statistics and Geography (INEGI) quoted by Viña (2023) editor of the newspaper El País of Mexico, implying 12.3% less than before due to various factors such as the use of digital media, lack of interest, among others.

### ***Book Club in Ecuador***

In Ecuador, based on data from the Regional Center for the Promotion of Books in Latin America and the Caribbean (CERLALC) cited by Pardo (2021) explains that in Ecuador half a book is read annually, with a population of 43% devotes time to reading, this devaluation of reading has various implications such as the consumption of the Internet in young people, the teaching curriculum where rigid readings are imposed, the poor strategies that are used, so it must have a radical change to encourage interest in what they are reading.

In Guayaquil there are free reading clubs that help children and young people to connect in a pleasant way with reading and make it a habit. However, it is necessary to point out that a reading club is a space for interaction with other peers of similar ages to strengthen language, reading comprehension and natural expression among them, since the increase in vocabulary is a main positive aspect within the clubs. Sánchez (2024) editor of El Universo Newspaper highlights places where children and adolescents can attend offering attractive activities for reading in a spontaneous way, such is the case as "Sueños de Papel" this program is sponsored by the Casa de la Cultura, Guayas nucleus, rosa Poga, president of the program, offers activities within the Reading Club for children from 8 to 14 years old, each one has working sessions such as "Story Time", "Stories at half light", "Accompany me to read", involving the family in the reading processes that children and adolescents should strengthen. Likewise, the Ria Room of the Library of the Arts (2021) has as its purpose an art space for children and teenagers with the themes "Mysterious stories for children detectives" "Games workshop" "Between books" proposing a reading and writing club for teenagers from 12 to 17 years old.

In Quito, Casa Carrión de Bellavista is a library site where you can enjoy the diversity of literature not only Ecuadorian, but Latin American and universal, in addition to the "Librería Cosmonauta" where various activities are organized based on a book club that allows mediations, round tables, among other techniques that require the analysis of a specific story, on the other hand, a plus that has this reading space is the normalization of the entry to pets so that there is a commitment among the owners for the conservation of books and cleanliness of the place.

Analyzing the similarity of the clubs offered in Quito and Guayaquil, it is remarkable to determine that despite the existence of institutions or organizations that

provide cultural spaces for children of all ages, they are not welcomed due to lack of knowledge and few reading habits. On the other hand, these initiatives are specific, but it would be more praiseworthy to implement reading clubs in schools from an early age; spaces where children and adolescents can share knowledge based on their own experiences.

The reading problem in Ecuador is alarming due to factors such as motivation, lack of reading comprehension and a non-existent link between adults and children to strengthen their reading habits. Barahona y Arcilla (2020) refers that the National Council for Culture and the Arts addressed a project called "National Reading and Book Plan 2015-2020" with clear objectives to promote reading as a transversal part of the cultural, economic and social rights of citizens, in order to strengthen creativity, reflection, critical thinking and construction of democratic processes.

The fiscal education system has had some perspectives on inculcating reading within the pedagogical processes, thus the Ministry of Education Mineduc (2019) implemented the reading program "Yo leo" with the purpose of generating new strategies to encourage reading, involving parents, teachers, students and administrative staff of educational institutions. It is recognized that this initiative was born with the implementation of the "Fiesta de la lectura" in 2016 where specific activities were offered to be developed and exposed for the entire educational community, such as experiential stories, story marathons, impersonations, oratory contests, among others.

Gradually this perspective was structured into an educational policy for the promotion of reading "Juntos leemos" with the purpose of improving or structuring the behavior of readers in the educational system, as established by the Ministry of Education (2019) the Ministry of Education has set the goal of creating dynamic, reflective and critical readers, with a good development of communicative skills through reading and daily practices.

### ***Unpublished Stories***

A short story is a narrative with a short or long length depending on the author or authors, and the story can be based on fictitious or real facts. According to Topa (2023) refers that the story transcends from generation to generation if it is classified as traditional, however in the case of unpublished stories this is related to the reader's own experiences based on their anecdotes that are converted into valuable writings and feelings for the reader.

In adolescents it is common that they rely on social networks or technology, in addition to music to express oppressed feelings that often cannot manifest naturally, therefore guidance is essential so that they can produce from their experiences an unpublished story taking into account strategic points to develop a story, as a first step is to focus on the action without having extensive descriptions or psychological digressions, in addition to not trying to cover everything but specifically specific characters and specific locations, so you can look for an idea and simplify it with images that can describe the action, without covering so many words. As described by Del Castillo (2019) refers that the main thing is to choose the theme in order to define the structure, since it is important that the story or tale has a beginning, middle and end. From what the author expresses in the plot, the action develops with significant scenes with great meaning for the reader. On the other hand, the denouement must have an impact since it is what will remain in the memory the most, so it must end with a surprising action.

## **Method**

### ***Research Paradigm***

This research is considered within the paradigm of action research, because it allows the identification of specific problems within the research process, as well as the pertinent solutions. Rooms (2019) allows the analysis of the social context where the problem develops through processes that start from practical problems and are closely linked to the educational environment.

In particular, the action research paradigm facilitates the researcher to solve those difficulties that may arise in the research process between the practical and theoretical elements. (Saltos et al., 2018). For this reason, this paradigm does not distort theoretical concepts with practical ones, but rather they are closely related.

Likewise, this paradigm contributes to the present research in that it enables a critical analysis of all the information or data collected in this process, with the purpose of achieving a constant reflection of the problem detected from all the current perspectives. Another particularity of the present methodology is that its approach is quantitative, as determined by (Guzmán et al., 2024). This research is based on data collection supported by statistical and numerical tools. From the contribution of the authors it is determined that the researcher can record and quantify the data more effectively for their respective analysis, in this case a survey was applied to the 25 adolescent students with a structure of 10 questions focused on the variables under study, as a reading club of unpublished stories from the experience of students aged 14 to 15 years of the fiscal education system.

### ***Type of Study***

It is considered a descriptive type of research, as determined by Ochoa and Yunkor (2020) because it is linked to a quantitative research, that is to say, it requires a study population with dimensions of time and space. The objective of taking the present research to a quantitative one is due to the importance of knowing through truthful instruments necessary information and that the researcher can discern factors that induce the problematic to be studied from the perspective of the adolescents about the book club and the unpublished stories. For this reason, instruments such as the survey are used, with questions focused on the adolescents' experiences and their reading pedagogical practices.

### ***Data Collection Techniques***

In order to carry out a deeper analysis it is necessary to work on methods for the respective realization of a questionnaire directed to a group of adolescents from 1 fiscal school in ages from 13 to 16 years old to know the experience about the reading club of unpublished stories. On the other hand, together with this data collection instrument, an analytical table was made on the appropriate questions to learn about the unpublished stories and the book club.

**Table 1**

*Questionnaire addressed to 25 students of a public school to learn about the reading club and the unpublished stories.*

Category	Questions
Personal data	Age Sex Basic year
Knowledge and experience of the book club	Indicates participation in the book club Book club experiences Motivation for book club participation Innovative teachers to work with book clubs
Unpublished stories	Educational resources Methodological strategies Experiential activities Participation of the educational community

*Note.* Questions directed to the study variables were carefully chosen.

The questionnaire was shared with 25 students from Guayaquil of the Clemencia Coronel de Pincay basic fiscal education school, it was elaborated by means of Google Forms, the questions have multiple answers, with the purpose of achieving better precision in the results, likewise for the analysis we took into consideration contributions from other researches focusing on the topic of greater similarity to the current one, such as that of Tovar and Riobueno (2018) which indicates that the book club is an alternative for adolescent students to become interested in reading and strengthen creativity, imagination and critical thinking. On the other hand, they also refer that book clubs are positive processes of knowledge exchange and assertive dialogues providing the opportunity for adolescents to express and defend their ideas, developing creativity, social awareness, sensitization and empathy for others when they produce a story with their own experiences. The researchers emphasize that a reading club must necessarily comply with regulations or processes for the promotion of reading, i.e., choosing a good title, recommended time for reading, scheduling of meetings for the respective meetings, material needed to work on reading together, among others.

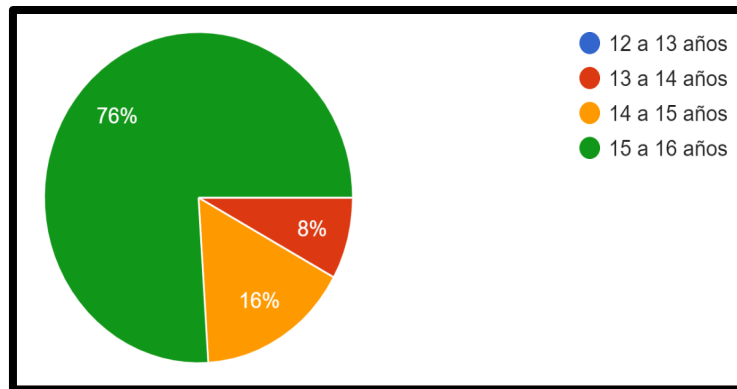
## Results

### ***Book Club and Unpublished Stories Questionnaire***

The 10 questions were focused on knowledge and experience of the book club and the unpublished stories, in such a way that the 25 students answered authentically based on their teaching-learning process, with the purpose of making a tabulation according to what was collected and having a more coherent and truthful perspective on the participation of the students in the book club and the unpublished stories.

**Figure 1**

*Age range*

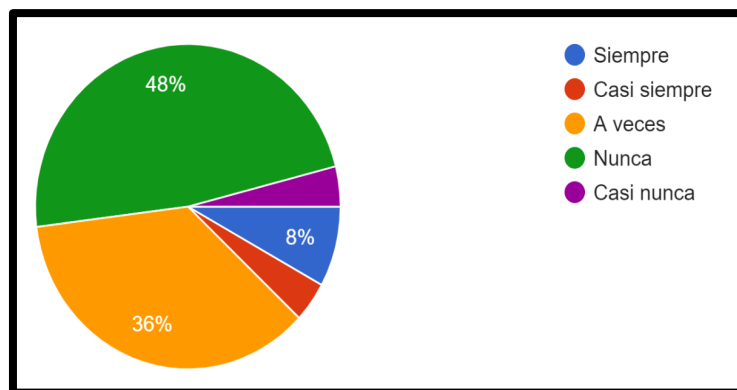


*Note.* Survey conducted in Google Forms

Analysis: The largest age range was 15 to 16 years old with 76%, followed by students aged 14 to 15 years old with 16% and finally 13 to 14 years old with 8%. It is determined that the greatest participation collected is within the age range of the present investigation.

**Figure 2**

*Participation in book club*

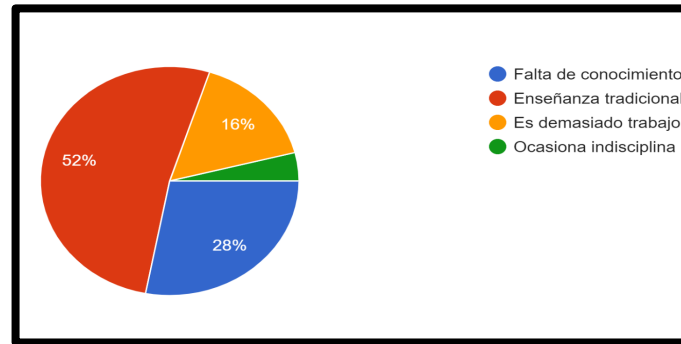


*Note.* Survey conducted in Google Forms

Analysis: It is evident that 48% of the students participating in the surveys have never participated in a reading club, finding part of the problem radical for their reading habit process, 36% sometimes and only 8% always. Thus, it is determined that there is not an appropriate educational process for students to interact within a book club that is favorable for diverse learning processes such as reflection, critical thinking and thinking skills.

**Figure 3**

*Teachers do not apply book club*

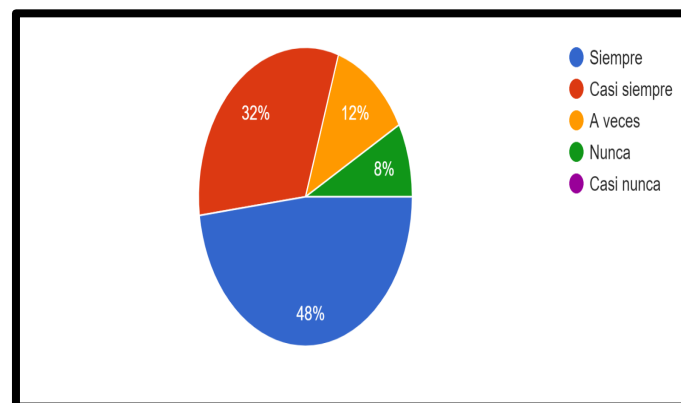


*Note.* Survey conducted in Google Forms

Analysis: The students surveyed consider that one of the factors that influence teachers not to apply book club in the teaching-learning process is traditional teaching, with 52%, which means that teachers still educate along conventional pedagogical lines, and 28% said that it is the lack of knowledge and 16% that it is too much work for the teacher. It is understood that another influential negative factor is the traditionalist teaching that still predominates in the pedagogical processes.

**Figure 4**

*Experiential and funny unpublished stories*

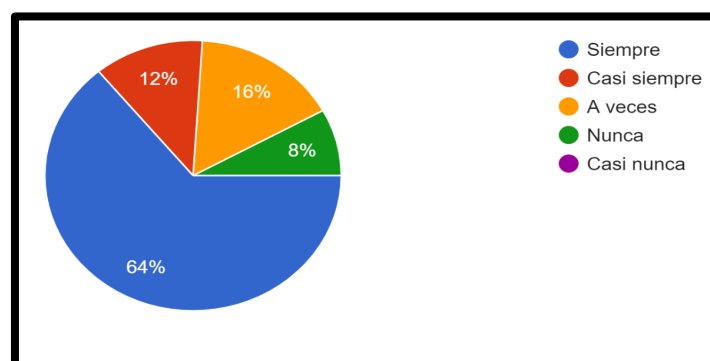


*Note.* Survey conducted in Google Forms

Analysis: 48% of the students surveyed stated that they are always willing to create their own unpublished stories from their youthful experiences and perspectives, thereby learning meaningfully, 32% almost always, 12% sometimes, and 8% never. Thus, it is understood that students are mostly willing to learn in a different and experiential way.

**Figure 5**

*Teachers propose unpublished short stories*



*Note.* Survey conducted in Google Forms

Analysis: Sixty-four percent of the students surveyed stated that they would always like their teachers to propose to work on unpublished stories involving different learning areas, 16% prefer sometimes and 8% never, being essential to guide students in the production of their own unpublished stories framed in real learning to strengthen not only the reading habit, but also grammar, spelling, syntax of what they are writing and reflective and critical thinking.

Valuable information was collected on how adolescents view everyday problems, so that relevant aspects can be discerned. In view of the above, it was specified that a group of 6 girls aged 13 to 15 years analyze the way they interpret the problems and the importance given to them by adults, in such a way that a better analysis of the problem could be carried out.

**Figure 6**

*The problems of adolescents*

THE PROBLEMS OF ADOLESCENTS
<p>Adolescent problems are ignored by adults because they always say that we don't have problems, or what kind of problems could we have at our age? It is true that the problems of adults are nothing compared to those of adolescents, but that does not mean that they should be made less so. The problems are diverse and each one of them changes depending on the environment, but insecurities are very common, and many times they are caused by family, friends, bad comments, social networks etc. One of my insecurities has been my skin color since my relatives always bothered me and at first I took it as a joke or as affection, but this became very repetitive and I started to feel bad. Another of my insecurities is my body and I had it because of the social networks I saw thin girls with waist and I wanted to be those girls I started to obsess to such an extent that I started sleeping with a girdle and bandaging myself every day to have a waist and be "perfect" I saw all those beautiful, white, thin girls and I wanted to be like them.</p> <p>We teenagers don't always tell our parents about our problems because of fear, lack of understanding or because they may challenge us or minimize them by making theirs bigger and saying that our only concern is studying, but studying for some teenagers is also a problem that comes with making grades. There are times when teachers</p>



underestimate us and make us believe that we can't or that we are stupid. In my case, I consider that I am not so good at math since I was a child, it was very difficult for me in high school when I had a teacher who was very angry; we were all afraid because she would challenge you for everything and sometimes she would even hurt you. She always said that a 7 is for mediocre people and when I got a 7 I was thrilled, but I remembered that and got upset again. Maybe that was the way to make us not to be satisfied with the minimum and that we could give more of ourselves, but still those words hurt and made me distrust my ability. Then I had another teacher who made me believe that I was no good at numbers. I always believed that she made me angry because she took me to the blackboard and made me look bad and she saw a problem with what I did and that's why she considered me a fool in my studies.

Another problem that is all too common in adolescents is the comparison that our parents make with our siblings, they sometimes do it for our "good" but that makes us doubt ourselves and creates insecurities and sometimes comparisons can generate jealousy between siblings because we believe that they are better than us and we want to be like them, dress like them, have their personality, practically be their double.

Some parents may not understand why their son or daughter is lonely? If they have everything we give them everything, they don't need anything, but it is a feeling of loneliness to see how other teenagers have a social life, go out, go to parties, have partners, etc. We teenagers seeing how kids their age have all that and you don't makes you feel that they are alone, some parents work very long hours and don't have time for their children and from my point of view, being a teenager myself, the teenage stage is the most complicated and where kids need attention and to be watched

Anyway every teenager is a different world and everyone has their own crazy life this has been mine and as advice to parents who want to begin to understand their children is if they open up emotionally with you never minimize their problems or do not punish them when a teenager does that is because they want to feel heard or want advice and another thing tell your children that you love them or that you are proud of them although it may be just words that is very significant for one

*Note.* Thoughts of a 14-year-old teenager

From the analysis of the adolescent's thoughts, it is possible to work on important activities so that they can not only express their feelings and emotions, but also focus on educational processes; for this reason, it was important to create an unpublished story of a 14-year-old student in order to analyze her thoughts in greater depth.

**Figure 7**  
*Lucia's feelings*

LUCIA'S FEELINGS
<p>Once upon a time there was a little girl named Lucia, she was very happy with her family. To her, her parents were superheroes and adored her. As little Lucia grew up, her mother was no longer as attentive as before, she no longer played with her, did not pay attention to her and rarely gave her affection, she felt bad, but she had her father who was still the same.</p> <p>Lucia didn't understand why her mother changed as she got older, she thought, Am I a bad daughter? Is there a problem in me? Do you no longer love me? She thought all this because her mom was very affectionate with her little nephew. Lucia began to be jealous of her cousin because he had her mother's attention, but as she got older she stopped being jealous of her cousin.</p> <p>Lucia was already a teenager, she knew that this stage was complicated for her, but she didn't think it would be complicated for everyone. She started to have a lot of problems with her mother, they fought almost every day, they were the typical fights of a teenager with her mother, but they were getting louder and louder. Lucia became more rebellious and thought her mother never loved her.</p> <p>Lucia almost never had any problems with her dad. One ordinary day Lucia had a strong argument with her mother and she said very strong things that made her feel very bad Why is my mother so cruel? Do you hate me? Lucia felt confused, she loved her mom, but she didn't know why they always had conflicts. She always dreamed of having a healthy and beautiful relationship so that she could tell him about her problems, what made her uncomfortable, her love experiences, etc.</p> <p>Lucia still didn't understand why her mom was like that with her, why her beautiful mother became a villain to her? Why did their kisses and advice turn into shouts and complaints? Why didn't his mom kiss him goodnight anymore? Lucia was always thinking, Will I still be her little girl? She was tired of having a bad relationship with her mother.</p> <p>Lucia did not understand her mother, until one day they did not argue and talked peacefully, the two unburdened themselves and finally there was a dialogue, she understood that her mother loves her, she may not show it with words but she shows it every day by giving her a plate to eat, a room to sleep, clothes, study, etc. Lucia understood that when her mother spoke to her it was for her own good and not because she wanted to bother her.</p> <p>After understanding her mother she saw a strong, brave, intelligent woman with a big heart, she felt so proud to have the bravest woman and with tears in her eyes she had again the same perspective of her mom when she was little, her mother was again her heroine, her strength, her goal to follow, her pride.</p> <p>And since that day the relationship between Lucia and her mother has improved a lot, they no longer fight, they understand each other and above all she is listened to. Since that day the two have understood each other, they put themselves in each other's shoes, Lucia has never felt so happy, at last her wish to have a healthy and beautiful relationship with her mother has been fulfilled and not only that, Lucia's family is more united and loving.</p> <p>In conclusion, problems between parents and children are very common, but we must know how to deal with them and solve them, we as children must know how to</p>

understand our parents and vice versa and it is never too much to tell them how much you love them and that you are proud of them, these words can be said by both children and parents, these words always make any person happy and this crazy story is over.

*Note.* Unpublished experiential story of a 14 year old teenager.

With this story, teachers can work on various activities to continue strengthening not only the development of reading habits, but also the expression of emotions, family problems, and needs that must be met for adolescents. On the other hand, the construction of marionettes or puppets for the story play, drawings about Lucia's feelings before and after talking with her mother. Communicative posters to teach parents, among other innovative and meaningful learning activities.

The proposal for a book club and the unpublished stories contemplates several parameters necessary for the objectives to be met, such as:

- 1.- Training for teachers on the importance of implementing book clubs.
- 2.- Conduct a workshop with students on reading and its privileges. Mention tips for promoting creative and dynamic reading within the club.
- 3.- Conduct various activities to form groups participating in the book club. "Unpublished adolescent short story"
- 4.- Workshop for teachers on encouraging students to express feelings and emotions.
- 5.- Select through brainstorming the most relevant topics for the adolescents to express through the unpublished story.
- 6.- Monitor what students write, without interfering with their ideas.
- 7.- Conversation on the ideas he has developed for his unpublished short stories.
- 8.- Review grammar and syntax of the written material.
- 9.- Complementary activities to narrate their unpublished stories.

## Discussion and Conclusions

It is concluded that in the Ecuadorian fiscal education system the reading club is not considered in its majority as a strategy for the development of the reading habit in students from 14 to 15 years old, reflecting that 48 of those surveyed have not participated in a reading club, even they did not know the term and what is the objective of the same.

On the other hand, another limiting factor for students not to work on content within the book club is that according to the surveys, 52% of the students stated that their teachers maintain a traditionalist teaching, that is, they are based on a conventional pedagogical line where memory, routine and pigeonholed in something that is already established by the teacher predominate, leaving aside the active and collective participation among students to encourage constructivist and meaningful learning.

Most of the students have not worked on the production of unpublished stories and in the surveys with 46% stated that it will always be experiential to do so, besides that it will strengthen learning and reading habits, in addition to making stories make them critical and reflective in such a way that contributes greatly to the process of integral development of students.

We conclude with important data on the importance of strengthening the teaching-learning process through the book club by fostering meaningful social

relationships through an exchange of literary gatherings complemented with activities such as theater plays, impersonations, round tables, plastic activities, among others.

Adolescents should be offered opportunities to produce their own unpublished stories as an essential narrative resource that can be based on real events from their direct experiences or fictionalized. The unpublished stories according to Sancho (2021) refers that the short story is a literary genre within the literature important for learning through the story either fictional or experiential of the author that aims to convey feelings and emotions and be perceived by the reader, which is why the need to guide students to the production of unpublished stories with the necessary guidelines is contemplated.

It is recommended that teachers be clear about the importance, objectives and perspectives, as well as strengths and limitations for the implementation of the book club, in addition to talking with the students and explaining to them what their participation consists of and each of the activities they will work on, so that the student does not feel fearful or excluded from the program established for the book club.

Adapt a space especially for reading and involve students in decorating it, i.e. ask them what they think would be relevant to the reading environment, start brainstorming in such a way that innovative and interesting ideas can be collected. Implement books, stories and magazines appropriate to the age of the readers, in such a way that they will feel motivated to read because many times a book can be complicated and if it is read together with other people, the central problem can be approached from other perspectives that will allow finding the outcome without any problem.

When reading a story or book, teachers should propose other more thematic activities, i.e. focus on the development of the reading if it takes place in a specific country or era, they can personify or perform actions according to what was read, in such a way that it will be experiential, as well as increasing literary tourism would be of great educational value.

Likewise, in order to encourage students to produce unpublished stories, it is important for teachers to encourage them to provide them with all the necessary tools to do so, that is, to start with the title and play with words so that they can tell an original story, as well as characters that attract attention through an invented scenario. Personal stories are always ideal for an unpublished story, many times teenagers complain that they are not understood by parents and teachers, or suffer some kind of abuse either physical, emotional or sexual and when they turn their feelings into a literary work, latent problems can be known and provide timely solutions.

The fiscal education system must undoubtedly be transformed into a more organized one, currently there is ""Juntos leemos"" but it only lasts one week and does not generate significant changes in the students, in addition to working with actions of the Ministry of Education to promote reading comprehension from the curriculum with a more communicative and experiential approach. This is an arduous and constant process that must necessarily involve the national government, private companies, among other organizations interested in promoting reading in public spaces accessible to citizens, in addition to neighborhoods, public transportation, among others.

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**CHALLENGES OF DIVERSIFICATION IN INITIAL TEACHER TRAINING  
FROM UDL PRINCIPLES: WHAT DO PRE-SERVICE TEACHERS KNOW?  
DESAFÍOS DE LA DIVERSIFICACIÓN EN LA FORMACIÓN INICIAL DOCENTE  
DESDE LOS PRINCIPIOS DEL DUA: ¿QUÉ CONOCE EL ALUMNADO?**

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**ABSTRACT**

**Keywords:**

diversification of education, learning method, teacher training, educational policy, educational inclusion.

Introduction. The educational system in the 21st century faces the task of ensuring inclusion and diversification in the classroom. In this context, Universal Design for Learning (UDL) emerges as a key strategy to address the diverse educational needs of students. However, teacher preparation in this area remains a challenge as teachers do not always have skills in teaching, assessment and diversity management. The aim of this study was to analyze what students in training know about UDL and the challenges of diversification in initial teacher training at a Chilean university. Methodology. A mixed research approach was used, considering the use of surveys and focus groups. The participants were trainee teachers from various cohorts of the degree course. A diagnostic survey was used with 117 participants, followed by a focus group in which 6 trainee teachers participated. Results. It is observed that trainee teachers have a general knowledge of the principles of UDL, although their mastery of the specific guidelines is limited. Self-efficacy to implement inclusive practices increases with years of study, but does not guarantee effective implementation of the UDL. The main challenges include lack of time for planning and resistance to change in institutions. Conclusions. The current training does not allow for adequate practical development of UDL. It is recommended that practical training and institutional support be strengthened to improve UDL implementation.

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## RESUMEN

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**Palabras clave:** diversificación de la educación, método de aprendizaje, formación de docentes, política educacional, inclusión educativa.

**Introducción.** La educación del siglo XXI enfrenta el desafío de garantizar la inclusión y la diversidad en el aula. En este contexto, el Diseño Universal para el Aprendizaje (DUA) surge como una estrategia clave para atender las distintas necesidades de los estudiantes. Sin embargo, la preparación docente en este tema sigue siendo un desafío ya que no siempre cuentan con habilidades en enseñanza, evaluación y gestión de la diversidad. El objetivo de este estudio ha sido analizar qué conoce el alumnado en formación sobre el DUA y los desafíos de la diversificación en la formación inicial docente en una universidad chilena.

**Metodología.** Se ha realizado una investigación con enfoque mixto, considerando el uso de encuestas y de grupos focales. Los participantes fueron docentes en formación de varias cohortes de la carrera. Se utilizó una encuesta diagnóstica con 117 participantes y, posteriormente, un grupo focal en el que participaron 6 docentes en formación. **Resultados.** Se observa que docentes en formación tienen un conocimiento general de los principios del DUA, aunque su dominio de las pautas específicas es limitado. La autoeficacia para implementar prácticas inclusivas aumenta con los años de estudio, pero no garantiza una aplicación efectiva del DUA. Los principales desafíos incluyen la falta de tiempo para planificar y la resistencia al cambio en las instituciones. **Conclusiones.** La formación actual no permite un adecuado desarrollo práctico del DUA. Se recomienda fortalecer la formación práctica y el apoyo institucional para mejorar la implementación del DUA.

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## **Introduction**

In recent years, education has undergone a paradigm shift, oriented towards the search for quality and excellence in an increasingly complex context. The educational institutions of the 21st century face challenges, among which the need for an education that is inclusive and promotes values, principles and democratic and solidarity-based convictions stands out (Leiva Olivencia, 2013).

Universal Design for Learning (UDL) is a pedagogical strategy that seeks to respond to diversity in the classroom and aims to reduce the barriers present in the educational environment. It considers the wide range of abilities, learning styles and preferences (Montoya Naguas et al., 2024). The UDL promotes educational equity by offering multiple forms of representation, expression and participation.

Inclusive education starts from the premise of transforming the education system, so that it allows all students to have equal access to learning opportunities, eliminating barriers and adapting policies respecting diversity and developing their potential (Bell Rodríguez et al., 2022; Echeita Sarrionandia, 2017).

In Chile, the education system has Decree 83/2015, which approves criteria and guidelines for curricular adaptation for students with special educational needs in Basic and Kindergarten Education. This decree establishes the principles of educational inclusion, allowing the elimination or reduction of barriers in schools. It also introduces measures to design and make the curriculum more flexible to the specific needs of students, including the application of curricular adjustments and differentiated assessments, which are implemented through planning, cooperation and feedback among educational actors.

In this sense, promoting inclusion addresses multiple aspects. In addition to the challenges mentioned above, it is essential to recognize the importance of teacher preparation and attitude. This involves skills related to teaching, assessment, interactions, and creating a collaborative and accepting classroom environment. Research highlights the concern of teachers to make their teaching more flexible and to respond effectively to the diversity of students in heterogeneous classrooms. For example, Cisternas and Lobos (2016) discuss student difficulties in practice and beginning teachers. Among their findings, they underline the scarce contribution of initial training to solve common situations in teaching, such as the design of evaluation instruments that reflect the diversity of learning in the classroom.

In Chile, educational institutions have begun to include a growing number of students with diverse characteristics and educational needs, driven in part by sociocultural diversity due to immigration (Espinoza and Valdebenito, 2018). In response to this phenomenon, especially in municipal schools, it is crucial that teachers implement differentiated teaching strategies that recognize and address diversity (Jorgensen et al., 2007). Law No. 20,845 on School Inclusion and Official Decree No. 83 provide the regulatory framework that seeks to facilitate relevant adaptations (MINEDUC, 2015). However, there is a lack of clarity about how these inclusive practices are implemented in the classroom, with indications that some are based on improvisation (Jiménez et al., 2017).

Against this backdrop, it is imperative that teachers adopt better practices to respond effectively to the demand for quality and equity, particularly with regard to student inclusion, where the objective is to promote diversification of learning in the classroom.

The concern for inclusive schools has become one of the greatest challenges currently facing education systems, teachers and society. Progress towards inclusion requires not only political will, but also social agreements based on values of equity and social justice. It is difficult to identify a notable confusion around the concept of inclusion and inclusive school, both in the academic literature and in current regulations, as well as in the debates and practices of professionals in the sector. The reasons behind this confusion are diverse and, throughout history, have been linked to different movements that seek to ensure that all students, regardless of their origin and personal characteristics, receive attention in the context of common education. (Durán and Giné, 2011). Therefore, it is crucial to provide teacher training. When teachers feel underprepared, they are likely to develop negative expectations of their students, and this creates fewer opportunities for interaction and attention. This, in turn, can lead to academic failure and the confirmation of those expectations (Marchesi, 2001).

In the current Basic Education program in Chile, students receive only partial preparation in UDL, since they only have one lecture in one semester of the five years of study. This limitation in training prevents future educators from fully developing the necessary competencies to implement effective diversification strategies in the classroom, especially considering that Exempt Decree No. 83, which has been in force for a decade, establishes frameworks and guidelines for attention to diversity.

This article analyzes the results of the diagnosis carried out to identify the challenges of diversification in initial teacher training based on UDL principles in the Basic Education Pedagogy program of a Chilean Higher Education institution. The objectives of the study were a) to identify the main knowledge and resources that facilitate students' application of the UDL in the classroom; b) to know the barriers and limitations they face when applying the UDL in the educational practices of the course. In general, we inquired about their knowledge and preparation to develop the UDL in educational practices in order to identify gaps and possible lines of action.

## THEORETICAL FRAMEWORK

### *Introduction to Universal Design for Learning (UDL)*

The DUA was developed in 1984 by the Center for Applied Special Technology (CAST) for the purpose of creating technologies that help improve the educational experience of students with disabilities by enabling them to access the same educational content as their peers. This approach is based on advances in neuroscience that evidence the existence of diverse brain functions, which implies a variety of learning styles (Alba *et al.*, 2014).

Thus, it is assumed that each individual processes information in a unique way, which influences his or her learning preferences. Some are more receptive to visual learning, while others respond better to auditory stimuli. Although the UDL was initially focused on students with special educational needs, it is now considered a comprehensive methodological reform that needs to be adopted by teachers at all educational stages. Methodological strategies should be oriented towards creating diversified spaces and opportunities in the classroom opportunities that

consider differences as something enriching for the teaching and learning process; it allows each student, regardless of the conditions in which he/she returns to the educational center, to be attended from his/her characteristics, needs and conditions from an approach of equity, inclusion and respect for diversity (Covarrubias *et al.*, 2021).

### **UDL Principles and Guidelines**

The UDL is based on a series of guidelines derived from neuroscientific knowledge about how human beings learn. These guidelines are organized into three key principles: commitment, representation and action-expression. Each principle is broken down into specific guidelines designed to facilitate access, construction, and internalization of learning (Blanco *et al.*, 2016; CAST, 2018).

One of the main challenges identified by CAST (2018) is inflexible curricula that create unintended barriers to learning. In response, the UDL proposes three fundamental principles for curriculum design, each subdivided into concrete guidelines detailing different means to implement these principles (Díez and Sánchez, 2015).

In practical terms, a curriculum designed under the UDL approach promotes educational accessibility by allowing for adaptations that provide options and make objectives, content, materials, methodological strategies and assessment methods more flexible. The objective is to guarantee equitable access for all students (Sánchez and Díez, 2013). In the face of this challenge, the UDL presents itself as an innovative approach that complements the world conferences and consolidates itself as one of the pillars for inclusion in global classrooms. According to Alba *et al.* (2014), UDL is defined as: "a research-based approach to curriculum design-i.e., educational objectives, methods, materials, and assessment-that enables all people to develop knowledge, skills, and motivation and engagement with learning" (p. 9).

At the international level, the UDL has been incorporated into educational policies. In the United States and Canada, legal frameworks have been developed that implicitly reference UDL, for example, the Every Student Succeeds Act (ESSA) of 2015, with the goal of promoting more equitable and inclusive education. Promoting various strategies, allowing states and districts to adapt educational programs to meet accessibility and inclusion requirements, through the implementation of various strategies.

In Spain the first time the UDL appeared was in the LOMLOE law (2020) and until relatively recently it was effectively incorporated in the educational regulations by means of Royal Decrees (Royal Decree 95/2022, Royal Decree 157/2022, Royal Decree 217/2022, Royal Decree 243/2022). This represents a significant advance in the implementation of the UDL in the school setting. This can also happen in other countries, where interest is not necessarily translated into concrete policies or regulations.

In Chile, similar measures have been promoted to make teaching more flexible to the needs of all students, highlighting Decree 83 and its guidelines on Teaching Diversification and Curricular Adaptations, enacted in 2015 (MINEDUC, 2015-2017). These guidelines understand quality education as a continuous effort to make educational practices more flexible in relation to diversity, fostering not only academic success, but also the well-being and social welfare of students. However, the decree has a number of limitations that affect the

effective implementation of Universal Design for Learning (UDL). First, the lack of specific training for teachers hinders the implementation of inclusive strategies, which prevents educators from fully utilizing the potential of UDL in their classrooms. In addition, insufficient material and human resources restrict the creation of truly inclusive educational environments, where all students can participate and learn equitably.

In addition, the absence of a clear evaluation system complicates the feedback and adjustment of pedagogical practices, which impedes the continuous improvement of the educational process. The lack of consideration of the contextual particularities of each school community can lead to the implementation of inadequate solutions that do not respond to the specific needs of the students. These limitations, taken together, show the low effectiveness of the decree in certain educational establishments in the country, thus hindering progress towards inclusive and quality education.

Given the diversity of contexts that can be found in a country and even in the same region, it is essential that teachers evaluate the environment in which they are inserted in order to adjust the implementation of the UDL. In this sense, Sanchez and Duk (2022) suggest the need to introduce a new term: Universal Design for Contextualized Learning (DUAC), which allows flexibility and the application of these principles to different educational realities. The UDL is presented as an effective model for implementing an inclusive approach. However, if factors such as context, target population and available technological resources are not considered, we run the risk of perpetuating the exclusion and marginalization of certain students, instead of combating it, which is the main objective of the UDL.

### ***Challenges to Inclusion in Higher Education***

At the university level, Rose *et al.* (2006) examine the implementation of a course in the United States based on UDL principles, concluding that learning difficulties tend to be more related to the environment than to individual student characteristics. This finding raises a key question: How prepared are the teachers involved in initial training? On the other hand, Díez and Sánchez (2015) suggest that in addition to explicit formative actions, students live and experience the benefits of an essential strategy to integrate UDL effectively into the educational system.

Bravo-Mancero and Santos-Jiménez (2019) point out that in Higher Education institutions there is a diversity of students with educational needs who come from different geographical contexts and with diverse ethnic, religious and gender characteristics, among others. However, this university environment remains focused on the acquisition of cognitive skills, which limits progress towards inclusive education. On the other hand, Flores-Barrera *et al.* (2017) highlight the lack of attention to the pedagogical and practical approach in teacher training, which affects the acquisition of pedagogical tools. In addition, Álvarez-Lozano (2023) highlights the scarcity of competencies in the use of inclusive methodologies during the initial training of future teachers, perpetuating this situation in their professional practice. A similar conclusion is reached in the study by Onoiu and Belletich Ruiz (2024), which analyzes teacher training in Universal Design for Learning in early childhood education in Navarra. The results show that UDL training is limited and the training offer is insufficient, which hinders its effective implementation. Training needs are identified, such as the lack of practical training and adequate teaching resources. See

recommends the creation of modeling and socialization tools to improve teacher training in UDL.

Moriña and Carballo (2018) posit that inclusive education and disability is a challenge currently facing higher education. They point out that the training of university professors in strategies and programs that promote inclusion is fundamental to ensure current educational processes. In their study, participants identified the principles of UDL as a concept that encompasses all prior learning, making it possible to design programs that address the needs of all students before they arise in the classroom, thus preparing teachers to respond appropriately to those needs. On the other hand, the authors highlight as an important element “[...]that policies, processes and actions are articulated so that the response to the needs of students does not remain in goodwill and there are sensitized, informed and trained teachers” (Moriña and Carballo, 2018, p. 93).

Likewise, Azorín (2017) reflects on the diversity in the group of university students in terms of skills, previous experiences, learning styles and needs. It is crucial that university teachers recognize and value this diversity, adapting their teaching practices to ensure the inclusion of all in the educational process. At the same time, university students may face additional challenges, such as the transition to a more rigorous academic environment, autonomy in learning, and the reconciliation of studies with other responsibilities, such as work or family life.

Higher education institutions have the responsibility to incorporate theoretical and methodological bases that promote inclusion, thus allowing them to adjust to social, educational, political, cultural and economic changes through the reorganization of an inclusive curriculum and the necessary adjustments in teaching processes.

Based on the above, it is pertinent to analyze the challenges that arise with respect to diversification in the initial training of future teachers in a specific context. The knowledge of the DUA strategy allows the trainee teachers to be enriched by the educational experience of all their students during their internships and later on as education professionals. In this way, we are contributing to the creation of more diverse, respectful and successful educational communities.

## **Method**

The present research is part of a doctoral thesis that aims to contribute to understanding how the teaching of diversification could be complemented through UDL by proposing a model that integrates this strategy in a continuous and transversal manner throughout teacher training. The project has been approved by the UNINI Ethics Committee No. CR-162. The current study presents the diagnosis made in order to carry out a training program to support UDL learning in future teachers.

This study is framed within the pragmatist paradigm, using a mixed approach combining qualitative and quantitative methods. This approach is characteristic of pragmatism, as it values methodological flexibility and practical problem solving (Onwuegbuzie and Leech, 2019). By integrating both perspectives, a more complete view of the object of study is achieved, which is essential to address complex issues in the field

dynamic social contexts. The research is applied, which means that it seeks to address and improve a specific problem. In addition, it focuses on a field of habitual practice, oriented towards the development and application of the knowledge obtained (Hernández Sampieri et al., 2014). The choice of the two instruments for data collection - the survey and the focus group - responds to the need to obtain a more complete and enriched understanding of the phenomenon under investigation. It is justified within the framework of a mixed approach as it allows triangulating data, complementing information and strengthening the validity of the findings, integrating both the breadth of the quantitative and the depth of the qualitative. In summary, the qualitative approach not only complements the statistical approach, but also offers key inputs for redesigning training practices that are more contextualized, reflective and aligned with a truly inclusive education.

### **Participants**

The study population consisted of active students in the Basic Education Pedagogy program at a Chilean higher education institution. For the survey, 117 students were invited to participate on a voluntary basis and agreed to complete the survey. For the focus group, third year students of the Diversity and Inclusion course who had already had previous classroom experiences were invited to participate. Six students participated.

### **Instruments**

*Survey.* A survey was used to collect quantitative data, using a questionnaire composed of measures of teaching practice. The questionnaire used standardized instruments and also items created for the present research. The questionnaires were applied virtually, having previously obtained the informed consent of the participants. The questionnaire consisted of the following variables: knowledge of the UDL and self-efficacy in inclusive teaching. These variables were measured with the following instruments:

*Knowledge of the UDL.* Quantifiable data on UDL awareness were collected. Specifically, 6 items were created to inquire about theoretical notions of UDL. In this sense, each item presents a statement that must be answered from 1=(not at all) to 6=(quite a lot). An example item is *"I am able to explain and apply UDL principles in a pedagogical activity."*

*Teacher Efficacy for Inclusive Practice Scale TEIPS,* Sharma et al., 2012 in the Spanish adaptation (Cardona-Moltó et al., 2020). This scale is composed of 15 items and has been designed to measure the perceived effectiveness of teachers in implementing inclusive practices in their classrooms. The response scale used a Likert format ranging from 1 (strongly disagree) to 6 (strongly agree). An example item is *"I know how to use various assessment methods (e.g. portfolio assessment, design/adjust tests or quizzes, assess performance/competency level, etc.)."*

*Sociodemographic data.* The age, sex and cohort of each participant were recorded.

*Focus group.* For the qualitative data, participation in a focus group was organized. The criteria used to participate in the research were the following: they had to have taken the Diversity and Inclusion course in their third year of teacher training and to have previous experience in the classroom or in teacher observation processes, which ensured a practical base in the subject. In addition, their participation was completely voluntary, ensuring that only those who

genuinely interested parties contributed to the study. A diversity of perspectives in terms of gender, socioeconomic context and learning styles was also sought in order to obtain a more complete view of the experiences in the subject. Finally, those selected had to demonstrate academic commitment reflected in their performance and availability to actively participate in interviews or focus groups. Thus, the deliberate choice of this group allows access to more elaborated and nuanced discourses, facilitating a deeper understanding of the phenomenon under investigation.

### ***Analytical Strategy***

The validity of the *questionnaire* was evaluated in terms of content and construct, while its reliability was determined by internal consistency, calculated with Cronbach's Alpha. A descriptive statistical analysis was performed including frequencies, percentages, ranges, means ( $\bar{X}$ ) and standard deviation (SD). Measures of dispersion were calculated by standard deviation and analysis of variance. The data were processed and analyzed in Excel spreadsheets and then in the statistical package SPSS, version 22.

For the *focus group*, first, an inquiry was conducted in which participants could select the correct answer to a series of questions. The analysis consisted of calculating the percentage of each response in relation to the total number of responses obtained. Secondly, a follow-up was conducted with the six teachers in training, when they were in their fourth year of training, where an interview was conducted through a focus group to delve into these conceptions of the UDL with respect to their pedagogical practices. Conceptualizing categories were identified according to Paillé and Mucchielli (2012) and after transcribing the audio of the focus group, cross-cutting and particular elements, as well as types of conceptions and variations among the actors interviewed, were collected. This phase also went through an inter-judge triangulation process, where categories were discussed with a specialist in the area of inclusion and the principal investigator (Creswell and Poth, 2018), and the results were analyzed using NVivo 12 software through qualitative coding. This technique favors the sharing of nuances that are not always apparent in structured instruments, enriching the understanding of the phenomenon from a more interpretative perspective, as well as allowing the elaboration of practical recommendations based on evidence.

## **Results**

### ***Quantitative Aspect***

The following are the results of the questionnaire applied to the 117 students of all generations belonging to the career of Pedagogy in Basic Education, who cover five cohorts from 2018 to 2022. The majority of the participants are women, representing 85% of the sample. In terms of age, students are between 18 and 22 years old, with a ( $Mean=19.95, SD=1.12$ ).

Table 1 presents the mean scores, standard deviations and internal consistency coefficients, calculated using Cronbach's alpha, for the study variables. The results show that all the variables under study have internal consistency coefficients above .80, indicating that the measures used are reliable and adequate for the analysis.

**Table 1***Descriptive and psychometric statistics of the TEIPS scale and subscales*

<b>Variable</b>	<b>Mean (SD)</b>	<b>Alpha</b>
TEIPS (total 15 items)	4.552 (.749)	.923
Effectiveness in behavioral management in the classroom (Management)	4.282 (.887)	.848
Effectiveness in the use of instruction inclusive (Instruction)	4.752 (.743)	.802
Efficiency in collaboration (Collaboration)	4.589 (.913)	.820

*Note. TEIPS is the Teacher Efficacy for Inclusive Practice Scale.*

The means of the 6 items designed to measure students' knowledge and management of the UDL in the classroom were also explored. When considering these items as a scale, a Cronbach's Alpha coefficient of .911 was obtained, indicating an excellent level of internal consistency and justifying the use of the global indicator for the analysis.

**Table 2***Descriptive statistics of UDL items*

<b>Variable</b>	<b>Mean (SD)</b>
I am able to identify and minimize barriers to learning and participation, maximizing resources to support inclusion in the classroom.	4.85 (.967)
I know and know how to apply the principles of Universal Design for learning in my pedagogical practices.	4.88 (1.15)
I am able to explain and apply UDL principles in a pedagogical activity	4.83 (1.15)
I am able to provide a clear and coherent explanation to a peer on what is diversified planning	4.85 (1.01)
I am familiar with the criteria and guidelines that govern Decree 83	4.83 (.96)
I am aware of the guidelines that are part of the UDL principles	4.54 (1.32)

The data show that trainee teachers have a general knowledge of the UDL, but their mastery of the specific guidelines remains limited. This is consistent with previous studies (Díez and Sánchez, 2015), which identify a gap between theory and



practical application in teacher training. The positive correlation between years of study and self-efficacy suggests that accumulated experience influences the perception of competence, but this does not guarantee effective UDL implementation in the classroom. Therefore, it is essential that teacher training not only reinforces theoretical knowledge, but also provides practical opportunities for application.

To evaluate the difference in means for the variables TEIPS and UDL knowledge, a *Student's t-test* was performed. There were no significant differences by sex, with  $p$ -values greater than .129. The correlation between the TEIPS variables and the cohort was analyzed. As shown in Table 3, there is a positive correlation between total TEIPS and cohort, indicating that self-efficacy perception increases according to years of study ( $r_{(117)}=.278, p<.01$ ). This trend is maintained for all subscales. The correlations between the subscales of the TEIPS are verified as expected.

**Table 3**  
*Correlation Matrix*

	1	2	3	4	5
1. Cohort	—				
2. TEIPS_total	.278 **	—			
3. TEIPS_Management	.237 *	.890 ***	—		
4. TEIPS_Instruction	.230 *	.932 ***	.750 ***	—	
5. TEIPS_Collaboration	.287 **	.859 ***	.611 ***	.739 ***	—

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ . degrees of freedom 115.

In the analysis of the UDL knowledge variable, a significant positive correlation was found with the training process of pre-service teachers. The analysis reveals that ( $r_{(117)}=.305, p<.001$ ). This indicates that as the training process progresses, the students' knowledge of DUA also increases.

### **Qualitative Aspect**

The results of the survey applied to 6 teachers in training of the 3rd year generation who took a course on diversity and inclusion in their training process are shown. Table 4 shows the results based on the percentage of achievement obtained, according to whether their answers were correct or incorrect.

**Table 4***Results of the application of the diagnostic questionnaire*

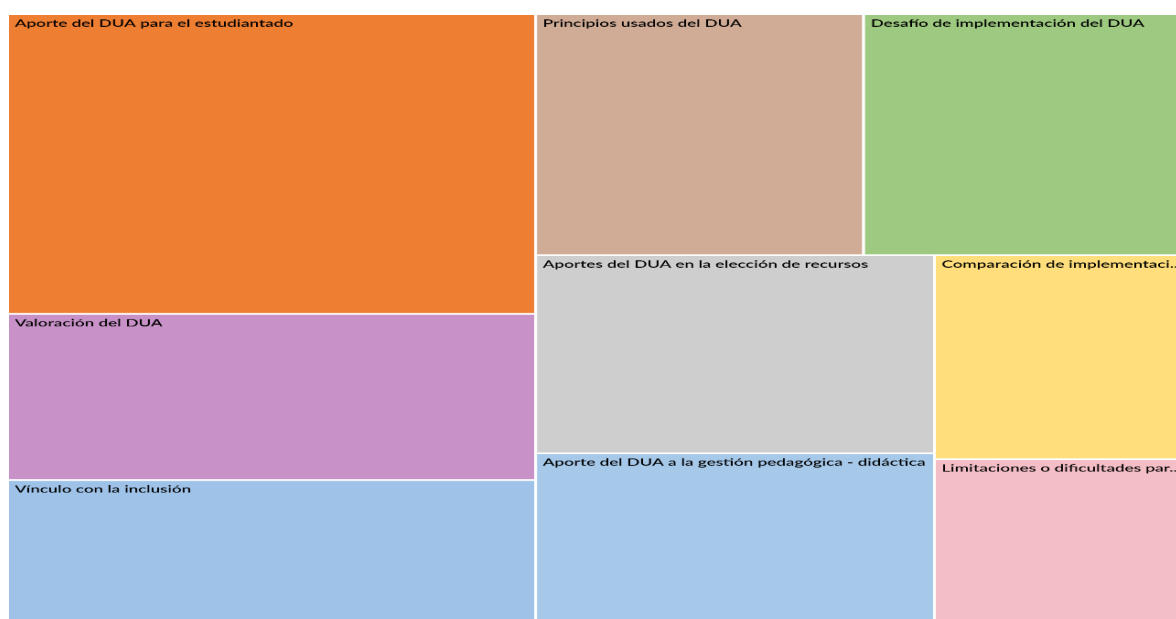
<b>Teachers in training</b>	<b>Percentage of achievement (%)</b>
PF03	50,0%
PF04	66,6%
PF06	66,6%
PF05	66,6%
PF02	66,6%
PF01	83,3%

The results indicate that most of the trainee teachers performed well, with achievement percentages ranging from 50% to 83.3%. However, it is important to note that 70% of the participants answered questions related to Decree 83 incorrectly, suggesting a lack of understanding or familiarity with this regulatory framework. Additionally, it was observed that the students faced difficulties in responding correctly to the items related to the knowledge of the UDL guidelines, obtaining a margin of error of 57%. This indicates that these questions were challenging for students and additional review or reinforcement is needed on topics related to Decree 83 and the UDL guidelines.

Subsequently, a longitudinal follow-up was conducted with the same 6 trainee teachers during their fourth year of training. In this context, a focus group was organized in order to obtain their opinions on the topics covered in the diversity and inclusion course. According to the findings of the focus group, several thematic categories were identified and are presented in Figure 1. This hierarchical map shows the predominant tendency of certain categories in relation to others, which makes it possible to visualize the areas of greatest interest and the concerns of trainee teachers regarding inclusion and the application of the UDL in their educational practices.

**Figure 1**

*Hierarchical map of categories, according to their appearance in the textual corpus of the focus group*



Source. Extracted from Nvivo.

Table 5 provides and details outstanding elements mentioned by the trainee teachers by categories, the order of appearance of the categories in the table is descending (according to their appearance in the textual corpus).

**Table 5**

*Elements highlighted by trainee teachers according to categories*

Categories Highlights	
UDL contribution to the student body	The UDL is a powerful tool for fostering inclusion and effective learning for all students. By applying its principles, teaching can be tailored to meet the diversity of the student body, motivate students and provide multiple forms of participation and expression. This not only enhances the learning experience, but also ensures that all students, regardless of their abilities or special needs, have the opportunity to learn and participate in the educational environment.
UDL valuation	There is a highly positive assessment of the UDL by FP. They highlight their ability to include all students, address special educational needs, and improve accessibility and participation in the classroom. The implementation of the UDL encourages continuous reflection and improvement of pedagogical practices. Overall, the UDL is seen as an essential guide to achieve inclusive and personalized learning, benefiting the entire student community.
Principles used in the UDL	The UDL principles used by PF are fundamental to creating an inclusive and effective educational environment. The most mentioned by FP was that of representation, which ensures that information is presented in multiple ways, facilitating understanding for all students. Next, the principle of involvement ensures that students are motivated and engaged, which is crucial for their learning. Finally, the principle of expression allows students to show what they have learned in a variety of ways, adapted to their individual needs.

UDL implementation challenge	UDL implementation presents several significant challenges, including the additional planning and time required, the management of large groups, and the need for greater student engagement. In addition, inclusion of the entire student body is complicated by the tendency to plan for a generic student. Adapting traditional teaching methodologies to the UDL can also meet resistance, although openness to change can lead to improvements in learning. The UDL in the choice of
UDL's contributions to the choice of resources	resources contributes significantly to the creation of an inclusive and effective educational environment. By incorporating audiovisual materials, pictograms, and various forms of presentation and response, teachers can cater to the diversity of learning styles present in the classroom. In addition, attention to specific details in planning and the use of concrete and visual resources contribute to more accessible and engaging learning for the entire student body. The application of UDL in the choice of resources and teaching strategies is intrinsically linked to the promotion of an inclusive educational environment. By
Link to inclusion	considering and accommodating the diverse needs and learning styles of students, the UDL helps ensure that all students can participate and progress in the educational environment. The contributions of the UDL to pedagogical and didactic management are
Contribution of the UDL to didactic pedagogical management	significant and varied. By diversifying methods of presentation and assessment, tailoring lessons to different learning styles, promoting active participation and inclusion, and using games and dynamic activities, teachers can create a more inclusive and effective learning environment. The implementation of UDL in pedagogical practices is a dynamic process that evolves over time and is influenced by several factors, such as the time dedicated to
Comparison of implementation between pedagogical practices	the practice, the relationship with students, the availability of resources and the school context. The UDL facilitates more inclusive and effective teaching by adapting pedagogical strategies to the individual needs of students. However, their implementation may vary significantly depending on the conditions and resources available in each educational environment. PF were flexible and creative in overcoming the constraints and maximizing the benefits of UDL in education. The implementation of the UDL faces various limitations and challenges ranging from lack of material and financial resources to time constraints and resistance to change on the part of the teaching staff. Internet connectivity and student motivation are also critical factors that can influence the effectiveness of the UDL. Overcoming
Limitations or difficulties for UDL implementation	these limitations requires flexibility, creativity and a collaborative approach among all the actors involved in the educational process.

During the focus group, participants highlighted the UDL as a useful tool to promote inclusion and motivate students. In relation to the results presented in the previous table, it is observed that although the teachers in training recognize the UDL as an essential tool, they highlight the lack of time for its planning and the resistance to change in the educational institutions.

It was mentioned that the UDL encourages continuous reflection and improvement of pedagogical practices, being essential to achieve inclusive and personalized learning that benefits the entire student community. The principles of representation, involvement and expression were highlighted as fundamental to creating an inclusive and effective educational environment. Presenting information in multiple ways facilitates student understanding and motivation, is important for increasing student engagement and allows for diverse forms of expression, and adapts learning to individual needs.

The main challenges for UDL implementation are related to the fact that it requires additional planning and time, which can be an obstacle for teachers. In addition, managing large groups and securing student engagement were

mentioned as additional complications. Resistance to change on the part of the teaching staff was also highlighted as a significant obstacle. Despite these challenges, the UDL contributes significantly to the choice of resources and teaching strategies, promoting an inclusive educational environment by incorporating audiovisual materials and pictograms that cater to the diversity of learning styles. Internet connectivity and student motivation were also highlighted as critical factors that can influence the effectiveness of the UDL. In summary, the focus group highlighted the benefits of UDL for inclusion and effective learning, but also identified significant challenges in its implementation. The need for flexibility and creativity to overcome these limitations and maximize the benefits of UDL in the educational environment was emphasized.

## **Discussion and Conclusions**

The study has focused on identifying the main knowledge and limitations faced by trainee teachers when applying the UDL. The survey data and a focus group have made it possible to analyze the challenges that arise with respect to diversification in initial training. It should be noted that in the course of study, teachers in training have a superficial knowledge of the UDL, and need to strengthen their knowledge of the guidelines presented by the UDL.

These findings are consistent with Bravo- Mancero and Santos - Jiménez (2019), who argue that the effective implementation of UDL requires structural changes in teaching practices and a continuous commitment on the part of educators. To overcome these barriers, it is necessary for educational institutions to foster in-service training spaces and promote collaborative support among teachers. This will not only facilitate the adoption of the UDL, but will also contribute to the creation of a more inclusive educational environment. Ignorance of the UDL guidelines can translate into difficulties in designing inclusive strategies in the classroom. Therefore, it is essential that teacher training incorporates active methodologies that allow future teachers to experience the application of UDL in real scenarios. Strategies such as project-based learning or inclusive classroom observation can help reduce this gap (Blanco et al., 2018).

According to what was observed in the present sample, it can be mentioned that teachers in training have knowledge that can contribute to developing more inclusive classrooms. According to Muñoz and Gómez (2017) they should facilitate the learning of the totality of students, recognize diversity as a positive value. In addition to being flexible and changeable teachers, adapting to constantly changing needs, structures and people. Encourage autonomy, self-management and participation in their own teaching and learning process, as well as working in teams and using inclusive language consistent with the values of inclusion.

Specifically, in the focus group, it was found that the difficulty persists in the handling and knowledge of the UDL guidelines. Despite the fact that this group has already taken subjects related to diversity and inclusion within their curricula. In addition, there is a need for more knowledge about Decree 83. These teachers-in-training highlight the following: (a) the UDL as an essential tool to promote inclusion and learning; (b) the principles allow for flexibility in teaching to the interests and needs of the student body; (c) resources, strategies, methods of representation and evaluation can be selected. On the other hand, one of the biggest challenges

the most common reasons for this are the increased time involved in the planning process, group management when carrying out innovations, and resistance to change on the part of the teaching staff. This is related to the deficient tools and development of skills to respond to the diversity of students in the regular education classroom. This may be due, according to the literature, to an initial training that did not delve deeply into this area of enhancing skills to adequately address and respond to the totality of students. Also to an improvement that focuses on other aspects and not on responding to the characteristics, rhythms, styles and ways of learning of the students.

According to Sanchez-Gomez and Lopez (2020) with respect to planning, the support system should encompass the four components of the curriculum. Although most of the supports contemplated in the UDL focus on two of them (materials and methods), which refer to how and with what the content is taught, there are also relevant recommendations for objectives (such as graduation of difficulty levels) and assessment (various modalities of action and expression). Thus, although not in the same proportion, support is found for each component of the curriculum in all dimensions. According to Alba *et al.* (2014) each guideline, in addition to justifying its relevance to learning, provides recommendations on how to implement the corresponding principle. Many are already part of standard teaching practice, while others are innovative and highly beneficial in addressing the needs and interests of students, as well as removing barriers that many students encounter in accessing the curriculum. In order to install this type of innovative work strategy, it is necessary for schools and teachers to be aware of its benefits, such as greater involvement of the management team, improvement of the quality of education, better response to diversity, promoting relationships of respect and trust in which teachers share methodologies, favoring teacher development, etc. And this change so that the leadership team can facilitate the necessary space and time, encouraging this type of practices.

Despite the fact that current regulations promote inclusive classrooms, schools have not yet managed to generate substantial structural changes based on inclusion. In Chile, a series of milestones have been implemented that mark the transition from an integration approach to an inclusive education approach (Ramos, 2013). But, even so, the need to think and redesign education is evident.

UNESCO notes that inequalities and cultural fragmentation of the population have increased. "Social exclusion goes beyond poverty as it has to do with the absence of participation in society" (UNESCO, 2008, p. 5). In this way, it is the state that must take responsibility for attending to the different needs of the community and the country. And legislating to advance in educational terms is also one of its obligations "Although legislation alone does not ensure the success of educational inclusion, it is a very important aspect, since having it makes it possible to establish rights and responsibilities" (Blanco, 1999, p.13). For this reason, it is imperative to have, in the first instance, national policies that regulate education from an inclusive approach. Build decrees and laws that guide, train, invest and monitor schools to promote practices and modifications in their culture to address diversity. In this sense, the quality of education is not given by results, but by an education capable of responding to diversity so that each student achieves the maximum of his or her potential through an approach that values his or her differences and promotes the modification of homogenizing practices towards students.

On the other hand, there is a need to analyze the curriculum from the institutions that are training future teachers, i.e., Higher Education institutions, in order to enhance curriculum alignment, which “is the effort to achieve coherence between the declared, implemented and learned curriculum” (Volante, *et al.*, 2015, p. 97 cited in Perilla, 2018). In this regard, in 2006 Biggs put forward the idea of constructive alignment, whose purpose was to guarantee deep learning for all students participating in a teaching and learning process. This term arises as a response to the need to guarantee quality learning in contexts of high diversity, generated by the access of previously excluded social groups to the university. Constructive alignment “reduces the gap” (Biggs, 2006, p. 58), as it aims for the entire student body to achieve deep learning and develop their competencies.

In conclusion, this study reveals that although prospective teachers recognize the value of UDL in promoting inclusion and effective learning, their knowledge of specific UDL guidelines is limited. The results indicate that trainee teachers face challenges such as lack of time for planning and resistance to change in educational institutions. In addition, it highlights the need for more in-depth training in UDL so that educators can design effective inclusive strategies. To overcome these barriers, it is suggested that educational institutions foster spaces for in-service training and promote collaborative support among teachers, which would not only facilitate the adoption of the UDL, but also contribute to the creation of a more inclusive educational environment.

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**STUDY OF THE CAUSES OF JOB STRESS IN THE EARLY CHILDHOOD  
EDUCATION TEACHER**  
**ESTUDIO DE LAS CAUSAS DEL ESTRÉS LABORAL EN MAESTROS DE EDUCACIÓN  
INFANTIL**

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**ABSTRACT**

**Keywords:**

teacher, stress, well-being,  
educational quality, early childhood  
education

The study aims to analyse the ideal characteristics of Early Childhood Education teachers and how work stress can affect their pedagogical performance in private and state-subsidised schools. The aim is to identify the main stressors and their influence on the teaching work, as well as to determine if these conditions alter the competencies necessary at this educational stage. The research was carried out with a sample of 30 Early Childhood Education teachers, who shared their level of stress, emotions and sensations through both quantitative and qualitative questionnaires. The instruments used include the Maslach Burnout Inventory scale, composed of 22 items, to measure dissatisfaction, feelings, emotions and work stress. In addition, two questionnaires of our own design were used: one to identify the factors that generate the greatest stress and the other to evaluate the consequences of stress on teachers. The results show the presence of work-related stress in Early Childhood Education teachers, indicating that some stressors have a greater impact than others. It is concluded that a teacher under pressure, unmotivated and stressed has a negative impact on the work environment, which affects their ability to provide quality education and, ultimately, the integral development of students. This underscores the need to intervene in stress management to ensure a positive educational environment.

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**RESUMEN**

**Palabras clave:**

maestro, estrés, bienestar, calidad  
educativa, Educación Infantil

El estudio tiene como objetivo analizar las características ideales de los maestros de Educación Infantil y cómo el estrés laboral puede afectar a su desempeño pedagógico en centros privados y concertados. Se busca identificar los principales agentes estresores y su influencia en la labor docente, así como determinar si estas condiciones alteran las competencias necesarias en esta etapa educativa. La investigación se llevó a cabo con una muestra de 30 docentes de Educación Infantil, quienes compartieron su

nivel de estrés, emociones y sensaciones a través de cuestionarios tanto cuantitativos como cualitativos. Los instrumentos utilizados incluyen la escala Maslach Burnout Inventory, compuesta por 22 ítems, para medir la insatisfacción, los sentimientos, las emociones y el estrés laboral. Además, se emplearon dos cuestionarios de diseño propio: uno para identificar los factores que generan mayor estrés y otro para evaluar las consecuencias del estrés en los docentes. Los resultados evidencian la presencia de estrés laboral en los maestros de Educación Infantil, señalando que algunos agentes estresores tienen mayor impacto que otros. Se concluye que un docente bajo presión, desmotivado y estresado repercute negativamente en el ambiente laboral, lo que afecta su capacidad para proporcionar una educación de calidad y, en última instancia, el desarrollo integral de los estudiantes. Esto subraya la necesidad de intervenir en la gestión del estrés para garantizar un entorno educativo positivo.

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## **Introduction**

We could say that the teaching profession is a job that is socially undervalued, but highly demanding and demanding. All this work pays off thanks to what the teachers receive in return, the satisfaction of a job well done, whose recipients are the children, since they are the motivation for their work.

Private and charter schools, largely because of competition in enrollment, require teachers to give their professional and personal best. This maximum must be maintained for at least one academic year, carrying a sustained workload (mental and physical) over time. This workload, which is sometimes excessive, can lead to work-related stress. We found many studies on stress in teachers working in public, charter and private schools, but linked to primary and especially secondary schools, as argued by Silvero (2007). These studies analyze the negative effects of stress and how it has a direct impact on the classroom, and therefore on the quality of education. But a big gap has been found related to the stress that teachers may suffer in the preschool stage, and there is no mention of the importance of trying, at least, to reduce stress in the Early Childhood Education cycles, nor the justification for doing so. This stage will mark the little ones throughout their lives (Fulghum, 1986), and many professionals such as neuropsychologists, educators and also teachers, share this reflection, being the period from 0 to 6 years of age the basis of the personality of future adults.

The term burnout syndrome or “burned-out professional” is already heard in our society and is closely related to stress, fatigue and job dissatisfaction, and this can only have negative consequences. “A stressed society lacks periods of tranquility and serenity. If there are many constant tensions, states of exhaustion are triggered” (Fueguet and Montoliu, 2005, p. 16). That is to say, if we are working under fast, frenetic rhythms, with little pause, reflection, and without moments of tranquility, we will be irremediably doomed to stress, to work stress, since it takes place at work, and can lead to physical and mental fatigue.

Defining the requirements of an early childhood teacher is a complex task, since it involves an infinite number of characteristics and nuances, some of which are not entirely agreed upon. The teacher of the 21st century must combine pedagogy with the human, with the socio-affective, with knowing how to accompany. You cannot be a good teacher if you do not possess socio-affective and attitudinal skills in Early Childhood Education, even if you are good pedagogically speaking. Only a teacher who generates confidence will ensure that his students can learn content and knowledge, as well as social and personal skills and competencies, as pointed out by Mínguez (2016, p. 251): We believe that teacher training should not only focus on its professional dimension (competent in pedagogical knowledge), but also on its relational dimension, to go out to meet the student as a person and help him/her to build his/her identity through a cordial relationality. While the teacher is a generator of trust, he/she will contribute to the student's trust in his/her teachings, serving as an indispensable support to guide him/her in his/her personal construction process.

According to Gervilla (2006, p. 21) this idea is supported by organizations such as UNESCO, which “considers nursery schools as centers for child development and education, since the basic purpose of nursery schools should be to facilitate the development of the child's personality”.

## **Stressors**

According to Couso (2023, p. 143) one might ask, biologically speaking, “what makes the difference between good stress and bad stress? The time of exposure to cortisol amounts, is one of the variables that determine its classification.” And the amount of cortisol (a term currently widespread in the field of scientific dissemination) generated by each individual also depends on the individual, not everyone reacts in the same way to stressful situations. Following Couso (2023):

“what for me may be a healthy challenge, for you may even be a cause for illness. We do not have the same brains and, therefore, our perception of the environment around us is not the same either. Toxic stress leads to our immune system not reacting in the best way to potential threats and disease is more likely than if we had not been stressed.

To quantify the degree of stress and diagnose teachers with this syndrome, the Maslach Burnout Inventory (MBI) (1997) was developed, whose document is a “questionnaire composed of 22 items divided into the three dimensions of work stress: emotional exhaustion, depersonalization and personal fulfillment” (Rodríguez et al., 2017, p. 49), and according to the results, one can speak of low, medium or high level of stress (burnout syndrome).

The following is an analysis of the different agents that stress teachers in Early Childhood Education:

1. High number of students per classroom: the number of students per classroom in Pre-school Education in Spain varies depending on the autonomous communities, but the number usually ranges between 23 and 25 students maximum. Many times having these numbers in the classroom, even though it is within the law, is quite a high number, especially in the first year of the second cycle of kindergarten.
2. Disruptive student behaviors: according to Holmes (2014) many teachers have to deal with persistent misbehavior of their students; it is evidence of the disconnection of many of them from the environment in which they find themselves.
3. Tutoring with parents: tutoring with parents can sometimes generate some tension or stress for the teacher, especially if there are sensitive issues to deal with and the parents do not show a collaborative attitude. Here the teacher may encounter an obstacle when developing his work since the collaboration of families is fundamental (Holmes, 2014, p. 78).
4. Generate resources continuously: sometimes in private and subsidized centers there is a need to create eye-catching activities to advertise as an educational center in social networks and for parental compliance. This forces teachers to create material, increasing their workload and thinking about sometimes complex activities. This would be excellent if the purpose were solely for the children's learning and enjoyment, and not to satisfy the needs of parents and the school as a recruiter of future students.
5. Lack of human (support staff) and material resources: “Sometimes teachers are asked to do things that are impossible to achieve with the resources they have” (Fueguel and Montoliu, 2005, p. 9). These resources may be material or human. The former are tremendously important, but the latter are essential. “If we are able to balance the demands of the environment with the resources that are available to us, then we will have balanced stressors and responses. Otherwise there would be an imbalance between stressors and resources” (Fueguel and Montoliu, 2005, p. 20).
6. Excessive unnecessary bureaucracy. Administrative work: Holmes (2014)

talks about the fact that in teaching there are peripheral tasks that are not part of pedagogy, in which administrative work is present. It is true that there is mandatory documentation, but there is other documentation that is secondary, and it is added documentation from the private or subsidized center.

The objectives of this research work will be listed below:

1. Verify if there is stress in the Early Childhood Education stages.
2. To detect the factors that most stress early childhood teachers.
3. Identify the consequences of stress on the teacher's pedagogical work and educational quality.

## **Method**

In order to carry out the research study, due to the nature of the data, a quantitative and qualitative study methodology was selected. To detail the quantitative numerical part, it will be shown with graphs and percentage tables.

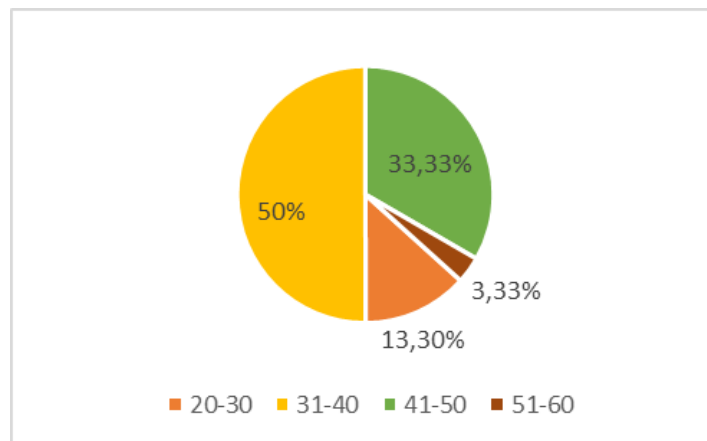
Questionnaire 1, corresponding to the age and sex of the participants, will be visualized with pie charts and their corresponding percentages. In questionnaire 2, corresponding to the Maslach Inventory test for detecting work-related stress linked to Burnout syndrome, the results have been extracted from the quantitative table stipulated in the test itself by adding up all the answers corresponding to the three subscales: fatigue/emotional exhaustion, depersonalization and personal fulfillment. In questionnaires 3 and 4, corresponding to stressors and the impact of stress on teachers and on educational quality. The qualitative part details more precisely, according to the lexicon used, the emotions and feelings of teachers in first-person work stress situations. For this purpose, an analysis was made at the semantic level, and the different adjectives with a negative charge of teaching stress were mainly analyzed.

The research, according to its orientation, is mainly focused on conclusions and decision making, under the socio-critical paradigm, whose objective is reflection and identification of key points to promote change.

## **Sample**

This is an educational participatory field research, whose participants have collaborated on a voluntary basis and whose anonymity has been completely preserved. In total there are 30 Early Childhood Education teachers, belonging to 8 private and subsidized centers in Asturias.

**Figure 1**  
Percentage by age



As we can see in Figure 1 regarding age, teaching staff between 31 and 40 years of age predominates with 50% of the participants, 33.3% corresponding to ages between 41 and 50, 13.3% between 20 and 30 years, and 3.4% between 51 and 60 years, with the range of over 61 years being absent.

In terms of gender, we observed a striking 100% of female early childhood education teachers, with a complete absence of the male gender in the participating sample.

### ***Instrument***

The instrument chosen was a questionnaire consisting of 5 blocks:

- In the first block, questions of a personal nature about the respondents' sex and age.
- The second block is a quantitative Likert-type questionnaire with scale 6, corresponding to the Maslach Burnout Inventory scale, with 22 items, to calculate the degree of dissatisfaction, feelings, emotions and stress in Early Childhood Education teachers.
- The third block is a quantitative Likert-type questionnaire with a scale of 5 with 13 items on the degree of stressors, the objective being to detect which stressors generate the most stress. This questionnaire is of our own creation since we have observed a gap in the cataloguing of stressors in the stage we are dealing with.
- The fourth block is a quantitative Likert-type questionnaire with a scale of 3 with 14 items, to measure the consequences of stress on the teacher and on educational quality, the latter also of our own creation.

To these quantitative blocks, a qualitative open-ended question has been added, in the form of an interview, whose objective is to allow teachers to freely express their emotions, explain their daily work reality, and thus analyze the vocabulary used in their answers. Therefore, a combination of quantitative and qualitative techniques was used.

### ***Procedure***

To initiate the study, each of the selected centers was contacted directly to inform the person in charge (director or coordinator of infant education) of the objectives of the research. To complete the questionnaire, they were provided with a link to the *Google Forms* questionnaire for early childhood teachers (google.com), which explained the procedure, its voluntary and strictly anonymous nature, and that the data would be used

exclusively for work on stress and educational quality.

## Results

The results of the quantitative and qualitative research will be presented below. The following table corresponds to the reference values of the Maslach test (1997) corresponding to questionnaire 2, to measure the degree of stress in each of the subscales.

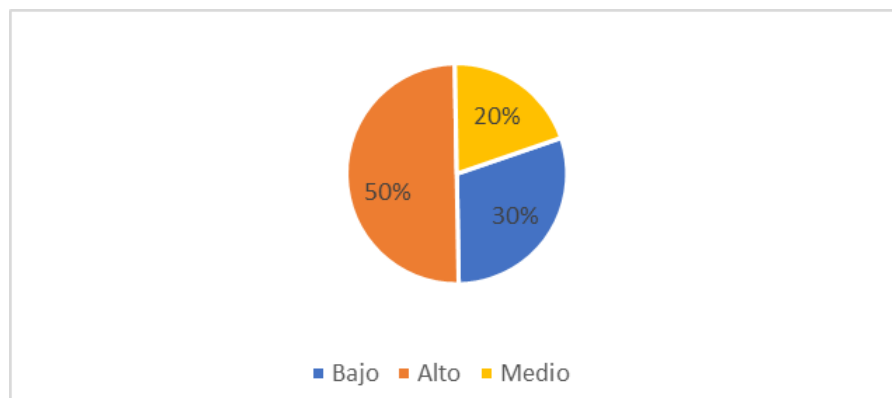
**Table 1**  
*Maslach Burnout Inventory Subscales Reference Values*

	Low Medium High		
<i>Emotional fatigue: Appreciates the experience of being exhausted emotionally due to the demands of the job</i>	0-18 19-26 27-54*		
<i>Depersonalization: Assesses the degree to which each recognizes attitudes of coldness and aloofness</i>	0-5 6-9 10-30* 0-5 6-9 10-30* 0-5 6-9 10-30* 0-5 6-9 10-30		
<i>Personal realization: Evaluates the feelings of self-efficiency and self-fulfillment at work.</i>	0-33*	34-39	40-56

*Note. (\*) Burnout Syndrome Symptoms*

The questions in the Maslach Burnout Inventory test of the emotional exhaustion subscale correspond to numbers 1, 2, 3, 6, 8, 13,14, 16, 20. As can be seen in Figure 4, 50% of the participants suffer from high emotional fatigue, 20% from medium and 30% from low.

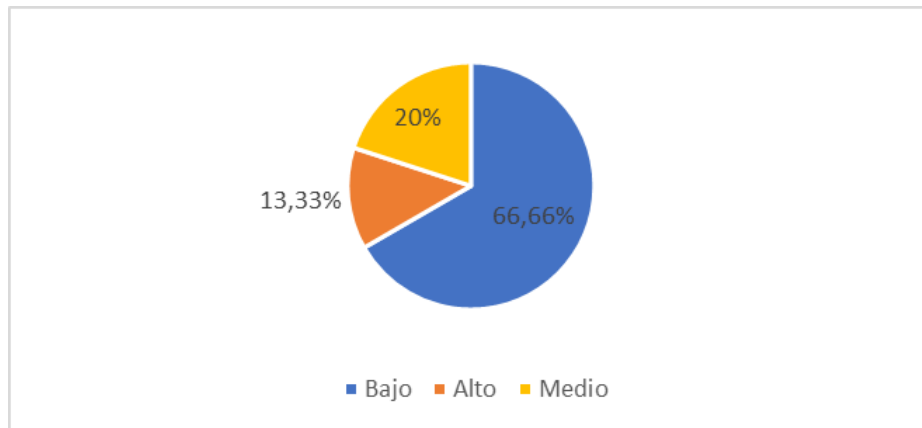
**Figure 2**  
*Emotional exhaustion subscale*



The questions in the Maslach Burnout Inventory test of the depersonalization subscale correspond to numbers 5, 10, 11, 15, 22. According to Figure 5 we observe that 66.66% feel a low level of depersonalization, 20% medium and 13.33% high.

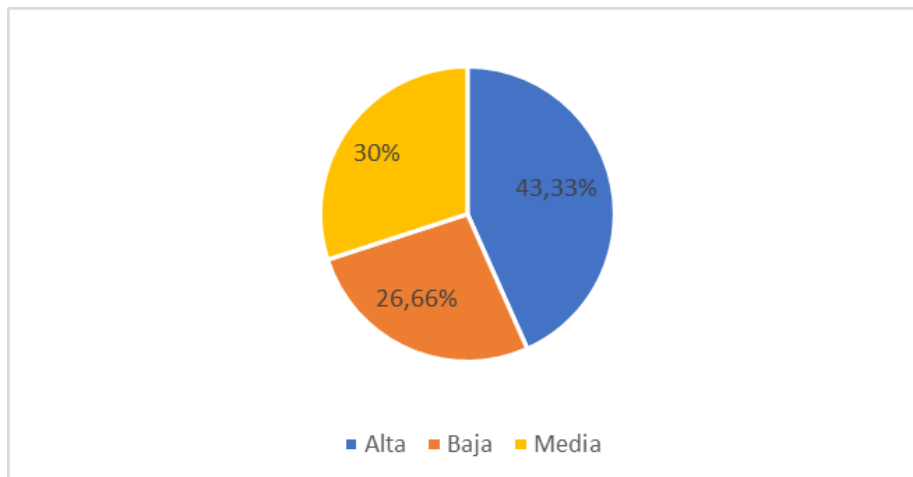


**Figure 3**  
*Depersonalization subscale*



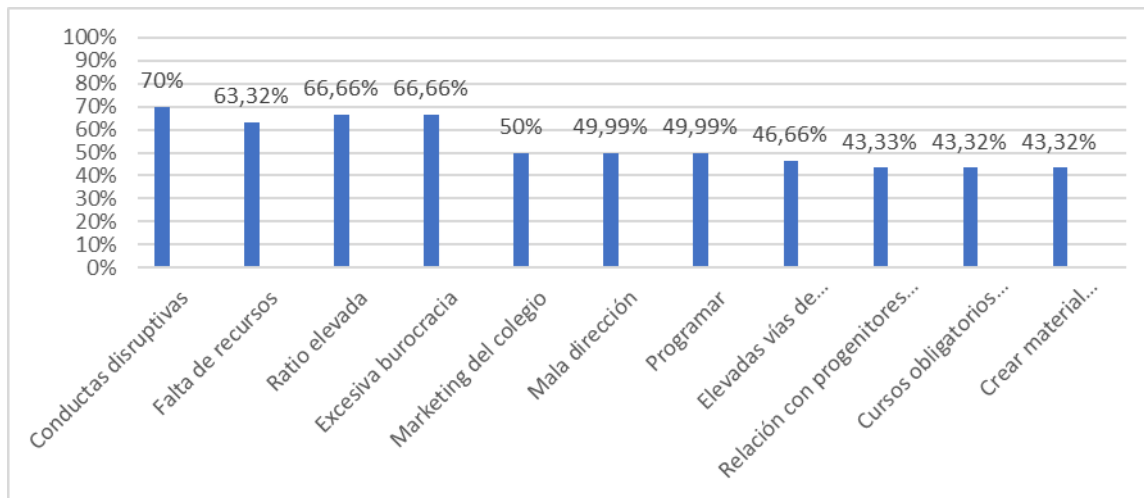
The questions of the self-realization subscale correspond to numbers 4, 7, 9, 12, 17, 18, 19, 21. According to Figure 6, 26.66% have a low perception of their personal fulfillment, 30% have a medium perception and 43.33% have a high perception.

**Figure 4**  
*Self-fulfillment subscale*



Next, the third questionnaire on the factors that most stress Early Childhood Education teachers will be analyzed.

**Figure 5**  
*Intensity 4 and 5 stressors*



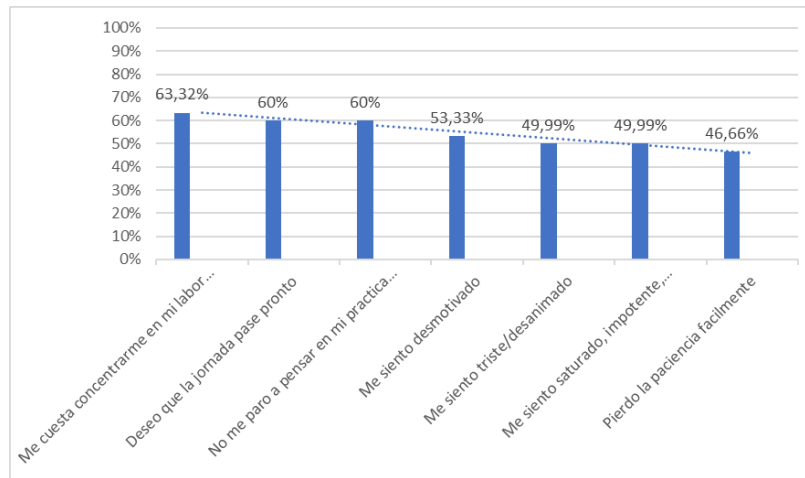
We observe in Figure 5 and more explicitly in Table 2, that the most stressful agents according to the stress values interpreted as high or quite high (4 and 5), are the disruptive behaviors of children (70%), lack of resources (63.32%), high ratio and excessive bureaucracy (66.66% both). This is followed by pressure from school marketing (50%), lack of empathy from management (49.99%), scheduling (49.99%), high communication channels (46.66%), relationship with students' parents (43.33%), unnecessary compulsory courses and constantly creating material (both 43.32%).

**Table 2**  
*Stressor Questionnaire (1 low intensity, 5 very high)*

ITEMS	1	2	3	4	5
1.High ratio in the classroom 53.33%		13,33%	6.66%	13.33%	13.33%
2.Schedule weekly, quarterly and annually	-	20%	30%	26.66%	23.33%
3.Constantly creating materials	6.66%	33.33%	16.66%	16.66%	26.66%
4.Disruptive behaviors of students	-	13.33%	16.66%	40%	30%
5.Relationships/mentoring with parents	3.33%	26.66%	26.66%	23.33%	20%
6.Poor management from coordination	16.66%	13.33%	33.33%	20%	16.66%
7.Poor relationship with colleagues	30%	20%	10%	16.66%	23.33%
8. Little empathy from management 16.66%		16.66%	13.33%	20%	33.33%
9. High number of Communications 23.33%	10%	23.33%	20%	23.33%	
10. Marketing of the school	10%	26.66%	13.33%	20%	30%
11. Lack of human and/or material resources 36.66%		13.33%	13.33%	10%	26.66%
12. Completion of mandatory courses unproductive courses at the center	6.66%	26.66%	23.33%	16.66%	26.66%
13.Excessive unnecessary bureaucracy	3.33%	16.66%	13.33%	36.66%	30%

Figure 6 below shows the results of the fourth questionnaire corresponding to the impact of stress on teachers and on educational quality.

**Figure 6**  
*Impact of stress on teachers and educational quality*



Observing Figure 6 and more explicitly Table 3 of percentages, and taking into account the sum of values 2 and 3 corresponding to “often” and “always”, we analyze that when teachers feel stress at work it is difficult for them to concentrate on their teaching (63.32%), they want the day to pass quickly, they do not stop to reflect on their teaching practice (both 60%), and they feel unmotivated (53.33%). This is followed by feeling saturation, helplessness and frustration, feeling sad and/or discouraged (both with 49.99%), losing patience easily (46.66%).

**Table 3**  
*Implications for teaching and educational quality*

When I feel stress at work.... 0: No, never 1: Very few times 2: Often 3: Yes, always				
ITEMS 0 1 2 3				
1.I find it hard to concentrate on my pedagogical work	3.33%	33.33%	46.66%	16.66%
2.I feel unmotivated	20%	26.66%	23.33%	30%
3.I am not interested in continuing my education	20%	50%	13.33%	16.66%
4.I don't observe my students as closely	26.66%	40%	13.33%	20%
5.I wish that the day would pass soon	13.33%	26.66%	20%	40%
6.I only do what is strictly obligatory, deju unfinished tasks	30%	33.33%	10%	26.66%
7.I easily lose patience	26.66%	26.66%	30%	16.66%
8.I feel sad and/or discouraged	20%	30%	33.33%	16.66%
9.I find it difficult to regulate myself emotionally	23.33%	43.33%	26.66%	13.33%
10.I tend to get angry and raise my voice	13.33%	56.66%	13.33%	16.66%
11.I feel saturated, helpless and/or frustrated	20%	30%	33.33%	16.66%
12. In my free time I don't stop to reflect about my work and I want to disconnect	23.33%	16.66%	30%	30%
13.I lose interest in creating new resources	33.33%	30%	20%	16.66%
14. Project drawings or songs for the students and so on have a moment of rest	40%	36.66%	13.33%	10%

We will now proceed to analyze the qualitative research data, observing the lexicon used by the participants, which provides us with very valuable information. The responses to the request "Describe how you feel at work under punctual and/or prolonged stressful situations over time", were:

- I feel bad because I tend to take the stress/bad environment situation into my personal life. This makes it impossible for me to disconnect from the work environment and I keep thinking about it.
- Exhausted
- Frustrated and powerless. I feel that I am unable to perform the work that I chose as a vocation, and that I still enjoy, usually for reasons unrelated to the actual work of teaching. That is, stress is almost always caused by tasks that have nothing to do with children's development, which prevents us from enjoying and learning together in the classroom.
- Tired, frustrated, unmotivated
- I feel that the work we do is not valued by families and society in general, which leads to demotivation on many occasions
- Sad, but the students help me not to think.
- I disconnect and in the end I don't give my 100%, I just do things to get by
- Exhausted, I lose confidence in my abilities. I think I'm in the wrong profession
- I believe that when we are under stress we do not contribute to the personal team functioning as it should.
- Not answered
- I feel anguish
- When I am more stressed, I tend to lose my patience more easily
- Unmotivated
- It makes you feel that you do not reach the children as they deserve because it is important to keep in mind that we must have a flexible schedule to attend to the little things that come up, problems, spontaneous centers of interest... if we cannot attend to these things because of a schedule, it personally frustrates you because you cannot reach them.
- I try not to let it influence my teaching practice, trying to separate that stress and leave it in the background, prioritizing and focusing on the students, although it is not always easy.
- Unmotivated, very tired and sad about what the classes could be and are not. There are times when no matter how hard you try, depending on the degree of stress, you can't give more of yourself.
- I feel quite frustrated. In general, I think that I do not have the necessary skills to tackle this job. That I lack patience and emotional management, above all.
- When it is prolonged, I think about changing profession. Sometimes it is a very frustrating job that generates a lot of stress.
- Unmotivated and often going against my principles and my vision of education.
- One-time stress is more easily managed. I have not suffered it as a teacher, but I have suffered it before and the one that really deteriorates you is the one that is suffered continuously over time.
- I feel like I can't give any more of myself. Sometimes I think I would be better off in a cupcake factory and my job would be every 24th cupcake a bag. No worries outside of work, no chores at home, no family to deal with...

- I feel bad and try to forget about it.
- Lack of professional projection, lack of resources and lack of time to prepare resources and plan, lack of professional training are the causes of demotivation and burnout.
- I think it is important to have the resources to self-manage stress, get the necessary rest and enjoy the day-to-day work.
- With demotivation, discouragement and fatigue.
- Anxiety.
- I feel very proud of the work I do, although sometimes the workload is very high.
- Overwhelmed, unwilling, just to get through the day.

Therefore, the results reveal that, in the group of female teachers of Early Childhood Education in public and private schools of traditional education, the female gender is predominant and their ages range mainly between 31 and 40 years old. Analyzing the Maslach test data, stress does exist in the Early Childhood Education teaching profession. Fifty percent of the participants suffer from high emotional fatigue, 20% from medium and 30% from low. A 66.66% feel a low level of depersonalization, 20% medium and 13.33% high, which indicates that teachers are sensitive in their work and try to overcome difficulties and emotional fatigue. This would go along with 43.33% high on the personal fulfillment subscale, they consider their work important and are useful in their work, followed by 30% of medium personal fulfillment and 26.66% who have a low view of themselves and their worth. From this we interpret that teaching is vocational, that teachers generally believe in their work and its positive effects, but that there is an emotional exhaustion that prevents them from performing their work in a totally satisfactory manner.

These data verify the first hypothesis of the present study in which early childhood education teachers suffer job stress. There is stress in all subscales, with emotional exhaustion being predominant.

The second questionnaire is related to the second objective and hypothesis of the research work, since the stressors and their intensity have been detected. According to the percentages analyzed above, what most stresses the infant teacher are the disruptive behaviors of children (70%), the lack of resources (63.32%), the high ratio and excessive bureaucracy (66.66% both). This is followed by pressure from school marketing (50%), lack of empathy from management (49.99%), scheduling (49.99%), high communication channels (46.66%), relationship with students' parents (43.33%), unnecessary compulsory courses and constantly creating material (both 43.32%). But it does not mean that the other items present in the questionnaire do not stress, they stress, but with less intensity, and the sum of all the agents makes the stress level higher.

The third questionnaire allows us to affirm the third hypothesis of the study: the greater the stress, the worse the teaching and the lower the quality of education. Stressed teachers find it difficult to concentrate on their pedagogical work (63.32%), they want the day to pass quickly without stopping to reflect on their teaching practice (both 60%), and they feel demotivated (53.33%). This is followed by feeling saturation, helplessness and frustration, feeling sad and/or discouraged (both with 49.99%), losing patience easily (46.66%).

Qualitative analysis is much more explicit than quantitative analysis, and reading the teachers' own sentences inevitably brings us closer to reality than simply analyzing percentages. This qualitative question could be considered tremendously revealing. When reading the sentences, it is observed that the teacher frees himself, expresses himself and feels the stress and anguish he may be experiencing. Quantitative analysis

could be considered unemotional, since its analysis is merely numbers, and there can always be small subjective nuances between scales, depending on how the participant interprets it. But the qualitative analysis is forceful, warm, expressive and emotional, and also between the lines it can be observed that teachers are grateful for this place to express themselves, to tell how they feel, without being able to communicate it in their workplaces, in private or charter schools. We analyzed that, when asked to "Describe how you feel at work under situations of punctual and/or prolonged stress", a large number of adjectives are frequently repeated related to work fatigue: I feel bad, exhausted, frustrated, powerless, unmotivated, sad, distressed, tired, or nouns such as demotivation, discouragement, anxiety. Others try to express themselves with phrases and give alternatives, what is perceived is that they want to enjoy the profession, but there are agents who do not allow them to do so. They argue that, with the stress, the teaching team does not work, they just want the day to end and that they do their teaching to get by, with some considering leaving the profession. Many think of the classroom as one block, teacher and children, and emphasize that children deserve better quality education. Stress does not allow them to enjoy the teaching process either, they often feel overwhelmed, and although children can sometimes help, they obviously do not eliminate the stressors.

## **Discussion and Conclusions**

Therefore, according to the data analyzed, and relating them to the objectives of this research, it can be affirmed once again that there is work stress in Early Childhood Education teachers, that some stressors are more powerful than others, and that a teacher who feels pressure, stress and dissatisfaction in his or her job can, to a greater or lesser extent:

- Not feeling motivated to continue training in their profession.
- Have difficulties in scheduling correctly and concentrating on organizing the learning program.
- To be satisfied with the existing material due to lack of enthusiasm and not to create new resources that motivate their students.
- Inattention to student processes and behaviors and lack of observation.
- Failure to engage in reflective practice about their work as teachers.
- Not delving into their reactions and emotions, allowing themselves to become confused and despondent.
- Engaging in inappropriate behavior with students, peers and parents.
- Failure to be patient and respect the developmental rhythms of each child.
- Presenting moods that are not suitable for being present in a classroom: sadness, despair, anger, etc.
- Lack of emotional self-regulation.

All that has been argued is in line with the lines emphasized by Holmes (2014) throughout this research initiation work with respect to teacher stress. This study has been characterized by finding a certain bibliographic gap when it comes to establishing the theoretical framework, relating stress and infant stages in private or subsidized centers. We wanted to give a voice to early childhood education teachers, especially with the qualitative question, so that as a result of the results, which are conclusive and have a clear interpretation, the educational community will question a change, to improve the welfare of their students, that of teachers, and visibly improve the quality of education. This work also stands out because it justifies the importance of minimizing the stressors,

many unnecessary, to which an early childhood teacher may be exposed. Because the teacher can, almost without realizing it, become burned out (Fueguel and Montoliu, 2005) and seriously damage his or her pedagogical work. From the results of the data extracted, stress and emotional exhaustion is an aspect that is seen and felt, but the system does not stop to think about it.

The consequences of stress are in total contradiction with the competencies of the teaching dimension, both professional and attitudinal and socio-affective, both argued in the theoretical framework, that a teacher of Early Childhood Education should possess and therefore it is not possible to exercise the teaching profession in a highly professional manner, entering in decline the educational quality.

A teacher must be surrounded by a certain well-being and feel satisfaction in his work (Pedreira, 2017), only with positivity and enthusiasm will he also be able to achieve this pedagogical tact (Vanen, 1998) and put it into practice with his students.

Throughout this research we have found stressors that are part of the teaching action and those added stressors that are not part of it, both with high stress values. The question is the following: "Isn't the postmodern school then contributing to an increase in teacher discomfort?" (Lesme, 2011, p. 52). Another question, no less intelligent that can be posed, instead of looking for culprits, looking for solutions, generating some hope and encouragement for improvement, could be will the school be able to keep out the new epidemic of the 21st century (Rodríguez et al., 2017), i.e., work stress?

With these questions and the present research, we are not trying to create on paper idyllic, stress-free schools where there are no problems or conflicts. Stress is a part of life, but a healthy balance must be found for the teacher and for the children, with the difficulties inherent to the profession, but not added unnecessarily. As mentioned, this research work, according to its orientation, is mainly focused on conclusions and decision making, under the socio-critical paradigm, whose objective is to reflect and identify the key points to promote change. The data extracted, as already mentioned, lead to a clear and objective conclusion. It is necessary to make a reflection, not only for teachers on their educational practice, but also at the level of the educational community, on where our classrooms are going. The errors have already been identified through the present study, now the work is a field work aimed at improvement. An exhaustive work of those centers that are interested in improving their educational quality, which is the ultimate consequence of the teacher's welfare.

In this research on early childhood teachers and their teaching work diminished due to stress, difficulties have been encountered in obtaining a significant sample for the study, perhaps because teachers are short of time, in view of the end of the school year. Undoubtedly, the research has been tremendously enriching, since, as previously mentioned, there was a certain gap in the Early Childhood Education stage, relating teachers to work stress. As mentioned at the beginning of this study, different lines of research can be extracted, such as making a comparison between stress in early childhood teachers in public centers and teachers in private/contracted centers. It would be interesting to contrast whether the stressors are the same or, on the contrary, some are more stressful than others. It would also be interesting to investigate whether stressors affect males and females in the same way. In this case, according to the sample, the participants were only female. Another open line would be the differences in terms of teaching stress between traditional teaching centers and active pedagogy centers.

Once again, it should be emphasized that it has been considered vital to vindicate the importance of feeling well in order to be a good teacher. The change, the solutions, the tools to alleviate these work stressors must, as has been said, come from each center,

individually, actively listening to their teachers, with a deep dialogue and thus be able to offer in their program a true educational quality.

Caring for the caregiver who cares, who teaches, who helps and who accompanies. In these terms, without falling into paternalism, it would have to deepen the educational system and therefore make schools in general, and private and charter schools in particular, at the Early Childhood Education levels, centers of education and welfare.

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**ENGAGEMENT AND PERCEIVED SELF-EFFICACY OF TEACHERS OF  
DENTISTRY COURSES IN CHILE**  
**NIVEL DE ENGAGEMENT Y DE AUTOEFICACIA PERCIBIDA POR LOS DOCENTES DE  
LAS CARRERAS DE ODONTOLOGÍA EN CHILE**

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**ABSTRACT**

**Keywords:**

engagement, teaching self-efficacy, dentistry, higher education.

Introduction. There is limited information on the level of engagement and the perceived teaching self-efficacy of tutors in Health Sciences programs in Chile, specifically those in the field of dentistry. The aim of this study is to identify the levels of engagement and perceived self-efficacy among dentistry educators in Chile. Methodology. A quantitative and descriptive study with a non-experimental design was conducted. The sample consisted of 285 educators selected through non-probabilistic convenience sampling. Three instruments were applied: a demographic questionnaire, the Utrecht Work Engagement Scale (UWES-17), and the University Teaching Self-Efficacy Scale (ESCADU). Results. The results indicated that educators exhibited moderate levels of engagement and self-efficacy. The Dedication and Vigor dimensions showed the highest engagement scores. Regarding self-efficacy, significant differences were observed in the dimensions of academic management and social responsibility, with higher scores for educators with postgraduate training. Discussion and Conclusions. These findings highlight the need to implement continuous teacher training programs to strengthen pedagogical skills and improve the quality of dental education. It is concluded that engagement and teaching self-efficacy are key factors for optimizing tutor performance and, consequently, enhancing student learning outcomes.

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**RESUMEN**

**Palabras clave:**

engagement, autoeficacia docente, odontología, educación superior.

Introducción. Existe escasa información acerca del nivel de engagement y la percepción de autoeficacia docente de los profesores que son tutores en las carreras de Ciencias de la Salud en Chile, específicamente de aquellos que pertenecen a la carrera de odontología. El objetivo de este estudio es identificar los niveles de engagement y autoeficacia percibida en docentes de odontología en Chile. Metodología. El estudio es de tipo descriptivo-transversal, con un diseño no experimental y una metodología cuantitativa. La muestra estuvo compuesta por 285 docentes seleccionados mediante muestreo no probabilístico por conveniencia. Se aplicaron tres instrumentos: un cuestionario demográfico, la Escala Utrecht de Engagement en el Trabajo (UWES-17) y la Escala de

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Autoeficacia del Docente Universitario (ESCADU). Resultados. Los resultados indicaron que los docentes presentan niveles moderados de engagement y autoeficacia. Las dimensiones dedicación y vigor mostraron los puntajes más altos de engagement. En cuanto a la autoeficacia, se observaron diferencias significativas en las dimensiones de gestión académica y responsabilidad social, siendo más altas en docentes con formación de posgrado. Discusión y Conclusiones. Estos hallazgos subrayan la necesidad de implementar programas de formación docente continua para fortalecer las competencias pedagógicas y mejorar la calidad de la enseñanza en odontología. Se concluye que el engagement y la autoeficacia docente son factores clave para optimizar el desempeño de los tutores y, por ende, el aprendizaje de los estudiantes.

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## Introduction

In the field of higher education, the quality of teaching is closely related to the training and competencies of the teaching staff. In health careers this relationship is more critical due to the complexity of the teaching processes that integrate theoretical knowledge with clinical skills.

The didactic training of teachers, has been recognized as a key factor in improving learning outcomes (García-Martínez & Martín-Romera, 2018). In the health area, educational institutions and regulatory bodies are increasingly interested in the continuing education of teachers, stressing the importance of having Departments of Medical Education that promote research, teaching and transferable continuing professional development, both for the undergraduate and graduate cycle (Fenoll-Brunet, 2021). Professional specialization is, however, the most relevant aspect when evaluating the curriculum of teacher applicants, to the detriment of pedagogical practice rather than pedagogical practice and research training.

At present, it is not known what the higher education qualifications of current dental teachers are. In general, older teachers occupy the highest academic positions, were trained under a traditional model of education, and teach in line with their own experiences as a student (Enriquez et al, 2021; Falcón-Torres and Mouré-Miró, 2020).

The practice of university teaching in health careers is substantially different from other areas of knowledge (Millán Núñez-Cortés, 2018; Orsini et al., 2019). Teaching and learning are focused not only on the students as the main actors in this process, but also on the patients and their health needs. The decision-making involved in a diagnosis or treatment is often defined without having the disciplinary training or considering the need for teaching competencies and skills required to be a clinical tutor (Fenoll-Brunet, 2021).

In Chile, dentistry is one of the health sciences careers with the greatest presence in higher education, being offered by 19 universities (Subsecretaría de Educación Superior, 2023). Despite the emphasis placed on learning based on clinical competencies, the strengthening of the teaching profession among those who work in these facilities is still in a process of construction and development.

La falta de estudios específicos que describan el *work engagement* y la autoeficacia percibida por los docentes de odontología en Chile, justifica la pertinencia de estudios actuales y futuras investigaciones para el desarrollo de programas de capacitación docente.

### **Conceptualization of Engagement**

Dental education has joined the concern for strengthening teacher training, highlighting the importance of motivation for training, both in the discipline itself and in pedagogical skills. A close link between student academic achievement, teaching quality and the overall performance of an educational system is recognized, and is related to teacher engagement and perceived self-efficacy (Gal et al., 2021).

Increasing work stress has been identified by the World Health Organization (WHO) as a potential “epidemic”, which generates a challenging environment for teachers and affects their well-being and productivity (Rodríguez et al., 2017). In this context, engagement emerges in the first decade of the 21st century as a protective element against burnout (Ávila Dávila et al., 2018).

Teacher training and educational quality have a direct impact on job stability, the level of *engagement* and self-efficacy of teachers, with repercussions on student academic performance (Zabalza, 2016). However, there is little research that explores these variables, particularly in health careers and, specifically, in dentistry.

In the workplace, *engagement* is defined as a positive and sustained motivational construct, characterized by energy, dedication and commitment to work (Bakker et al., 2012; Schaufeli et al., 2002). This state is associated with the perception of competence to respond to teaching demands, collaboration with the team and enjoyment of the work, thus favoring a positive attitude towards educational practice.

### ***Engagement in the Educational Context***

Organizations are increasingly recognizing people as their most valuable asset, focusing on the motivation, safety and well-being of their employees, especially on engagement. Educational institutions should not be oblivious to this new trend, as it has been demonstrated the relationship between the physical and psychological well-being of employees, as well as the economic and social performance of the institutions. Engagement, which implies vigor, dedication and absorption at work, contributes to the creation of healthy organizations, differentiating them from toxic ones. This approach represents a key challenge for positive organizational psychology, underlining the importance of the integral well-being of workers in order to achieve optimal professional performance.

The field of teaching has been recognized as a space of high vulnerability, where professionals have a greater propensity to experience emotional exhaustion in the exercise of their work. This phenomenon is considered a manifestation of stress related to the work environment. In addition, current educational approaches have increased teaching responsibilities, incorporating administrative tasks that can reduce collaboration among colleagues, which significantly contributes to the appearance of this state of burnout (Ordóñez-Balladares et al., 2021). Professional burnout syndrome or burnout syndrome (SB), appears when the demands of the environment exceed the individual's ability to handle them, leading to negative effects such as frequent change of teachers, resignations, non-compliance, absences due to illness and family problems, thus affecting the achievement of the objectives established by the organization. Several studies, such as Rodríguez et al., (2017), directly address the issue of job stress among teachers by showing that job stress and burnout affect teachers due to adverse working conditions and the high pressure they are subjected to on a daily basis in their educational institutions. It is mentioned that work-related stress is emerging as a significant concern for the 21st century, to the point of being considered by the World Health Organization as a potential "epidemic". This context creates a challenging environment for teachers, impacting their well-being and productivity (Rodríguez et al., 2017).

However, the concept of "engagement" is introduced as a mitigating factor against the risk of developing SB. Engagement is characterized by a high level of energy, mental stamina, enjoyment of work, and a deep connection to work activities, leading to a positive attitude towards work. This condition is described as a positive state of mind associated with work, which manifests itself through vigor, dedication, and absorption. Studies by Montoya and Moreno (2012) and Contreras (2015), cited by Ordóñez et al., in 2021, explore the concept of engagement and how it can act as a counterbalance to burnout among education professionals. They highlight how a high level of engagement and job satisfaction can improve resilience in the face of work pressures. Engagement is a state of

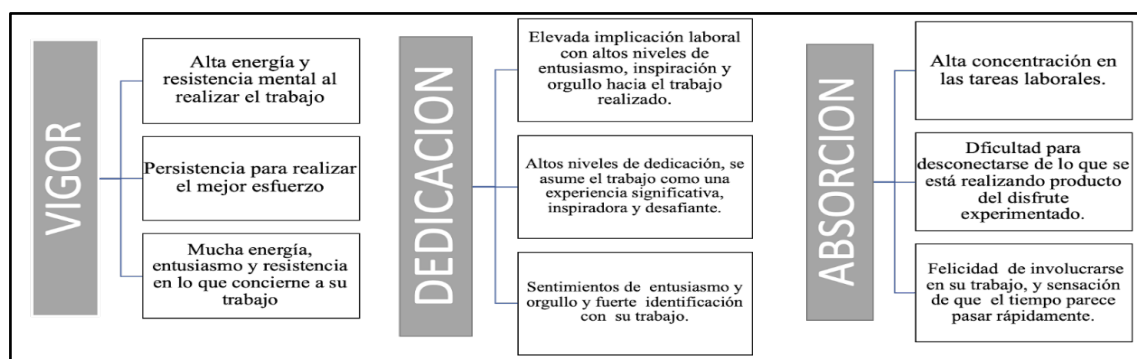
mind positively related to work and characterized by vigor, dedication and absorption. This study suggests that engagement not only protects against burnout, but also promotes greater well-being and productivity among teachers (Ordóñez et al., 2021). Also, the studies mentioned by Rodriguez et al. in 2017 provide a framework for understanding how work adversities affect teachers and highlight the importance of engagement as a protective factor. The implication is clear: educational institutions and policy makers should strive to improve teachers' working conditions and foster engagement to prevent burnout and its detrimental effects (Rodriguez et al., 2017).

Academic *engagement* represents a determining factor in the motivation to acquire or complement teacher training (Sarmiento Martínez et al., 2022). It has been proposed that its positive influence lies in the control of burnout and in the improvement of professional resilience, promoting well-being and increased productivity (Montoya and Moreno, 2012; Contreras, 2015; Ordóñez-Balladares et al., 2021). This confers a protective effect on them in the face of adversity in the workplace (Westphal et al., 2022).

Although there is no exact translation into English, *engagement* is conceived as a construct composed of three dimensions: vigor, dedication and absorption (Schaufeli and Bakker, 2004; Delgado-Abella, 2020).

**Figure 1**

*Dimensions of teacher engagement*



Notes:

own elaboration, extracted from Schaufeli and Bakker, 2003

### **Impact of Engagement in the Educational Environment**

Most research on *engagement* has focused on students and their academic performance, leaving aside the study of this concept as a motivational process that reinforces various aspects of teaching (Parra, 2017). However, the academic literature recognizes that *engagement* improves the well-being and job satisfaction of teachers, positively impacting their performance and teaching effectiveness.

Arriagada (2015) highlights the influence of seniority and academic rank in raising *engagement* levels, suggesting that experience and higher professional status could reinforce teaching commitment. On the other hand, stress at different educational levels is a latent problem (Alvites-Huamaní, 2019), aggravated by the demand for intellectual competencies and the intense emotional and affective load inherent to the teacher-student relationship (Bocanegra Rodríguez and Sánchez Ospina, 2021). In this context, it becomes necessary for the State and institutions to pay attention to the working conditions of teachers to promote the quality of education (Rodríguez et al., 2017).

Research indicates that teachers with a high level of *engagement* achieve higher levels of job satisfaction and a better identification with their work, showing greater

willingness to face new professional challenges and to opt for advanced academic training and/or training activities in teaching.

### ***Conceptualization of Teacher Self-Efficacy***

Teaching self-efficacy is defined by feelings of competence and personal efficacy, i.e., the ability to successfully perform a specific teaching task in a particular context. The self-efficacy theory attempts to demonstrate the influence of cognitive, behavioral, contextual and affective aspects of people in the world of work, using social learning as a frame of reference. It is based on the theory that self-referential thinking influences people's behavior and motivation (Cabanillas and Biancato, 2016; Prieto Navarro, 2016).

Teaching self-efficacy refers to the perception of personal competence and the ability to successfully perform teaching tasks in a specific context. Framed within social learning, this perspective considers the influence of cognitive, behavioral, contextual and affective factors in the workplace, highlighting how self-referent thinking impacts behavior and motivation (Cabanillas and Biancato, 2016; Prieto Navarro, 2016).

In education, Rodriguez (2017) highlights the relevance of self-efficacy in teachers' beliefs about their competencies to perform their work and obtain valuable achievements, always mediated by contextual factors. In summary, self-efficacy integrates interrelated beliefs that influence the regulation of thinking, motivation, and emotional and physiological states (Sarmiento Peralta, 2020).

### ***Self-efficacy in the Educational Context***

The concept of teacher self-efficacy emerged in the late 1970s, understood as teachers' confidence in their ability to positively influence student achievement (Covarrubias, 2014). Research indicates its importance in three key areas:

- Academic motivation and student achievement: experimental, longitudinal and causal studies show that self-efficacy beliefs influence motivation, self-regulation and academic performance of students (Avilés-Canché and Marbán, 2023).
- Career choice: how self-efficacy beliefs influence vocational decision making has been examined, highlighting its relevance in career counseling and career psychology (Romero et al., 2022).
- Teaching practice and academic success: teacher self-efficacy beliefs affect teaching method and student achievement, impacting pedagogical strategies and educational perspective (Del Río et al., 2018).

In relation to teaching style, it has been found that teachers with low self-efficacy tend to adopt a more authoritarian approach and rigid control, with a negative view of student motivation. On the contrary, those who present high self-efficacy generate dynamics that promote students' personal interests and self-regulation. Likewise, teacher self-efficacy acts as a predictor of both academic performance and students' beliefs about their own success in different educational areas and levels (Del Río et al., 2018; Milicic, 2017).

### ***Impact of Teacher Self-Efficacy in the Educational Context***

The teaching self-efficacy model focuses on the perceived abilities to successfully perform specific tasks in a given context, so that teachers see themselves as capable of delivering effective teaching that stimulates learning (Covarrubias and Mendoza, 2015). Thus, self-efficacy is conceived as a mediator between teachers' knowledge and their

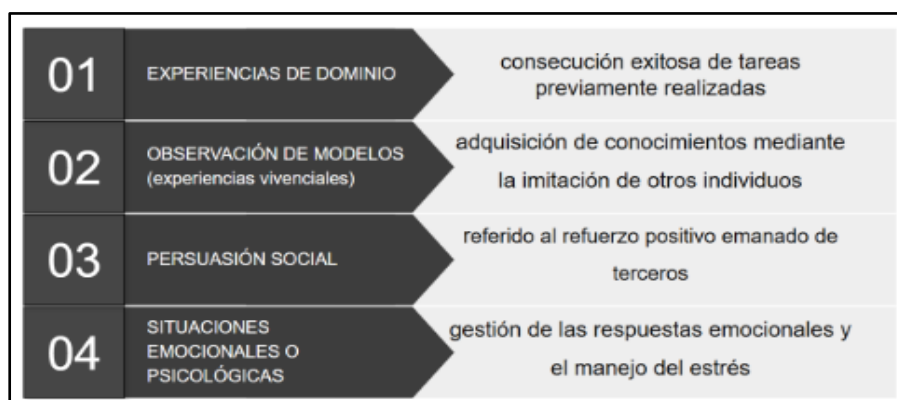
practices, implying that it is not enough to possess skills and abilities: it is essential that teachers have the conviction of their own potential in order to ensure quality education.

For more than three decades, studies have been developed that evidence how teachers' beliefs about their ability influence students' learning and motivation (Covarrubias and Mendoza, 2015). A high sense of self-efficacy is associated with greater dedication, persistence in the face of difficulties and a perspective of challenges as opportunities, which contrasts with those who present low self-efficacy and, consequently, tend to show less effort and perseverance (Zimmerman et al., 2005).

The relevance of self-efficacy in education can be seen in the influence it exerts on the choice of activities, the level of commitment and the overcoming of challenges. Thus, a teacher with high self-efficacy tends to use innovative teaching methods and to persevere in complicated situations, benefiting the learning of his or her students (Rodríguez-Rey and Cantero-García, 2020). Likewise, the study by Reaves and Cozzens (2018) highlights the importance of a safe and supportive classroom climate to enhance the teacher's intrinsic motivation and self-efficacy beliefs, favoring the implementation of effective pedagogical strategies and adequate classroom management (Reaves and Cozzens, 2018).

**Figure 2**

*Factors related to perceived self-efficacy*



Notes: Own elaboration, adapted from Schunk and DiBenedetto, 2021.

### **Objective of the Study**

To describe the demographic and academic profile, as well as the levels of *engagement* and perceived self-efficacy of dental teachers in Chile.

## **Method**

### **Research Design**

The present study is a descriptive cross-sectional research with a non-experimental design and a quantitative methodology.

### **Population and Sample**

Dental teachers who teach in the 16 faculties and schools of dentistry in Chile, belonging to the Council of Rectors of Chilean Universities (CRUCH) and members of the Chilean Association of Dental Education (ACHEO), were invited by means of an informed



consent form. Seventy-six percent of the universities that teach dentistry are part of ACHEO, and 91% of the students of this career are enrolled in them (CRUCH, 2024; ACHEO, 2024).

For data collection, the teachers of the careers were contacted and sent the questionnaire together with the informed consent form.

A sample of 285 teachers from both public and private universities was obtained. The sample was selected by non-probabilistic convenience sampling.

### ***Techniques and Instruments for Data Collection***

For the present study, IBM SPSS Statistics version 29 software was used to perform the statistical analyses. Several tests are applied in order to evaluate the distribution of the data and to determine the appropriate tests for the analysis of *engagement* and perceived self-efficacy in dental teachers in Chile.

The questionnaire to be used was confidential and has a coding system that allows the identification of gender, teacher training and years of teaching experience.

The data to be collected include: demographic aspects of interest for the development of the study; level of Engagement according to the Utrecht Engagement Scale (UWES-17): Utrecht Work Engagement Scale-Teachers) by Schaufeli and Bakker (2003): english version and Valdez and Ron (2011): Spanish version; level of perceived self-efficacy according to the university teacher self-efficacy scale (Escadu) validated by Sarmiento Peralta (2020).

In order to determine the most appropriate statistical procedure, an evaluation of the normality of the variables was carried out using the Kolmogorov-Smirnov test. This analysis made it possible to identify the distribution of the data and, consequently, to select the statistical test that best suited the characteristics of each variable. The results indicate that all dimensions of *engagement* and self-efficacy, both in men and women, present non-normal distributions. Therefore, the Mann-Whitney statistical test was used as the method of analysis to evaluate the differences in the variables according to gender (male and female).

Similarly, the Kolmogorov-Smirnov test revealed that the dimensions of *engagement* and self-efficacy, according to teaching experience and according to type of teacher training do not comply with normality ( $p \leq 0.05$ ). Therefore, the Kruskal-Wallis nonparametric test was used to compare the groups.

## **Results**

The results obtained allow us to identify the main characteristics of the participating teachers and to establish a solid basis for the analysis of *engagement* and perceived self-efficacy.

According to the normality test applied, the statistical results of engagement and perceived self-efficacy are analyzed according to gender, teaching experience and teacher training

The results show the main characteristics of the faculty in terms of gender, teaching experience and pedagogical training, providing an overview of the levels of engagement and self-efficacy in the field of dental education.

### ***Results of the Scenario and Stakeholder Analysis***

In Chile, dentistry is taught in 18 universities, of which 8 are public and 10 are private. For this study, 16 faculties and schools of dentistry belonging to the CRUCH and members of ACHEO were included. The analysis begins with a description of the distribution of teachers in these institutions, considering the particularities of each type of university.

**Table 1**

*Overall results for categorical (gender) and numerical variables (teacher training and teaching experience)*

Categorical Variable	Category	Frequency
GENRE	Male	118 (41,4%)
	Female	167 (58,6%)
TEACHER TRAINING	O. General	16 (5,6%)
	O. Specialist	115 (40,4%)
	O. Postgraduate	154 (54%)
TEACHING EXPERIENCE	Less than 2 years	14 (4,9%)
	Between 2 and 5 years	49 (17,2%)
	Between 2 and 10 years	53 (18,6%)
	More than 10 years	169 (59,3%)

The sample is characterized by a higher representation of female teachers (58.6%), who constitute the majority group. In terms of training, the majority of teachers have postgraduate studies (54%), followed by those with specialist training (40.4%) and a minority with general training (5.6%). In terms of teaching experience, 59.3% have more than 10 years of experience, reflecting a predominance of professionals with extensive experience in the educational field.

These results provide an overview of the profile of dental teachers in Chile and served as a basis for the detailed analysis of the level of engagement and perceived self-efficacy.

### ***Analysis of Engagement and Perceived Self-Efficacy***

Table 2 shows the descriptive statistics of the dimensions of engagement and perceived self-efficacy in dental teachers in Chile.

**Table 2**

*Average of the dimensions of engagement and perceived self-efficacy*

Descriptive statistics	Media	Standard deviation
ENGAGEMENT	5,89	0,24
Vigor	5,88	0,82
Dedication	6,14	0,89
Absorption	5,69	0,91
SELF-EFFICIENCY	3,37	0,42
Academic management	3,40	0,47
Educational strategies	3,31	0,47
Continuous improvement	3,57	0,48
Social responsibility	3,21	0,61

Overall *engagement* showed a mean of 5.892 ( $\pm 0.24$ ), indicating a high level of commitment.

Some relevant results stand out in the analysis of the *specific* dimensions of engagement. The “vigor” dimension reflects that teachers experience energy and mental stamina when performing their work. The “dedication” dimension is the highest, which shows a high level of enthusiasm and a sense of challenge in the development of their work. Finally, the “absorption” dimension indicates that teachers tend to be deeply concentrated and absorbed in their tasks ( $5.69 \pm 0.91$ ).

Overall self-efficacy has a mean of 3.370 ( $\pm 0.4256$ ), reflecting a moderate perception of competence.

Specific dimensions of self-efficacy reflect different levels of teachers' perceived competence. The “academic management” dimension indicates a moderate capacity to manage academic activities. The dimension corresponding to “educational strategies” reflects a moderate competence in its application. The “continuous improvement” dimension suggests confidence in the ability to improve skills and knowledge on an ongoing basis. Finally, “social responsibility” is the lowest dimension, indicating a reduced perception of influence on their social and community environment.

In general, teachers show greater engagement than self-efficacy, highlighting a high level of dedication and commitment to their work.

### ***Comparative Results on Engagement and Perceived Self-Efficacy According to Gender***

**Table 3**

*Engagement and teacher effectiveness results by gender*

GENRE	DIMENSION	MEDIA	STANDARD DEVIATION
<b>Male (n=118)</b>	ENGAGEMENT	5,87	0,86
	Vigor	5,84	0,87
	Dedication	6,15	0,90
	Absorption	5,62	0,96
	SELF-EFFICIENCY	3,34	0,50
	Academic management	3,34	0,55
	Educational strategies	3,28	0,52
	Continuous improvement	3,57	0,54
	Social responsibility	3,10	0,70
<b>Female (n=167)</b>	ENGAGEMENT	5,97	0,79
	Vigor	5,89	0,79
	Dedication	6,13	0,87
	Absorption	5,72	0,88
	SELF-EFFICIENCY	3,35	0,35
	Academic management	3,40	0,41
	Educational strategies	3,31	0,42
	Continuous improvement	3,60	0,43
	Social responsibility	3,24	0,53

Since the dimensions of *engagement* and perceived self-efficacy according to gender have non-normal distributions, the Mann-Whitney test was used.

**Table 4**

*Results of the Mann-Whitney test for the dimensions of teacher engagement and self-efficacy according to gender*

Dimension	Mann-Whitney U	Sig. Asin. (bilateral)
ENGAGEMENT	9514,5	0,62
Vigor	9676	0,79
Dedication	9483,5	0,58
Absorption	9487	0,68
SELF-EFFICIENCY	9578	0,68
Academic management	9797,5	0,93
Educational strategies	9351	0,46
Continuous improvement	9335,5	0,43
Social Resp	9780,5	0,91

The analysis shows that there are no significant differences between men and women in the dimensions of *engagement* and self-efficacy ( $p > 0.05$ ), indicating similar perceptions between both genders. The dimensions highlighted are “continuous improvent” and “academic management” with the highest scores, while “social rresponsibility” obtained the lowest scores, indicating an area of improvement for teachers.

### ***Comparative Results for Engagement and Perceived Self-Efficacy According to Teaching Experience.***

Figures 3 and 4 present the results of *engagement* and perceived self-efficacy broken down by four levels of teaching experience.

**Figure 3**

*Levels of engagement and its dimensions according to years of teaching experience in dentistry*

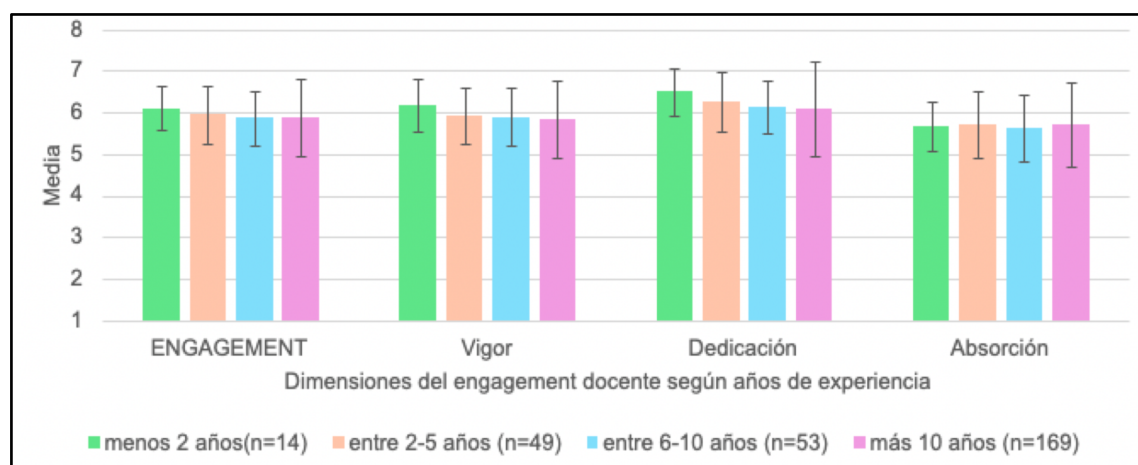


Figure 3 presents the mean total *engagement* scores and its three dimensions (vigor, dedication and absorption), classified into four ranges of teaching experience. Dental teachers in Chile show high and stable levels of *engagement* in all dimensions, regardless of their experience. This suggests that commitment to teaching does not diminish over the years and that motivation remains a key factor in their professional performance.

**Figure 4**

*Perception of self-efficacy and its dimensions according to years of teaching experience in dentistry*

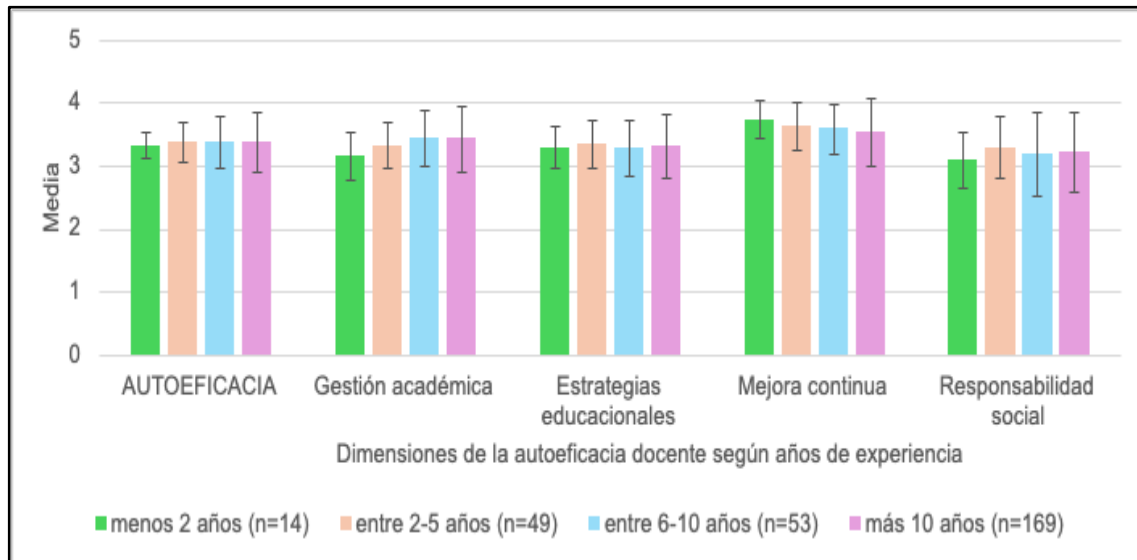


Figure 4 shows the mean self-efficacy scores and its four dimensions (academic management, educational strategies, continuous improvement, and social responsibility) as a function of teaching experience. Dental teachers in Chile show relatively homogeneous levels of self-efficacy regardless of their experience. However, newer teachers tend to feel more competent in continuous improvement, while social responsibility is an area of lower perceived self-efficacy in all groups.

Since the dimensions of perceived self-efficacy according to teaching experience present non-normal distributions, the Kruskal-Wallis statistical test is used to compare the groups.

**Table 5**

*Results of the Kruskal-Wallis test for the dimensions of engagement and perceived self-efficacy according to teaching experience*

Dimension	Kruskal-Wallis H	Asymptotic sig. (p-value)
<b>ENGAGEMENT</b>	1,87	0,59
Vigor	2,54	0,46
Dedication	4,32	0,22
Absorption	2,54	0,46
<b>SELF-EFFICIENCY</b>	1,4	0,69
Academic Management	11,88	0,00
Educational Strategies	1,12	0,75
Continuous Improvement	1,54	0,68
Social Responsibility	2,04	0,56

The Kruskal-Wallis test showed statistically significant differences only in the “academic management” dimension of self-efficacy, where perception varies according to factors such as teaching experience. In the other dimensions of engagement and self-efficacy, no significant differences were found between the groups, indicating a more homogeneous perception.

#### ***Comparative Results for Engagement and Perceived Self-Efficacy by Level of Teacher Education.***

Figures 5 and 6 present the results of engagement and self-efficacy broken down by three levels of teacher training.

**Figure 5**

*Comparison of teacher engagement by educational level*

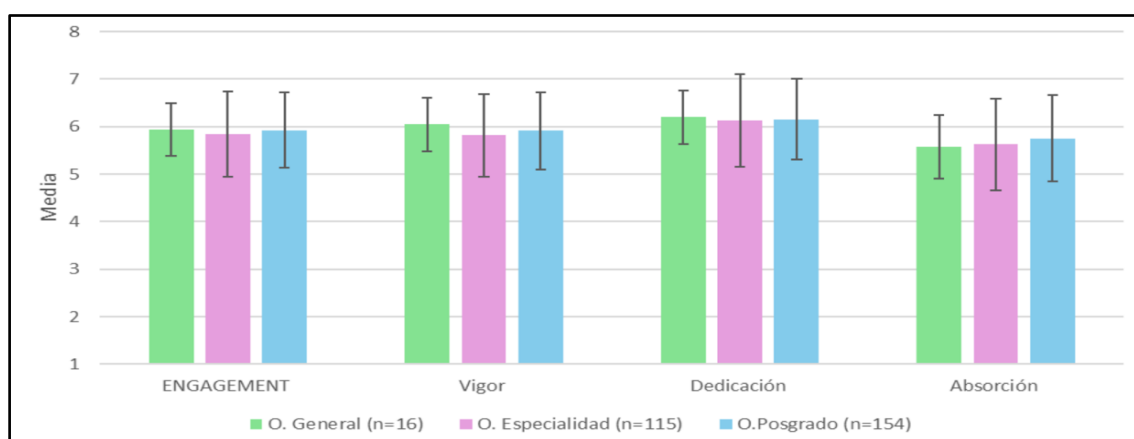


Figure 5 shows the averages of *engagement* and its three dimensions (vigor, dedication, and absorption) in dental teachers, classified according to their level of training.

**Figure 6**

*Perception of self-efficacy in dental teachers according to their level of training*

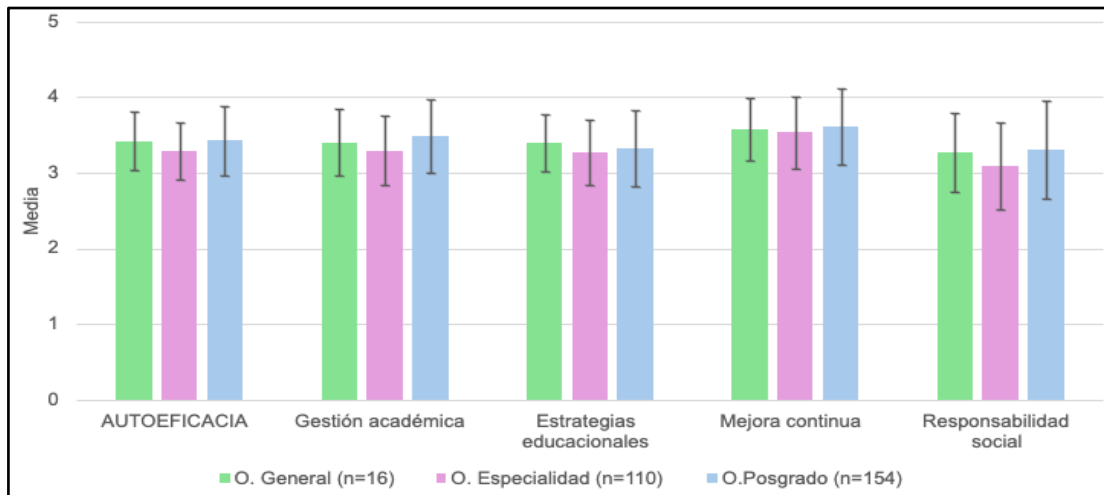


Figure 6 shows the mean of general self-efficacy and its four dimensions (academic management, educational strategies, continuous improvement and responsibility) in three groups of dental teachers, organized according to their level of training.

In relation to *engagement*, teachers with general training show a high level of commitment to their educational work. Those with specialty training also show high levels of *engagement*, although with greater variability in their responses. On the other hand, teachers with postgraduate training show similar levels of *engagement*, with an intermediate dispersion compared to the other groups. Specifically, teachers with general education stand out in the dimensions of “vigor” and “dedication”, while those with postgraduate studies present greater “absorption” in their work.

Regarding self-efficacy, teachers with postgraduate training report the highest levels in all dimensions, with special emphasis on academic management, educational strategies and continuous improvement.

In general, *engagement* remains high in all teacher education groups, with general education teachers excelling in vigor and dedication. On the other hand, self-efficacy is higher among teachers with postgraduate training, especially in the areas of academic management and continuous improvement.

These results suggest that advanced training positively influences the perception of teacher self-efficacy, while *engagement* remains high regardless of the level of training.

Since the dimensions of *engagement* and perceived self-efficacy according to the level of teacher training present non-normal distributions, the Kruskal-Wallis statistical test was used to compare the groups.

**Table 6**

Results of the Kruskal-Wallis test for the dimensions of engagement and perceived self-efficacy according to the level of teacher training

Dimension	Kruskal-Wallis	Asymptotic sig. (p-value)
<b>ENGAGEMENT</b>	0,443	0,801
Vigor	1,128	0,569
Dedication	0,307	0,858
Absorption	2,318	0,314
<b>SELF-EFFICIENCY</b>	<b>11,954</b>	<b>0,003</b>
Academic management	14,786	0,001
Educational strategies	2,219	0,33
Continuous improvement	3,712	0,156
Social responsibility	10,811	0,004

Table 7 shows the values of the Kruskal-Wallis test showing statistically significant differences in engagement and self-efficacy according to the level of teacher training.

In relation to *engagement*, no significant differences were found between the teacher training groups in any of its dimensions. The type of teacher training, then, does not significantly influence the level of *engagement*. Teachers, regardless of their background, show similar levels of commitment to their work.

For the self-efficacy variable, there are significant differences in the perception of general self-efficacy and in the dimensions of academic management and social responsibility. Therefore, teacher training influences these specific areas of self-efficacy. It is also observed that teachers with more training (postgraduate) tend to perceive themselves as more competent in these dimensions.

These results suggest that advanced training positively influences the perception of self-efficacy in areas related to management and social responsibility, whereas the level of *engagement* remains constant regardless of the type of training.

## Discussion

The results obtained in this study show that the variables gender, professional experience and teacher training have an impact on *engagement* and perceived self-efficacy

In line with previous research (Arvidsson et al., 2019; Aguilera Fierro, 2017; Peralta et al., 2023), it was corroborated that continuous training, both disciplinary and pedagogical, favors engagement and self-efficacy.

Likewise, the “academic management” dimension of teacher self-efficacy was shown to vary substantially according to experience and professional preparation, reinforcing the importance of specialization in the perception of specific competencies.

The relatively low score in the “social responsibility” dimension of perceived self-efficacy suggests the need to design specific programs to strengthen it and the achievement of competencies in teachers.



This aspect coincides with the proposal of Vega Rodríguez and Vizcaíno Escobar (2023) on the relevance of adapting self-efficacy to current educational demands, including practice experiences in real scenarios or undergraduate residencies.

According to Venegas Traverso (2021), individuals with a weak sense of self-efficacy lack commitment, are discouraged in the face of difficulties, avoid complex challenges and lack confidence in their own abilities. In contrast, those with a high sense of self-efficacy show curiosity, persevere in the face of problems and perceive adversity as an opportunity to learn and develop their skills. In this sense, the research by Hernández Jácquez and Cenicerós Cázares (2018), focused on higher education faculty in Mexico, concluded that a high level of teacher self-efficacy is closely related to better educational performance. This underscores the relevance of fostering self-efficacy to optimize the quality of higher education.

In contrast to Emeljanovas (2023), who relates emotional load with lower teacher engagement, the findings of this study indicate that high levels of engagement, mainly in “dedication” and “vigor”, can function as a protective factor against stress, favoring more innovative and effective teaching practices (Lozano-Paz and Reyes-Bossio, 2017). In addition, values such as resilience and ethical commitment (Barni et al., 2020; Galindo-Domínguez et al., 2020), together with professional experience and advanced training (Idrogo Mori, 2020), strengthen self-efficacy and benefit both teaching quality and teacher well-being.

The following recommendations are proposed to enhance teacher training, improve educational quality and strengthen the well-being and commitment of dental teachers in Chile, with the aim of promoting more effective and motivating teaching:

- Promote the development of continuing education programs that integrate both pedagogical and disciplinary competencies, with special emphasis on academic management and social responsibility.
- Implement training strategies based on practice, such as pedagogical residencies, mentoring and simulations in real scenarios, in order to strengthen teachers' confidence and improve their professional performance.
- Encourage *engagement* as a protective factor against stress, promoting spaces for teacher wellbeing, learning communities and support networks that reinforce dedication and vigor, thus minimizing the emotional burden of teaching.
- Reinforce the dimension of social responsibility through outreach programs and training in educational leadership, in order to strengthen the perception of social impact and commitment to the community.
- Evaluate and monitor the impact of teacher training through periodic measurements of *engagement* and self-efficacy, complemented with longitudinal and qualitative studies, which will allow adjusting and optimizing training strategies according to teachers' needs.

## Conclusions

*Engagement* and teacher self-efficacy emerge as key variables for the effectiveness and job satisfaction of dental teachers in Chile. The “dedication” of *engagement* stands out for reflecting high commitment and enthusiasm, while “academic management” shows improvements linked to advanced training. On the other hand, “university social

responsibility” presents the lowest scores, evidencing the need to reinforce this aspect in teacher development programs.

Likewise, advanced education contributes positively to the perception of self-efficacy, while *engagement* remains high regardless of the level of education attained. However, the study has some limitations, such as the absence of qualitative analysis and the use of self-reports, which prevents a more in-depth approach to the subjective perspective of teachers.

Future projections include:

- Expand research to other Health Sciences disciplines.
- Incorporate qualitative methodologies and longitudinal designs.
- Evaluate programs that strengthen specific competencies, especially in academic management and social responsibility.
- To explore the relationship between engagement, self-efficacy and academic results, as well as work climate.

In conclusion, this study evidences the importance of aligning teacher education programs with the contemporary needs of higher education in order to promote both the professional development and occupational well-being of faculty. Future research could delve deeper into the interactions between Engagement, self-efficacy and students' academic outcomes, thus contributing to the improvement of university educational quality.

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**A CORPUS-BASED INSTRUCTION TO LEARNING AND USING  
COLLOCATIONS IN A TRANSLATION AND INTERPRETATION PROGRAM:  
ANALYZING TRAINEE STUDENTS AND TEACHERS' PERCEPTIONS  
UNA INSTRUCCIÓN BASADA EN CORPUS PARA EL APRENDIZAJE Y USO DE  
COLOCACIONES EN UN PROGRAMA DE TRADUCCIÓN E INTERPRETACIÓN:  
ANÁLISIS DE LAS PERCEPCIONES DE LOS ESTUDIANTES EN FORMACIÓN Y LOS  
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**ABSTRACT**

**Keywords:** collocations, collocational competence, corpus-based instruction, coca, translation and interpretation

This study examined the perceptions of college students from a Translation/Interpretation Program regarding the acquisition and application of collocations through the Corpus of Contemporary American English. Additionally, it explored the perceptions of teachers, translators and interpreters concerning collocational competence and a corpus-based instruction to using and translating collocations. A sample of 15 students participated in a corpus-based instruction to learn collocations through the corpus. Participants were required to complete a journal entry to reflect on their learning experience. In addition, they were asked to participate in a focus group once the intervention sessions were finished. Finally, two teachers, two translators, and one interpreter were interviewed to elicit their perceptions of collocational competence and a corpus-based instruction. The data collected were analyzed by means of Grounded Theory. Main findings revealed that learners recognized the value of learning collocations by means of a corpus-based instruction. Likewise, the teachers, translators and interpreters interviewed considered collocational competence and a corpus-based instruction to be significantly favorable. A more in-depth and extended study is advised to obtain more insight into the effectiveness of using corpora for the teaching and learning collocations in the field of Translation/Interpretation.

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**RESUMEN**

**Palabras clave:** colocaciones, competencia colocacional, instrucción basada en corpus, coca, traducción e interpretación.

Este estudio examinó las percepciones de los estudiantes universitarios de un programa de Traducción e Interpretación con respecto a la adquisición y aplicación de colocaciones a través del Corpus de Inglés Americano Contemporáneo. Además, exploró las percepciones de profesores, traductores e intérpretes sobre la competencia colocacional y la instrucción basada en corpus para el uso y traducción de colocaciones. Una muestra de 15 estudiantes participó en una instrucción basada en corpus para aprender colocaciones. Se pidió a los participantes que completaran una narrativa para reflexionar sobre su experiencia de aprendizaje. Además, se les solicitó participar en un grupo focal una vez

finalizadas las sesiones de intervención pedagógica. Finalmente, se entrevistó a dos profesores, dos traductores y un intérprete para obtener sus percepciones sobre la competencia colocacional y la instrucción basada en corpus. Los datos recopilados se analizaron mediante la Teoría Fundamentada. Los hallazgos principales revelaron que los estudiantes reconocieron el valor de aprender colocaciones a través de la instrucción basada en corpus. Asimismo, los profesores, traductores e intérpretes entrevistados consideraron que la competencia colocacional y la instrucción basada en corpus son significativamente favorables. Se recomienda realizar un estudio más profundo y extenso para obtener una mayor comprensión sobre la efectividad del uso de corpora en la enseñanza y el aprendizaje de colocaciones en el campo de la Traducción e Interpretación.

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## Introduction

Research on developing collocational competence in language learners and their mastery of formulaic language has gathered significant attention since the concept of collocation was first introduced (Nattinger & DeCarrico, 1992; Lewis, 1993). The claim is often made that the mastery of these formulaic expressions (collocations) is of paramount importance for communicative competence (Nation, 2001) and that it is fundamental to enable learners of a foreign language to process language fluently and idiomatically (Pawley & Snyder, 1983; as cited in Nation, 2001). Additionally, Ellis (2001) asserts that formulaic language plays a part in the mastery of language use proficiency. In the light of this, the benefits for learners of English as a second or foreign language of mastering such lexical items in relation to fluency support the need to conduct research focused on formulaic language such as collocations (Nation, 2001).

Nonetheless, this phenomenon is still not properly addressed by language teachers as an essential aspect to be taught along with grammar, phonetics, semantics, and syntax. This lack of interest is probably because of the dearth of teaching materials which are designed by using appropriate strategies and methodologies to develop the communicative competence, but which have a focus on grammar, phonetics, and other skills. Even though there is research which provides evidence on the importance of teaching collocations and developing learners' competence, there have been only a few studies aimed at investigating how learners of English as a second or foreign language develop this collocational competence. In this fashion, research suggests that there is a need to change the way English is taught in translation and interpretation courses from the current focus to an orientation towards vocabulary, especially collocations. In fact, there is research which supports a corpus-based approach to vocabulary and collocation teaching and learning due to the flourishing methodology of corpus linguistics which has been put to many different uses (Romer, 2009; Cobb, 1999).

The purpose of this research was to explore the perception of students from a Translation and Interpretation program regarding the learning and using of collocations using the Corpus of Contemporary American English (hereafter COCA). In addition, this study aimed to identify the perception of teachers, translators and interpreters of collocational competence and of a corpus-based instruction; the latter will aid in understanding their stance on teaching and learning collocations, especially within the field of translation. The aims of this study relate to the belief that translators and interpreters need to develop collocational competence for accurate translation, and that a corpus-based approach to learning collocations and translating them is an effective one for translators.

This investigation followed three main research questions, namely (a) What are the perceptions of students from a Translation/Interpretation program regarding the learning and using of collocations? (b) Do students from a Translation/interpretation program perceive a corpus-based instruction as appropriate for the learning and using of collocations? and (c) What are teachers and professional translators/interpreters' perceptions of collocational competence and a corpus-based instruction to learning and using collocations? In addition, the general objective of this investigation was to explore the perceptions of students from a Translation and Interpretation program regarding the learning and using of collocations using the Corpus of Contemporary American English, and well as to explore the perceptions of teachers, translators and interpreters of collocational competences and a corpus-based instruction to using and translating

collocations. Finally, the specific objectives for this investigation were (a) To identify students' perceptions regarding the learning and using of collocations; (b) To determine the extent to which students perceive a corpus-based instruction as appropriate and useful; and (c) To identify teachers, interpreters and translators' perceptions of collocational competence and a corpus-based instruction to learning and using collocations.

This article first presents the state-of-the art through a literature review. Then, the research methodology and procedures, as well as the analysis of the data, are described. Finally, this article presents the analysis of results, discussion, and main conclusions.

The concept of collocational competence has received much attention since Firth (1957) first coined the term collocation. Since then, the literature has shown that teachers and materials designers have focused on the need to develop a collocational competence and there is awareness that this language component should be addressed explicitly in language instruction (Howarth, 1998a; 1998b). Although there is vast literature on the Lexical Approach and on the importance of learning collocations rather than memorizing individual words, it is still difficult to find a precise definition of the term collocation. Most definitions seem to converge on the co-occurrence of words. Firth (1957), for example, claims that "you shall know a word by the company it keeps." (p. 179). In the same line, Nation (2001) believes that "knowing a word involves knowing what words it typically collocates with." (p. 74). Collocations can then be defined by Hill (2000) as the "the way words combine in predictable ways." (p. 48). The author asserts that, although teachers are familiar with the concept of communicative competence, it is necessary to extend this to collocational competence in the sense that it is a requirement for learners to master the target language in oral and written production. In addition, the author believes that the lack of competence in this area leads learners to make mistakes since they seem to be forced to create long utterances to compensate for the lack of collocational expressions to mean precisely what they want to say.

The importance of collocational competence is incontrovertible. As it is acknowledged by Fan (2009), "the importance of collocational competence is beyond dispute. It enables the learners to speak more fluently, makes their speech more understandable and helps them write or sound more native-like." (p. 111). Nattinger and DeCarrico (1992) support this and add that formulaic expressions, including collocations, are at the heart of language acquisition and thus help students improve speech, listening, reading and writing. Pawley and Syder (1983; as cited in Nation, 2001) also consider that the best explanation as to how language users can choose appropriate ways to say things from a wide range of options (native-like selection) and can use the language fluently (native-like fluency) is that some units of language are stored as chunks in memory.

To this regard, research has shown that language learners need to have a working knowledge of collocations to produce fluent and native-like discourse (Ellis, 1996; Conklin & Schmitt, 2008; Howarth, 1998a; 1998b). Similarly, Conklin and Schmitt (2008) agree that word combinations form a large part of any discourse; consequently, they need to be part of the vocabulary repertoire of anyone who attempts to learn a second or foreign language. In addition, Lewis (1993) suggests that native speakers of a language have a large repertoire of lexical chunks which are of key importance for the fluent production of the target language. Thus, fluency does not depend on grammar structure rules and a set of isolated words, but on the efficient access to this stock of lexical units which facilitate language production (Lewis, 1993; 1997a; 1997b; Thornbury, 2002). As Wilkins (1972; as cited in Thornbury, 2002) points out, "without grammar very little can be conveyed, without vocabulary nothing can be conveyed" (p. 13). This is also

acknowledged by Richards and Rodgers (2001) who believe that “the building blocks of language learning and communication are not grammar, function notions, or some other unit of planning and teaching but lexis, that is, word and word combinations” (p. 132). Therefore, it is on these language unit of language that teachers should center, though it is not unusual to see language teachers who fix their attention to paradigmatic relationships (lexical items which can be substituted for other ones in lexical and grammar contexts—synonyms) rather than syntagmatic relationships or the co-occurrence of lexical and grammatical items, known as collocations.

Even though it is a well-known fact that EFL students face problems in achieving native-like language due to a lack of collocational awareness, few studies address this issue empirically and the ones that do mainly focus on the use of these formulaic expressions in receptive rather than productive language (Howarth, 1998a; 1998b). In addition, there is scarce research which has shed light on language learners’ collocational competence in terms of the way they process collocations and what teaching strategies are used in the classroom to help students understand and use them in oral and written discourse. What has been found, in this respect, is that some grammatical errors or mistakes are believed not to disrupt communication in the target language, whereas lexical errors are said to interfere with meaning, resulting in a lack of understanding between participants of an interaction (Gass & Selinker, 2001).

Conklin and Schmitt (2008), for example, investigated the advantage of formulaic sequences by comparing the reading times of these sequences and the matched non-formulaic phrases for native and non-native speakers. They found that formulaic phrases were read more quickly than non-formulaic sequences, concluding that “formulaic sequences have a processing advantage over creatively generated language.” (p. 72). These results provide evidence to support the benefits of a collocation-based syllabus for EFL learners.

In the same fashion, Howarth (1998a) intended to identify and analyze non-standard phraseology (lexical collocations) in non-native academic writing. The findings suggest that “native speakers employ about 50 per cent more restricted collocations and idioms (of a particular structural pattern) than learners do, on average” (p. 177) and that this might “reflect learners’ general lack of awareness of the phenomenon” (p. 186). This is relevant for the present study in that it provides evidence of the lack of collocational awareness of EFL students, which might affect their language production in terms of fluency and proficiency.

Other investigations relate to the study of the use of collocations by ESL students following a task-based approach. Fan (2009) attempted to understand the use of collocations of ESL secondary school students in Hong Kong. Some of the findings show that there is a need for an in-depth understanding of collocational competence and an innovative pedagogical approach to the learning and teaching of collocations. If this is the case, once again there is evidence that collocations play an important role in the language performance of a non-native speaker.

Several studies show the benefits of using a DDL approach to language learning (Cobb, 1999, 2003; Horst, Cobb, & Nicolae, 2005). However, only few studies have attempted to investigate the relation between learning and using collocations through a corpus-based approach and the effectiveness of corpus-based strategies and techniques to teach vocabulary (Cobb, 1999)—the majority of studies aim at describing the benefits of concordance for language learning (see for example Johns, 1991). This is why it was necessary to present the students of this study with a different approach to collocation learning and using, namely, a corpus-based approach.

The corpus-based approach in the field of language education and Linguistics has gained prominence since the mid-1980s. In this regard, much has been written about the positive influence of corpus linguistics on teaching foreign languages (Cob, 1999, 2003; Johns, 1991; Bernardini, 2004; Romer, 2009; Granath, 2009). There is no doubt that the corpus-based approach has been proven to be ground-breaking in teaching/learning languages (Bernardini, 2004). This is because the impact of bringing corpora into the classroom has been related to a “shift from deductive to inductive learning routines” (Bernardini, 2004: 16), which means students are encouraged to discover the language rather than learn it by memorizing grammar/lexical patterns.

Recent studies have further emphasized the importance and effectiveness of corpora tools in developing lexical knowledge and competence. For instance, a study conducted by Mohammed (2022) has demonstrated how translation trainees can benefit from monolingual, comparable and parallel corpora to improve fluency, accuracy and instrumental competence. This study highlights the integration of corpora tools into translation training and demonstrates the positive perceptions of such tools to enhance professional readiness.

Furthermore, Romer (2009) claims that “corpus linguistics can make a difference for language learning and teaching and that it has an immense potential to improve pedagogical practice” (p. 84). Despite the many benefits of the use of corpora to enhance language learning, “the regular use of corpora in the EFL classroom is still a rare occurrence.” (Granath, 2009: 47).

In addition to the corpus-based approach, a significant amount of literature is also available concerning DDL and its status in language teaching and learning. To this regard, Johns (1991) has asserted that language learning implies “the notion that the task of the learner is to discover the foreign language and that the task of the language teacher is to provide a context in which the learner can develop strategies for discovery [...]” (as cited in Johns & King, 1991: 1). Data Driven Learning (DDL) is defined by Johns (1991) as an approach in which the language student is driven by the access to linguistic data in their learning process.

Since corpus-based activities began gaining some advocacy on behalf of language teachers, there has been a growing number of publications aiming at presenting a range of uses for this approach in the classroom for vocabulary teaching/learning. In fact, many researchers have highlighted the benefits of using DDL to teach vocabulary to second or foreign language learners (Cobb, 1999, 2003; Horst, Cobb & Nicolae, 2005). These studies have demonstrated that some traditional activities such as gap filling can be improved if they are based on authentic texts. Furthermore, besides improving teaching materials, research has shown that direct DDL activities where learners use corpora by themselves have proven to be effective for vocabulary learning (Cobb, 1999). To this regard, Cobb's work (1997, 1999) is one of the few studies which has empirically proven the effectiveness of corpus-based strategies and techniques to teach vocabulary (Cobb, 1999, 2003). In his study, Cobb (1997) was able to evaluate the vocabulary learning outcomes from his students when they learned new words using concordance. The results found that students using the concordancer experienced limited but steady vocabulary Growth. In a follow up study, Cobb (1999) found that concordance also facilitates the acquisition of transferable word knowledge since the subjects in the study were able to use their knowledge of words in different activities and a range of other contexts.

Recent research has shown the impact of DDL on enhancing learners' language proficiency, particularly in the acquisition of noun collocations. He and Xie (2024) explored how DDL promotes learners' autonomy in language learning. By engaging with

authentic data from corpora, learners are able to independently discover collocational patterns and apply them effectively in written and spoken contexts. Their study showed that DDL not only improved collocational competence but also fostered learner motivation and self-directed learning. Participants in the study demonstrated improved proficiency in producing natural-sounding collocations, a skill which proves to be vital for Translation and Interpretation students. This is in line with the growing body of research advocating for the use of corpora to enhance collocational awareness in specialized fields where accuracy in language use is essential. As such, DDL is a solution for improving collocational competence, as it offers linguistic and cognitive benefits for learners to master the target language.

While the effectiveness of corpus-based approaches in for vocabulary and language acquisition had been well-documented (Cobb, 1999; Bernardini, 2004), recent studies have also explored the role of blended corpus-based instruction in improving writing proficiency. For instance, Satchayad and Charubusp (2022) demonstrated that such instruction significantly enhances the writing proficiency of Thai university students by using corpus tools within interactive learning environments. Their study proves the potential of combining authentic corpus data with classroom activities to promote better language proficiency outcomes.

Unfortunately, time constraints are also to be considered when using corpora since it is, in most cases, difficult to find the time to integrate corpus research and exploration into language courses (Granath, 2009). This is said to be the main stumbling block for using and integrating corpora in the language classroom. As Granath (2009) explains, “the main problem with incorporating training in using corpora into regular courses is, as far as I can see, that only a limited amount of time can be set aside for actual hands-on exercises in the language lab” (p. 55).

The Corpus of Contemporary American English, created by Mark Davies from Brigham University in 2008, is the largest genre-balanced corpus of any language which has been designed to track and study changes in language (Davies, 2010). This corpus is made of more than 450 million words of text which are divided among spoken, fiction, popular magazines, newspapers, and academic texts. It includes 20 million words each year from 1990 to 2012, and it is a corpus suitable for looking at ongoing changes in language (Davies, 2010). The most important characteristic of this corpus is that it is considered to be a “monitor corpus”, opposite to a static one which is not updated once it has been created, such as the British National Corpus. Hence, the COCA is a dynamic collection of texts to which new ones are added. Davies (2010) explains that the goal of this corpus is to “allow users to search the continually expanding corpus to see how language is changing.” (p. 447). Although this has been the goal of many corpora, the Corpus of Contemporary American English is the only reliable monitor corpus used to carry out research of linguistic change in contemporary English.

Even though Corpus Linguistics and Data-Driven Learning have gained prominence in the last decades, there is still a gap concerning to what extent the COCA is effective for vocabulary/collocation teaching and learning. One attempt to bridge this gap is the work by Shaw (2011) which intends to provide teachers and students with a resource book where they can access information regarding the use of COCA for different vocabulary activities. In her work, Shaw (2011) presents different tasks for vocabulary learning by using the features available in the interface, such as word frequency activities, parts of speech, morphological knowledge, synonym knowledge, and collocational knowledge. In her book, Shaw (2001) suggests collocation searches are one of the most useful features of the corpus since they engage students in DDL activities, among other

advantages. This resource book presents many applications of the corpus (COCA) for vocabulary teaching/learning; however, it is by no means an empirical investigation on the effectiveness of this corpus on vocabulary/collocation learning. This is why the present study contributes to bridging the existing gap in research concerning a corpus-based approach (COCA) to collocation learning.

### **Research Design**

This study was conducted using a qualitative paradigm, following a descriptive and exploratory design. This paradigm corresponds with the data-collection instruments selected for the data elicitation in this study, namely, interviews, a focus group and reflective journals. The reason for this was to identify students' perceptions of learning and using collocations by the Corpus of Contemporary American English, as well as the perceptions of some teachers and professionals regarding collocational competence and the use of corpora in a Translation and Interpretation Program at university level.

A purposive sample of 15 students from the Translation and Interpretation program at Pontificia Universidad Católica de Valparaíso (PUCV) participated in this research. As part of their academic requirements, the students involved in this study aim at reaching C1 level as stipulated in the Common European Framework of Reference for Languages (CEFR) during their second academic semester of their second year. The CEFR consists of a set of guidelines used to describe learners' achievements in foreign languages across Europe and in other countries.

For this research, 3 different data collection instruments were used: journal entries used during the pedagogical intervention sessions, a focus group and interviews conducted after the intervention. Due to the need for eliciting learners' internal processes and thoughts while participating in the pedagogical intervention sessions, reflective journals were used. These journals are often used to have learners write about their language learning experience without the pressure of framed questions designed by the researchers (Mackey & Gass, 2005). The journals were required from students to fulfill the first and second specific objectives of this study, namely, to identify learners' perceptions of the learning and using of collocations and their perception on the appropriateness of a corpus-based instruction. This retrospective assessment tool involved a journal entry which students had to complete in Spanish after each lesson during the pedagogical intervention to reflect on their learning process while participating in a corpus-based instruction. Students were asked to write their entries in Spanish to avoid focusing on language rather than on the learning process.

To fulfill the first and second specific objectives of this study, a second instrument, a focus group session, was also conducted. For this session, a group of students was randomly chosen to participate in the discussion. The questions for this focus group emerged from the need to gather in-depth information about learners' perceptions of the learning and using of collocations and on the use of COCA for collocation learning.

To fulfill the third specific objective of this study—to identify teachers, interpreters and translators' perceptions of collocational competence and a corpus-based instruction to learning and using collocations—two teachers of English, two translators and one interpreter were interviewed by means of semi-structured interviews designed for this study. The semi-structured interviews were piloted before they were administered, for validation purposes.

To collect the necessary data, a series of steps were carried out. Firstly, students were invited to an induction session where the objectives of this study were explained. Secondly, a consent form adapted from Mackey and Gass (2005: 323) was given to the students to comply with the ethical issues required in any study. By means of a short presentation and the information presented in the consent form, the students were informed of the objectives of this study, as well as the confidentiality of the data. Then, a pedagogical intervention was designed with the objective of introducing learners with a corpus-based approach to learning and using collocations. In each of these sessions, learners were instructed on the use of COCA to learn collocations and to use them in written tasks. After each intervention session, learners were asked to register in their journal entries their thoughts on the use of the corpus and their learning experience through this type of instruction. Following this, a group of students participated in a focus group with the objective of gathering in-depth information about their perceptions of learning and using collocations through COCA. Finally, three semi-structured interviews were designed. An interview was held with an English teacher currently teaching the course, aiming to gather information about her views on collocational competence and the use of corpora by translation students at PUCV. A second interview was conducted to a teacher of English who teaches academic writing with the objective of gathering information regarding his stance on collocational competence and a corpus-based instruction. A third and fourth interviews were conducted with two professional translators with the aim of gathering information about the importance of the development of collocational competence and the use of corpora for translation. One of the professional translators was also an expert in terminology who oversees the courses Terminology 1 and 2 at the same program; the other professional translator is a former student from PUCV. The fifth interview was conducted with a professional Interpreter with the objective of eliciting information about the importance of the development of collocational competence and the use of corpora in the professional field.

As the research conducted was qualitative, there was no statistical analysis considered for the interpretation of the data gathered for this study; rather, the researcher looked for students and professionals' perceptions of learning and using collocations using the COCA. The data obtained from the focus group, interviews and journal entries were transcribed and analyzed using Grounded Theory through an induction process. This means that the data gathered is coded through a constant comparative method which is used for analyzing data to develop theory. This method was appropriate for this study since it can be applied to data units of every size (Glaser & Strauss, 1967). The data obtained from each instrument revealed categories which will be presented in the analysis and discussion section. The categories analyzed emerged from the codification of the data-collection instruments which were separately coded. This means that the categories were not pre-conceived, but rather revealed in the process of data coding. For the sake of this analysis, only open and axial coding as proposed in Grounded Theory was conducted due to the small-scale nature of this study.

## **Analysis and discussion of results**

### ***Students' perceptions regarding the learning and using of collocations***

From the students' reflections, one clear category during the codification process was identified during the codification process: 'importance of learning and using collocations'. In this category, it was possible to elicit students' perceptions regarding two

aspects of the learning and using of collocations. The first aspect analyzed was that of students' awareness of collocations. One of the fundamental principles of the Lexical Approach relates to the existence of prefabricated language units which account for a significant portion of a native speaker's discourse. Hence, students' "awareness of their ability to chunk language successfully is key to mastering the target language" (Lewis, 1993: vi). To this regard, students' reflections show that collocational awareness is something they achieve at university, rather than at school. From the interviews and journals, it was possible to elicit learners' perceptions in relation to the difficulty to understand what collocations are, probably because of their lack of awareness of collocations when they took their first language course at university. To this, Hill (2000) explains that "It is likely to be helpful to make learners explicitly aware of the lexical nature of language" (p. 161).

It was also possible to observe that collocational competence as a concept is then something learners are generally not aware of unless they are part of a teacher-training program or a translation and interpretation course. Although this is still an assumption, it is possible to affirm that students do not fully understand the importance of this competence until they are explicitly taught what this is and, consequently, they risk making language mistakes because of their lack of collocational competence. To this, Hill (2000) asserts that "the reason so many students are not making any perceived progress is simply because they have not been trained to notice which words go with which" (p. 14).

The second aspect which emerged from this category is that of the importance of learning and using collocations. Students recognized several advantages of learning and using collocation. The first advantage relates to *using lexical chunks to achieve language proficiency*. Lewis (1993) explains that lexis (including collocations) is central to language proficiency since the learning of lexical items fulfills students' need to go beyond the "intermediate plateau"—a prolonged stage of interlanguage development in which learners appear to be stuck due to their lack of collocational awareness and knowledge. The second advantage of learning and using collocations relates to *reading comprehension skills*. Receptive skills have been proven to be influenced, either positively or negatively, by the knowledge of collocations (Nattinger & Decarrico, 1992). This is because comprehension is either hindered or enhanced by the knowledge that the reader has in terms of using collocational expressions. The third advantage of using and learning collocations has to do with *the quality of translation*. That is, students acknowledge the importance of collocations since they believe translators/interpreters need to use collocations in oral and written English to achieve good-quality translations/interpretations. Indeed, collocations are of great relevance for the quality of a translation (Manafi & Ghaffarof, 2013).

The fourth advantage recognized by students was related to *using and learning collocations to improve fluency in the target language and to achieve near native-like English*. Students found collocations helpful, as they made speaking in the target language more fluent and also made their English sound more like that of a native speaker. To this regard, Fan (2009) explains that the importance of collocational competence is essential to achieve fluency and to native-like English. Nattinger and DeCarrico (1992) also acknowledge the importance of collocations for fluency since this aspect of the language is identified as one of the advantages of learning and using collocations in the target language. It is then clear that collocations are a tangible marker of non-nativeness, thus, students produce a more native-like discourse if they use collocations in their oral and written language production (ibid).



### ***Students' perceptions of a corpus-based instruction for learning and using collocations***

There is plenty of research regarding the influence of corpus linguistics on teaching foreign languages. There is also vast literature available concerning DDL and its status in language teaching and learning. However, there isn't much investigation concerning the effectiveness of COCA in vocabulary/collocation learning. The data gathered for this study show that these learners' perceptions of the use of COCA is highly positive since they recognized many of its benefits, namely, using COCA (1) for the learning of collocations, (2) for active learning, (3) for learning domain-specific terminology, (4) for written production improvement and (5) for translation/interpretation.

The first benefit recognized by students is that the COCA is greatly valued for collocation learning since the corpus aids students' awareness on the importance of collocations. This is supported by Shaw (2011) in that she recognizes that one of the benefits of using COCA is that teachers can create activities for collocational awareness and learning by using different features of the online corpus. In this sense, she agrees that collocation searches are the most useful features of the corpus since they engage learners in corpus-based activities.

A second benefit of using COCA is that this corpus encourages active learning, thus it encourages students to learn vocabulary, especially word combinations, in a different way, other than memorizing vocabulary guidelines. To this regard, it has been proven that the more active a learner is in their learning process with regards to vocabulary, the easier it is to recall the lexical items and combinations when needed (Johns, 1991; in Johns & King, 1991). This is also supported by Johns (1991) since it is his firm conviction that learners should "learn how to learn" (as cited in Johns & King, 1991: 1).

In addition to learning a wide range of general collocations, learners who participated in this study recognized a third benefit of using COCA, namely, learning about collocations as domain-specific discourse. This is recognized as a benefit by students since through the corpus they can have access to certain characteristics of words and expressions (such as frequency of occurrence) which make them likely to be used in certain text types and genres. To this, Nation (2001) points out that "it is thus possible to have special vocabularies for speaking, for reading academic texts, for reading newspapers, for reading children's stories, or for letter writing." (p. 17). In this regard, it is extremely useful for learners to use corpora since not only are they attractive as a learning tool, but they are also useful for specialized terminology which is part of learners' competences to acquire as future translators and interpreters.

Domain-specific collocations also depend on their frequency of occurrence in various genres. To this respect, the COCA is highly valuable since it provides learners with frequency-related data for collocations. Hence, learners are not only able to identify patterns of lexical use, but also the different contexts in which some combinations of words are used in diverse genres and registers.

A fourth benefit perceived by the students was the use of COCA for written production improvement. It is a widespread belief that an advanced user of a language must be able to produce a written discourse which is rich not only in complex grammar structures, but also in vocabulary, especially in collocations (Nattinger & DeCarrico, 1992). In fact, Hill (2000) recognizes the importance of using multi-word units in that complex ideas are often expressed lexically, and not grammatically. In their reflection on the use of COCA, learners manifested the importance of using this tool since it is of great help to develop written production.

Finally, a fifth benefit recognized by learners was the use of the COCA for translation and interpretation (English to Spanish and inverse translation/interpretation). This was highly valued by the students since translation is not always straightforward in terms of the meaning of lexical and grammatical collocations which do not have an equal term in Spanish. In this sense, it was useful for learners to search for word combinations in the corpus by using the feature KWIC (key word in context). This way it was easy to understand the meaning of the collocation in context to translate it. It is relevant to mention that no research has been conducted regarding the use of the COCA for translation/interpretation; rather, all studies which relate corpora and translation aim at investigating the use of comparative, multilingual and parallel corpora (Baker, 1992).

Not only is the corpus useful for translating from English into Spanish, but it is also useful for inverse translation. As far as this type of translation is concerned, learners agreed that the use of the corpus is highly favorable since it is easier to translate a concept into Spanish by, for example, comparing a collocation in terms of the different registers in which it might be frequently used.

Along with the benefits, the participants in this investigation recognized drawbacks in the use of the corpus. The participants in this study agreed that the use of the COCA is, in general, time-consuming. In this respect language teaching experts do not seem to agree since they see the use of corpora as an efficient tool in terms of speed (Cobb, 2003). What was evidenced in this study is that all participants considered it a difficult tool to use in class since they were not familiar with it; however, once they had time to work with it, it was much easier to use. Despite this, the learners still thought the corpus took much time to use.

### ***Teachers, translators and interpreters' perceptions of collocational competence and a corpus-based instruction to learning and using collocations***

A teacher of English who was an expert in EFL writing, a teacher of general English, a professional interpreter, and two professional translators were asked about their stance on the importance of collocational competence for translators and interpreters. Their perceptions were found to be related to two different aspects, namely, (a) the importance of teaching collocations and developing collocational competence and (b) the importance of collocational competence for translators and interpreters in general and domain-specific translation/interpretation.

Regarding the first aspect—the importance of teaching collocations and developing collocational competence—both teachers and professionals in the translation and interpretation field agreed that collocations are one aspect of language learning which has long been neglected in terms of its importance both at school and university levels. Moreover, they agreed on the importance of teaching collocations and developing collocational competence in language learners. It was also possible to evidence the significance of vocabulary from the perspective of a teacher whose job is to teach strategies for students to become proficient in the written production of the target language. It is the teacher's belief that vocabulary is sometimes overlooked by some fellow colleagues who prioritize grammar and not lexis. This is supported by Ellis (1997) in that he states that language pedagogy has long emphasized the teaching of grammar through form-focused instruction. From the perspective of a former student at PUCV and a professional translator, grammar seems to still be the focus for language teaching, though theory offers evidence supporting vocabulary as the aspect teachers should dive into (Thornbury, 2002; Lewis M., 1993, 1997a, 1997b; Nation, 2001).

In a similar view, from the perspective of a professional interpreter who also teaches at PUCV, collocations and the development of collocational competence are essential for future translators and interpreters, as collocational competence is a requirement for communication in the mastery of the language in that one of the objectives of language learners is to achieve native-like English. This idea aligns with Fan's (2009) view that collocational competence is key for producing native-like language. As Hill (2000) points out, learners and language can convey complex ideas efficiently by using collocational expressions, which allow for effective communication.

With regards to the second aspect found within the first category—the importance of collocational competence for translators and interpreters in general and domain-specific translation/interpretation—both teachers and professionals agreed on this. There is in fact evidence in this respect since the appropriate use of collocations in the translation of oral and written discourse is necessary for specialized translation (Baker, 1992). Baker (1992) further explains that speakers who specialize in translation need a working knowledge of genre/register specific collocations to achieve accuracy in translation. It is then the teacher's belief that awareness of word combinations in different languages is of paramount importance in translation since interpreting lexical items accurately implies considering the range of words an item collocates with. Hence, not only is the knowledge of collocations crucial for general translation, but it is also essential for discipline-specific translations which are often required from these professionals (Baker, 1992).

It is very common for translators and interpreters to translate a wide range of genres which belong to specialized areas such as science, technology, history, etc. Translators and interpreters are frequently requested to have experience in translating specialized discourse which exhibits different kinds of collocational features, making these texts more challenging to translate if the professional is not familiar with the range of collocations which are undoubtedly the essence of that piece of discourse). The teachers interviewed expressed that it is of great importance for a translator or interpreter to be competent in this area when translating documents or discourse which is discipline-specific since lexical and grammatical collocations occur in different registers with varied frequency, and this depends on the genre we're looking at, for instance, one possible combination of words might be more frequent in a scientific journal for medicine or science, rather than in a newspaper column, or in the yellow press. Collocations are important in terms of their frequency, and when translating into Spanish or any other language collocations are vitally important.

Further evidence to support this is given by the professional translator interviewed, who expressed that clients look for location services, which means that the product offered needs to sound completely natural within their specialized field of knowledge. The translator explains that the only way to achieve this is through the proper use of collocations. As it has been evidenced, it is almost absurd to envision a discipline-specific translation, such as a medical journal, without paying close attention to the kind of collocations one can meet in the text. Indeed, a translator who fails at appropriately translating collocations might risk losing their own job or the company's client lists.

In the same line, the interpreter interviewed has made emphasis on the importance of collocations for discipline-specific translation and interpretation, by expressing that equivalence in translation and interpretation is attained at pragmatic level, thus, knowledge of the main features and conventions of different genres and professional, academic, language is fundamental. The interpreter adds that each discipline has its own conventions agreed by a discourse community. If the translation ignores such

conventions, such as certain terminology and phraseology, these translations are rejected or not accepted by the community. The functional or communicative purpose of the translation is not attained and the translator-mediated communication fails.

Translations and interpretations can only be accomplished if the terminology is accurate and accepted by a specific discourse community. Translations neglecting discourse-specific lexical features, like collocations, may result in inaccurate lexical renderings, as highlighted by Baker (1992). Considering a reliable translation in specialized discourse, it is imperative then to add that collocational behavior in different genres contributes to the quality of a translation in that it ensures accuracy and conciseness to the translated discourse (Baker, 1992). In this regard, one of the translators interviewed stated that domain-specific languages have their collocational behavior. Thus, the consistent use of vocabulary is more important in specialized languages than in general languages, as it reveals precision and concision—key features of specialized communication.

The knowledge of collocations is essential for translators and interpreters since those translations which make appropriate use of them sound more natural and professional, and the meaning of a message is conveyed efficiently and successfully. Indeed, collocations are of paramount importance in domain-specific translation in that accuracy is achieved at a semantic and pragmatic level once all features of the language, grammatical and lexical, have been targeted (Baker, 1992). It is clear then that this feature of the language is essential for translation.

The use of corpora has been proven to be ground-breaking in the field of foreign language learning (Bernardini, 2004). This is due to the impact which bringing corpora into the classroom has had in terms of changing from deductive or rule-governed learning to inductive learning. In the light of this, the two teachers, the two translators and the interpreter interviewed in this study suggested that the benefits of using corpora for language learning go beyond the mere use of this tool as a dictionary. The three benefits of using COCA relate to (a) the quality of the language to which students are exposed, (b) the use of corpora to teach domain-specific terminology and (c) the use of corpora for general and domain-specific translation and interpretation.

Regarding the first benefit—the quality of the language to which students are exposed —, the professionals interviewed agreed that one of the most significant advantages of using corpora for language learning has to do with the quality of the stretches of language to which students are exposed. These samples are described as authentic language data which reflect the real use of language in spoken and written discourse. In this light, Granath suggests a series of teaching exercises which aim at exposing students to authentic language patterns through a corpus (Granath, 2009). According to professionals, using a corpus helps learners by providing firsthand experience with authentic language, a key aspect of successful language learning. Moreover, the professionals explain that the issue of frequency is relevant for language learning since this first-hand experience corresponds with the frequency of certain grammatical and lexical patterns of language which learners discover in the use of the corpora. Frequency, then, is of great importance for language learning to take place (Nation, 2001).

The second benefit of using COCA relates to the use of the corpus in the classroom for learning and using terminology, an aspect which was also recognized by the students of this study. As the second translator interviewed for this study is also a teacher in the Translation and Interpretation Program at PUCV, she recognized the importance of using a corpus for teaching terminology, especially since the courses she teaches are part of the

translation/interpretation program. Her stance on using corpora for learning/using terminology corresponds with what research suggests, vocabulary/collocation learning/using is enhanced using different types of corpora (Bernardini, 2004; Romer, 2009).

A third benefit which the professionals recognized in terms of a corpus-based instruction was the use of the corpus for general and domain-specific translation. This was also acknowledged by the students. It seems, therefore, that the use of the COCA is among the corpus software which most translators rely on. The same is also true for domain-specific translations, as one of the translators explains that this is strictly related to using word combinations since the translation memory stores word patterns which are then recovered depending on the type of document to be translated, especially if it is from one specific field, such as medicine.

Along with advantages, the professionals also elicited some negative perceptions about the use of COCA in the language classroom. The first disadvantage, that of time demands, was recognized as the most common problem teachers might face when using COCA in the classroom. This constraint was also identified by the learners who acknowledged that using COCA in class and outside the classroom can be time-consuming. This is perhaps the main reason why teachers avoid using this kind of learning tool in class. Time is very much appreciated when there is a limited number of hours a week students have English lessons (Granath, 2009). Hence, implementing other learning tools which are not mainstream seems to be difficult for some teachers.

The second drawback of using COCA was recognized by one teacher; this has to do with the type of training required for learners to effectively use and take advantage of the learning tool. The teacher, an expert in writing, explains that learners need to know how to interpret the data they find in the interface. Although learners need not be experts in using the software, it is of course necessary for them to have at least some instruction on the different features of the online corpus. In this light, Sinclair (2004) claims that for students to be successful in the use of corpora there is a need to consider their proficiency and experience in using the corpus; this is because it is easy for non-experts to derive wrong conclusions on the evidence provided by the corpus.

It is worth noting that the two drawbacks regarding the use of the COCA which were mentioned in the interviews were identified by teachers of English, and none were stated by the two translators, nor by the interpreter. This is probably due to the need for corpora use in translation and interpretation studies, as opposed to the need to use a wide variety of language strategies and methodologies for general language teaching.

## **Conclusions**

This research was conducted to identify the perception of a group of students from a Translation/Interpretation program regarding their learning and using of collocations through the Corpus of Contemporary American English. It also aimed to identify the perceptions of teachers, translators and interpreters on collocational competence and corpus-based instruction to using and translating collocations. The final aim of this research was to determine to what extent a corpus-based instruction is efficient for the learning and using of collocations as an alternative approach to teaching these lexical items to students from a Translation and Interpretation program.

Results of the study indicate that the students have a positive perception towards learning collocations through a corpus-based instruction, and that they favored using COCA not only to learn, but also to use collocations in different tasks including translation. The data analyzed in this study also revealed that the professionals interviewed believe

collocational competence is necessary for learners to achieve mastery of the target language, and that to accomplish this, a corpus-based instruction would be highly beneficial for them.

Through the analysis of the students' journals and their opinions in the focus group, it was possible to fulfill the first and second objectives of this investigation. On the one hand, it was possible to identify the students' perceptions regarding the learning and using of collocations and, on the other, the extent to which the students perceive corpus-based instruction as appropriate. The analysis of the data revealed 4 different categories which reflect students' awareness of collocations and collocational competence, the reasons why the learning and using of collocations is relevant for them, the benefits of using the Corpus of Contemporary American English for learning and using collocations and the disadvantages of a corpus-based instruction.

Students conveyed that collocational awareness is primarily a university-level skill, not a school-level one, and that learning collocations is highly relevant for language learning, especially translation and interpretation. Finally, students recognized 5 benefits of using COCA: (a) using the corpus for learning collocations, (b) using the corpus to achieve an active role in their learning process, (c) using the corpus to learn specialized terminology, (d) using the corpus to improve the written production of English and (e) using the corpus for translation/interpretation purposes. The only disadvantage to using the corpus which was identified was related to time-constraints, though students believe this can be overcome once they learn how to use all the features of COCA. These findings correspond with the literature in that, on one hand, the Lexical Approach highlights the importance of raising students' awareness of collocational competence and of developing the ability to chunk language successfully (Lewis, 1993). On the other hand, DDL tasks, where learners use corpora by themselves, have proven to be effective to improve vocabulary learning (Cobb, 1999, 2003).

Through the analysis of the teachers, translators and interpreters' interviews it was possible to fulfill the third specific objective of this study: to identify their perceptions on collocational competence and a corpus-based instruction to using and translating collocations. In this respect, 3 categories were found: (a) the importance of teaching collocations and developing collocational competence, (b) the advantages of using COCA, (c) the disadvantages of using COCA. To this regard, it was possible to see that the professionals in the education and translation/interpretation field believe teaching collocations is essential to help students achieve effective communication in the target language, produce native-like English, and learn/use specialized terminology/collocations. Also, the professionals acknowledged several advantages of using COCA, the most mentioned ones being (a) the quality of the language to which students are exposed, (b) the use of this corpus for translation and interpretation of general and domain-specific discourse. Finally, the professionals also identified two possible disadvantages of corpus-based instruction: (a) time constraints and (b) the kind of training required to effectively use COCA. Literature supports the perceptions of these professionals since research has shown that collocational competence is needed in the field of translation/interpretation (Manafi & Ghaffarof, 2013) and that a corpus-based approach to teaching collocations has proven to be effective (Cob, 1999, 2003; Johns, 1991; Bernardini, 2004; Romer, 2009; Granath, 2009).

From what was observed in this study, it is of great importance to consider the teaching of collocations and the development of collocational competence as part of the different English courses in the program. This is due not only to students and professionals' perceptions of collocations, but also to the literature which supports this

approach to language teaching. Based on the results in this study, it is essential to change the approach to teaching these lexical items in terms of the methodology which is currently being used. In this sense, a corpus-based approach to teaching collocations should aim at improving students' lexical proficiency. Moreover, this type of instruction has proven to be appropriate for raising students' awareness of collocational competence; hence, there is a clear need for learners to be instructed in the use of corpora in the language courses as translation and interpretation trainees.

Although the results of this study do point to the need to change the approach towards teaching collocations through corpus-based instruction, there are some limitations which relate to the number of participants. Due to time constraints, only two teachers, two translators, and one interpreter were interviewed to achieve the third specific objective of the research, and this might as well be considered a limitation since a larger sample is needed to validate the findings of this research. However, due to the positive attitudes towards this investigation, we might feel positive in finding similar results if this research were to be extended in terms of the participants.

From this, more inquiries arise for further research: (a) is there a way to motivate learners to use COCA for vocabulary/collocation learning outside the classroom? (b) what is the impact of collocational awareness in oral and written production? (c) what is the impact of collocation knowledge for reading and listening comprehension? and (d) what is the impact of the use of parallel corpora to teach vocabulary to students from a Translation/Interpretation program? This study revealed the perceptions of different actors involved in the Program of translation/interpretation on a corpus-based approach to learning and using collocations. Thus, a more profound study could be done to analyze the impact of collocations on productive and receptive skills and to analyze the use of other corpora for language learning and for translation and interpretation. This would allow a deeper understanding of the importance of collocational competence and the use of corpora for students in Translation/Interpretation studies.

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**SENSITIVE DEPENDENCE ON INITIAL CONDITIONS: A COMPLEX  
DYNAMICAL SYSTEM'S KEY FOR THE UNDERSTANDING OF  
INTELLECTUAL AUTONOMY'S DEVELOPMENT**  
**DEPENDENCIA SENSIBLE A LAS CONDICIONES INICIALES: UN RASGO DE LOS  
SISTEMAS COMPLEJOS CLAVE PARA ENTENDER EL DESARROLLO DE LA  
AUTONOMÍA INTELECTUAL**

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**ABSTRACT**

**Keywords:**

sensitive dependence, intellectual  
autonomy, initial conditions.

In recent decades, interdisciplinary teams at the Santa Fe Institute of New Mexico, have analyzed the mathematics that underlies the evolution of complex dynamical systems. Thanks to computing, we can graphically see a curious property of these: the sensitive dependence on initial conditions (SDIC). Some mathematical aspects of complexity have been verified with significant approximations in physics. Translating to human behavior is a task still very far from our reach: the level of complexity is incomparably greater, and human freedom seems to prevent any prediction; However, several authors point towards the study of the human psyche from this perspective. We do not expect to verify mathematical constants yet, but finding features or patterns can be transcendental for educators to understand the complex processes that hide behind the appearance of linearity of human development. What do teachers think about sensitive dependence on initial conditions in the development of intellectual autonomy? With the help of the ATLAS.ti program we can process qualitative data and obtain relationships between them. To what extent is the human being marked at the beginning? What factors can condition or reverse the process? Hundreds of interviews with teachers and the opinion of some geneticists, seem to confirm that the human psyche behaves as a complex dynamic system. A hopeful result for the teacher if this dependency goes beyond the beginning and allows for a significant change in the educational trajectory, even when it has been negatively marked from the beginning.

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**RESUMEN**

**Palabras clave:**

dependencia sensible, autonomía  
intelectual, condiciones iniciales.

En las últimas décadas, equipos interdisciplinarios del Santa Fe Institute de Nuevo México, analizan las matemáticas que subyacen en la evolución de los sistemas dinámicos complejos. Gracias a la computación, podemos ver gráficamente una curiosa propiedad de estos: la dependencia sensible a las condiciones iniciales. Algunos aspectos matemáticos de la complejidad se han verificado con aproximaciones significativas en el ámbito de la física. Trasladar al

comportamiento humano es una tarea todavía muy lejos de nuestro alcance: el nivel de complejidad es incomparablemente mayor y la libertad humana parece impedir cualquier pronóstico; sin embargo, varios autores apuntan hacia el estudio del psiquismo humano desde esta perspectiva. No esperamos verificar constantes matemáticas todavía, pero encontrar rasgos o patrones puede ser trascendental para que la mirada de los educadores comprenda los procesos complejos que se esconden tras la apariencia de linealidad del desarrollo humano. ¿Qué opinan los profesores sobre la dependencia sensible a las condiciones iniciales en el desarrollo de la autonomía intelectual? Con la ayuda del programa ATLAS.ti podemos tratar datos cualitativos y obtener relaciones entre ellos ¿En qué medida el ser humano es marcado en el inicio? ¿qué factores pueden condicionar o revertir el proceso? Cientos de entrevistas a docentes y la opinión de algunos genetistas, parecen confirmar que el psiquismo humano se comporta como un sistema dinámico complejo. Un resultado esperanzador para el docente si esta dependencia va más allá del inicio y permite provocar un cambio significativo en la trayectoria educativa, incluso cuando ha sido marcada negativamente desde el principio.

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## **Introduction**

Traditionally we have spoken of complexity as a quality of the complex, in the sense of complicated; but there is another deeper definition that comes from epistemology and that, in the words of César Merea, E. (2013, p. 26) "corresponds to a reaction of the human sciences against the paradoxical simplification in which the hard sciences would have fallen, which, as they discovered the complexity of their objects of knowledge, became specialized and acquired a reductionist vision of the world". Complexity Sciences are now part of a multitude of research works in all fields in the last decades. In the Educational Sciences, several authors approach research considering the importance in education of taking into account the multitude of variables involved. Thus, it is said that education is a complex process, in the sense of *complicated*; but this is not the meaning considered here, but rather, the educational process is observed from the perspective, and taking into account the mathematical processes that underlie complex dynamic systems, with the purpose of better understanding human behavior, so often paradoxical, unpredictable, with growth or collapse marked by sudden and unexpected crises. Every teacher is puzzled by the unpredictability and surprise of human development. Paradoxically, this is encouraging. Understanding that the human being can surprise and resists being pigeonholed prevents any definitive diagnosis, no matter how complicated the circumstances; each crisis can lead to a discontinuity, increasing or decreasing, and the influence of the teacher can be key in this process. Although the mathematization of the problem is not yet realized in the strict sense (acceptable results have hardly been achieved in the physical sciences where, with the experiment of convection coils, a quite acceptable approximation of Feigenbaum's constant was achieved  $\delta \cong 4.6692 \dots$  limit of the reasons for the amplitude of the intervals that follow one another on the way to chaos); parallels are sought between the mathematical aspects of complexity and the evolution in the development of the intellectual autonomy of the individual. Numerous authors include the word complexity in the field of Educational Sciences: Puente Vigiola, I. (2020), makes a historical tour from a philosophical point of view; Joaquín Robles, D. and Ortiz Granja, D. N. (2020), try to approach educational research from a holistic aspect; And in the same line González Carrasco, M. (2004); Fuentes Guevara, D. (2016), and many others. They all try to apply an eminently philosophical vision of complexity; in the same way that Morin, E. (2019), throughout his trajectory as a philosopher of complexity. Everyone looks at man as a complex being in whose behavior a multitude of interacting variables converge; but we are still a long way from transferring the mathematical results of complexity to the field of the human psyche. Trying to find the universal mathematical constants that govern the evolution of a complex dynamic system in the evolution of human behavior is, for now, a utopia.

However, some complexity scientists: David Feldman (Santa Fe Institute), Robert Bishop, Stephen H. Kellert, among others, affirm that we could dare to look for parallels even in the human sphere, although not with exact and precise results. This study analyzes similarities between the dynamics observed by educators and those of complex dynamic systems. As Feldman, D. (2023, Introduction to Dynamical Systems and Chaos, Unit 3.5, min 4:21) says, one must contemplate the possible parallelism "in the same way we would contemplate a cartoon representing a real image". That is, looking for traits, patterns, similarities. Although this type of mathematical parallelism has not yet been established in the Educational Sciences, due to the difficulty of measuring human behavior mathematically, the present study tries to detect similarities between the topological

features of complex dynamics, the coincidences in other sciences, and the teachers' perception of their students' evolution. A single mathematical aspect among those characterizing complex dynamical systems that can have enormous repercussions on the educator's view is analyzed: the sensitive dependence on initial conditions (SDIC). A property that can be visualized in mathematical terms thanks to computer science. (Tables 1 and 2)

On the other hand, and very important for the subject of the research, Feldman, D. explains that this sensitivity is maintained throughout the recurrent succession that models the passage of time for a dynamic system, represented among other similar functions by the following function  $x_{n+1} = r \cdot x_n \cdot (1 - x_n)$ . Feldman states that a system that has sensitive dependence on initial conditions behaves as if every moment were a decisive moment:

At every moment, the future trajectory is poised between those possible different futures, and the difference between those is a tiny little flap of gust of wind from a butterfly flapping its wings [...] so it's this continuous sensitivity where at every point along the journey a tiny change can make a big change later on and there is no way to know what those changes will be. (2023, Unit 3.3, V.5, min 3: 27)

## Method

For the present research a mixed methodology is used, combining on the one hand hermeneutics in the analysis of the literature concerning the possible fields and modes of application of the complex perspective, to which is added, beyond the philosophical perspective, the application of the mathematical aspects of complexity. Computer modeling using software is used for this purpose: Bifurcation Diagram for the Logistic Map and Logistic Equation: Comparing Initial Conditions from ComplexityExplorer.org, in order to detect the mathematical significance of the property analyzed in the study: the sensitive dependence on initial conditions (SDIC).

Given the novelty of the extension of the mathematical aspects of complexity to the field of Educational Sciences, it is convenient to reinforce their approach to human behavior with a transdisciplinary analysis, typical of the complex perspective, of the same mathematical aspects in the field of physics and biology, looking for parallels that reinforce the hypothesis about the universality of the aspects of complex dynamics, in our case of a fundamental property: SDIC.

Taking into account the many precautions necessary to transfer properties of physical or biological systems to the study of the individual, whose freedom calls into question any attempt at determinism, it is advisable to reinforce the hypothesis analyzed with contributions from teaching experience. For this purpose, the qualitative analysis based on teachers' perceptions is placed in front of the mathematical and transdisciplinary analysis, reinforcing the holistic perspective of the study. Using the qualitative data processing software ATLAS.ti, a sample of 600 interviews with teachers and internship students of the Faculty of Education of UNIR in the provinces of Alicante, Valencia and Murcia is processed; analyzing among the codes indicated, the experiences on the phenomenon of SDIC in the initial moment and throughout the educational process, as well as its relationship with the development of intellectual autonomy. The parallels found provide an interesting confirmation that opens the door to future research.

### **Mathematical Visualization of the Phenomenon of Sensitive Dependence through the Logistic Equation Program: Comparing Initial Conditions.**

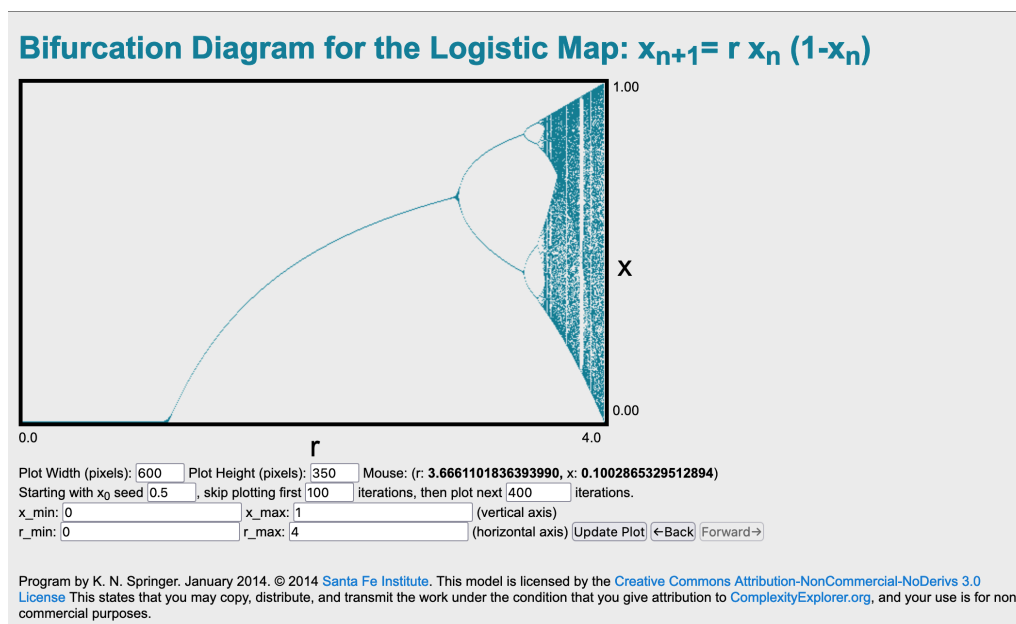
Feldman, D. makes available, from the SFI (ComplexityExplorer.org), in the course Introduction to Dynamical Systems and Chaos, the program to visualize the trajectories of the logistic function:  $x_{n+1} = r \cdot x_n \cdot (1 - x_n)$  Logistic Equation: Comparing Initial Conditions.

At first we start by studying a particular function, later, as is often the case in mathematics, the results find a parallel in the physical and real world. Complexity scientists (Mitchell, M., Feldman, D., Krakauer, D., Bishop, R., and many others) have studied the *universality* principle that extends this result to a broad set of functions, which underlie the dynamic process of complex systems represented in time by a recurrent function.

The equation  $x_{n+1} = r \cdot x_n \cdot (1 - x_n)$  models the growth of a population with a growth rate  $r$ . It is from it that the famous bifurcation diagram representing the trends (limit) of the recurrent function according to the values of  $r$  is discovered.

**Figure 1**

*The bifurcation diagram or logistics map.*



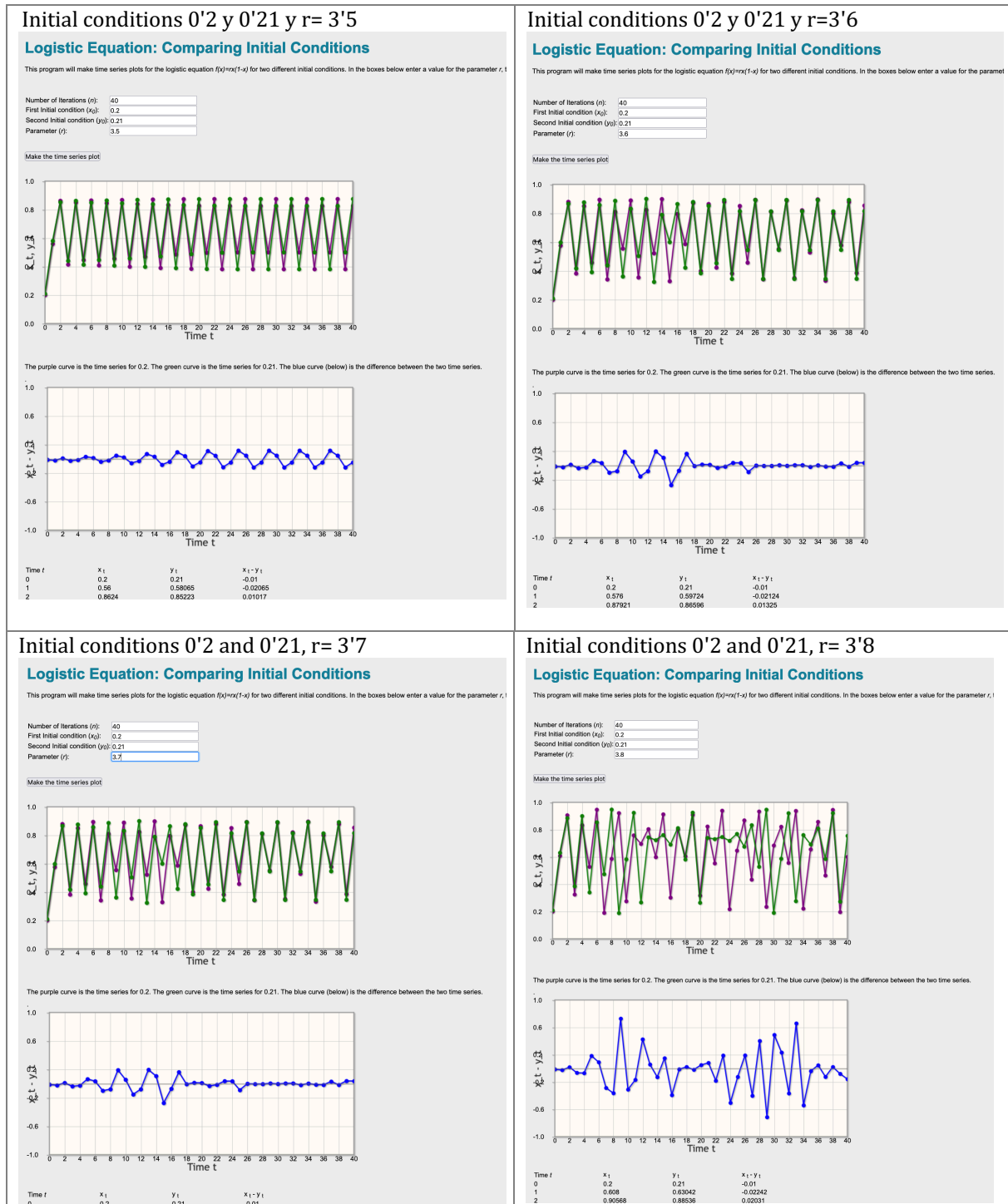
*Note.* Own elaboration based on the Bifurcation Diagram for the Logistic Map (SFI) program. For values of  $x, r$ :  $0 \leq r \leq 4, 0 \leq x \leq 1$  For each  $r$  we represent the limit of the sequence with  $x_0 = 0.5$ . It is important to note that for almost all initial conditions the boundary values are similar until you reach the areas close to chaos, where high dependence on initial conditions begins  $3.56994 \leq r \leq 4$  where high dependence on initial conditions begins.

The images in Tables 1 and 2 give an idea of the degree of sensitivity to initial values (or seeds). In the start boxes, the number of iterations can be chosen ( $n = 40$ ), which is sufficient to observe the evolution. In the First Initial Condition and Second Initial Condition boxes, the two initial conditions are entered in each case. In the first table these are kept fixed to see how they vary with increasing values of  $r$  ( $1 \leq r \leq 4$ ). In the second table,  $r$  is kept fixed in the chaos zone ( $r=4$ ) to observe the evolution in time of the separation of the respective trajectories for each initial condition. It is a question of observing the behavior in a particular case (growth of a population) in order to transfer

by the principle of universality, first to a wide range of functions, and then to complex dynamic systems in general.

**Figure 2**

*Increased sensitivity to initial conditions as  $r$  approaches 4*



Note: Own elaboration using the Logistic Equation Comparing Initial Conditions program.

With increasing value of  $r$ , ( $3.5 \leq r \leq 4$ ) the trajectories depicted at the top diverge earlier and earlier. The top graph shows the two overlapping trajectories. In the graph below, the differences between the two graphs can be seen in blue.

**Figure 3**  
*Strong sensitivity to initial conditions when  $r=4$*



Note: Own elaboration using the Logistic Equation Comparing Initial Conditions program.

With the value  $r=4$  we are in the chaos zone, where the sensitivity to initial conditions is very strong. The initial conditions are approached until they differ by just  $10^{-10}$ . It can be seen how, although with a few more units of time, the graphs soon differ completely despite starting at practically identical values.

In principle, this is a property of a very simple recurrent mathematical function that would seem to have nothing to do with reality, much less with human behavior. However, the complexity sciences reveal many surprises: as Feldman, D. (2023, Unit 6.5), what happens with this function happens with a very large set of functions (this phenomenon is repeated with all functions with a single quadratic maximum that map an



interval in itself); moreover, it is a universal phenomenon that underlies transversely all dynamical systems that have aperiodic behavior in the zones close to chaos (when  $r$  approaches 4); not only physical systems, but also biological, sociological... It is inevitable to ask whether the phenomenon of universality can also be extended to the field of psychology. It is still an open question because human freedom seems to reject any kind of systematization; and philosophers and psychologists debate between freedom and determinism. But chaos researchers are continually expanding the scope of application of this new science. Morin, E. (2019), from the philosophical field, introduces the ideas of complexity making it clear that complexity is not opposed to determinism and is present in all fields; something very familiar, on the other hand, to mathematicians investigating chaos, since it is generated by deterministic mathematical functions. Not only from philosophy; from the field of psychiatry, Caparrós, N. and Cruz Roche, R. in their work *Journey to Complexity* (2012-13) make a journey through the different levels in which it is present, from the physical to the psychological. But also from physics and mathematics, scientists of complexity see the horizon of application extending more and more: Feldman, D. (2023), in his course *Introduction to Dynamical Systems and Chaos* reflects on the implications in everyday life of chaos studies and comments:

"I think this is important for any area of science [...] the world follows rules, but these rules need not be ordered or allow predictions; this is one of the twists that chaos and sensitivity to initial conditions gives us [...] Some argue that phenomena that are sensitive to initial conditions move us away from determinism and give us a space where free will has room again. Personally, I'm not so sure. It may take us away from the gloom of determinism, but it's not clear how the butterfly effect, which is in essence unpredictable, leaves room for freedom, although I'm not quite sure how to think about it" (Feldman, 2023, Unit 3.8 Summary, part 2, min 7:41-8:55)

Although Feldman is silent, his reflection on complexity even in the realm of personal freedom is very important. The simple fact of analyzing the question of free will versus determinism, from its eminently mathematical perspective, is already very significant. Like him, other complexity scientists such as. Kellert, S.H., Bishop, R. (2017), and more recently Hoefer, C. study how chaos affects all fields of study, including philosophy and psychology. Thus, Hoefer, C, in his book *Causal Determinism*, states:

"The popularization of chaos theory in the relatively recent past perhaps made it seem self-evident that nature is full of genuinely chaotic systems. In fact, it is far from self-evident that such systems exist, other than in an approximate sense. Nevertheless, the mathematical exploration of chaos in dynamical systems helps us to understand some of the pitfalls that may attend our efforts to know whether our world is genuinely deterministic or not" (2023, p. 20)

More recently, Van der Maas, H.L.J. (2023), has dealt with the subject in greater depth in his book: *Complex-Systems Research in Psychology*, in which he states in his foreword: "We, with our complex brains embedded in various hierarchies of social systems, are the ultimate complex systems" (p. xv) and in which he quotes Doyne Farmer, J. (2017) as an introductory sentence: "We have an increasing need to model ourselves" (p. vii).

The fact of asking about determinism in all fields (including human behavior) from the perspective of mathematics that analyzes chaos is already surprising. Without resolving the question of freedom, we try to analyze the experience of sensitive dependence on initial conditions; something that is known as a determining characteristic of the complexity of a system. As Hoefer states:

A deterministic chaotic system has, roughly speaking, two salient features: (i) the evolution of the system over a long time period effectively mimics a random or

stochastic process - it lacks predictability or computability in some appropriate sense; (ii) two systems with nearly identical initial states will have radically divergent future developments, within a finite (and typically short) timespan. We will use "randomness" to denote the first feature, and "sensitive dependence on initial conditions" (SDIC) for the latter. Definitions of chaos may focus on either or both of these properties; Batterman (1993) argues that only (ii) provides an appropriate basis for defining chaotic systems. (2023, pp. 16-17)

Thus, for some authors, detecting evidence of SDIC in human behavior would confirm its complex behavior and would allow us to deduce the set of properties of complex dynamic systems. To situate the freedom of human behavior as the limit in the scale of complex organisms and their levels of complexity would be one of the aspects in which the present research could have an impact: having a small margin of choice would be sufficient for the management of significant changes. This is a mathematical visualization of freedom that is also crucial for the teacher's vision and prevents a frequent defect: pigeonholing students.

Does human behavior belong to this type of systems highly sensitive to initial conditions?

The above graphs provide a visual image of the significance of the SDIC phenomenon. It differs greatly from the separation of two linear paths that start with different inclinations. This is another level: infinitesimal variations produce, extraordinarily quickly, totally different paths. This is how Bishop, R. relates it in his book *Chaos*: "Many authors consider an important mark of chaos to be trajectories issuing from nearby points diverging from one another exponentially quickly. However, it is also possible for trajectory divergence to be faster than exponential". (2017, p. 6)

Some authors visualize a sphere in equilibrium on the vertex of a cone understanding the sensitivity to fall in one direction at the slightest influences. As Bishop expresses quoting Poincaré: "A man walking on a Street on his way to his business. He start out a particular time. Meanwhile unknown to him, there is a tiler working on the roof. The tiler accidentally drops a tile, killing the business man. Had the business man started out at a slightly earlier or later time, the outcome of his trajectory would have been vastly different!" (2017, p. 6). As Yorke, J.A. says. (2015, min. 3): "Everybody knows about chaos. In fact, you may not know you know about chaos, but you live chaos"

### ***Contributions from Physics.***

There is a striking parallelism between SDIC and the theories that have been developed in the last decades (1960-2020) on the *anthropic principle* or *the fine tuning of the universe* (Dicke, Carter, Feynman, Barrow, Tipler, Penrose...). In recent years, many scientists have worked on this sensitivity in the initial conditions that seems to mark all natural processes, both physical and biological. Thus Smoot, G. (Nobel Laureate in Physics) states in Bollorée, M. & Bonassies, O: "The Big Bang, the most cataclysm-like event we can imagine, if you look at it closely, appears as finely orchestrated" (2023, p. 279). From the initial instant, there are about twenty numerical values invariant in time and space. The following list shows the extreme sensitivity of the most important values:

**Table 1**

*The main constants of the universe and the accuracy of their fit.*

Universal Gravitation Constant	$G = 6'67418 \cdot 10^{-11} m^3 Kg^{-1} s^{-2}$
Coupling constant	$\alpha - g = 10^{-39}$
Electromagnetic force. Cte of fine structure.	$\alpha = 0'0072973525376$
Strong interaction (cohesion of atomic nuclei).	$\alpha - s = 1$
Weak interaction	$\alpha - w = 10^{-6}$
Speed of light	$c = 299792458 m \cdot s^{-1}$
Planck's constant	$h = 6'626070040 \cdot 10^{-34} J \cdot s$
Boltzmann's constant	$k = 1'380649 \cdot 10^{-23}$
Proton charge (+) and electron charge (-)	$1'6021766208 \cdot 10^{-19}$
Proton mass	$1'6726219 \cdot 10^{-27}$
Neutron mass	$1'674927471 \cdot 10^{-27}$
Electron mass	$9'10938356 \cdot 10^{-31}$
Cosmological cte fixing the initial curvature of the universe	$1'289 \cdot 10^{-52} \cdot m^{-2}$

Note. Source: Bolloré & Bonnassies (2023)

Lennox, J. (quoted by Bolloré, M. & Bonnassies, 2023), Professor of Mathematics at Oxford, explains: "At the beginning of the Universe, in order for life-enabling chemistry to exist, the relationship between the electromagnetic force and the gravitational force must have been tuned to a precision of  $1 \cdot 10^{-40}$ ." (pp. 184-185)

Bolloré, M. & Bonnassies, O. cite in their book a long list of scientists who, since the end of the 20th century, have been working in the field of biotechnology. XX to the present day support the fine-tuning theory. A single variation in one of these decimal places would have prevented the appearance of life; a variation in the expansion velocity in decimal 15, according to Robert Dicke, and the Universe would have been scattered. In decimal 60 according to Planck (2023, p. 192)

why for example does G have exactly that value? Demaret, J. (1994, p. 2) admits that this value cannot be explained by any existing theory. But if its ratio to the strong nuclear force were not exactly  $10^{39}$ , there could be no life in the universe. The same is true for the other 20 constants as Geraint, F. and Barnes, L. A. (2016, pp 108-109) explain

Cosmologist Trint Xuam Thuan went even further by demonstrating that, for the Universe to lack curvature, the primordial density had to have been determined with a precision of the order of one part over  $10^{60}$ . (Barros, 2019, p. 9)

Some complexity scientists have already related the dynamics of the universe and its origin to the human psyche. Thus, César Merea, E., in his reflection on *Complexity and Psychism*, after detailing the process of the origin of the universe, states categorically: "It corresponds to say that the complexity of the psyche is the complexity of the Big Bang and that this is its essence." (2013, p. 24)

Complexity that refers to the deployment of energy as a central element in expansion, but also to the fine-tuning of its beginnings.

From the field of physics come the first intuitions about chaos. Feigenbaum began by reflecting on the passing of time, periodicity, the observation of cumulus clouds and their seemingly random shapes. Little by little, the chaos has spread to all processes. Is it possible to consider human processes as well? We are not yet in a position to apply mathematical formulas to human behavior, but something hints that perhaps freedom itself can be explained from the perspective of chaos. In fact, some physicists during the last decades have wondered about it. Barros, P., in his comments to Gleick's work (1987): "Believers in chaos [...] speculate about determinism and free will, evolution and the nature of conscious intelligence. They feel that they interrupt a certain tendency of the

scientific to reductionism, to the analysis of systems in terms of their constituent parts [...] they believe that they are looking for the totality.” (2019, pp. 11-12)

Erwin Schrödinger published in 1944 his book *What is life?* on the question of life. In it, he contemplates living organisms as, in the words of Cruz Roche (2013, p.16), *neguentropic islets*. Schrödinger reflects on the behavior of atoms and molecules in inert matter: curiously, at the macroscopic level they follow the laws of physics, but when we approach each particular molecule and atom, erratic behavior is observed. Only when considering the statistical average of their positions do they respond exactly to the laws of physics. However, in living organisms this is not the case: each molecule perfectly follows the complex laws of genetics and life. Schrödinger, apologizing for his opinion on biology, a subject in which he is not an expert, is surprised at the precision and organization of each organic molecule (bearing in mind that he published his book in 1944 when much was still unknown about the organization of the DNA molecule). In this line, a deeper question is asked, which is still topical and timely for the present reflection: *Why are atoms so small? Why is each neuron so small compared to the size of the brain? In what way does each tiny unit contribute in order to an overall thought produced in the brain?* This physicist, Nobel Prize winner for his work on the equation that bears his name and his contributions to quantum physics, gives an answer that anticipates later research on complex dynamical systems and their sensitive dependence on initial conditions:

*Why should an organ like our brain, with the sensory system attached to it, of necessity consist of an enormous number of atoms, in order that its physically changing state should be in close and intimate correspondence with a highly developed thought? On what grounds is the latter task of the said organ incompatible with being, as a whole or in some of its peripheral parts which interact directly with the environment, a mechanism sufficiently refined and sensitive to respond to and register the impact of a single atom from outside?* (p.3)

On the one hand, the precision and stability of the operation is surprising, despite the vulnerability of the physical matter and the variations of the environment; and on the other hand, the delicate sensitivity to capture the changes in it and respond or adapt to them.

### ***Some Ideas that Illuminate from Genetics***

It is impossible not to draw a parallel between the fine-tuning of the universe at the initial instant and the beginning of human life and the circumstances surrounding it. As Lejèune, J. says “Life has a very long history, but each one has a very precise beginning: the moment of conception”. (2009, p. 35)

In the Educational Sciences, the repercussions of the first stages of life, their permanent and obstinate incidence in the processes of autonomy development, are well known. How far back do we need to go to assess the influence of the environment on subsequent development - is the initial instant of the human being as important as the big-bang for the universe? does the new creature possess that sensitive dependence on initial conditions characteristic of complex dynamic systems? Psychological studies on *early adversity*, as shown by the Spanish Association for Mutual Aid in Cases of Early Adversity and Attachment, reveal interesting data on the persistence throughout development of the influence of negative factors in early childhood, including at the time of gestation. Although it is difficult to go back to the initial instant to reveal whether there is a sensitive dependence on the initial conditions at the beginning of human life, there are some texts that illuminate the present investigation in a special way: In 1989, Jérôme Lejèune, the French geneticist who discovered the trisomy 21 characteristic of Down

syndrome, traveled from France to attend the Maryville, Tennessee, courthouse to assist in the difficult decision to consider the legal status of seven frozen human embryos. In his statement he gave a detailed account of the process of formation of the new individual in which he referred to the first moments in these terms:

The very young human being, just after fertilization, after having divided into two cells, divides into three. Because, curiously, we did not divide ourselves into two, four, eight... no; at the beginning we did not do it that way. After division into two approximately equal cells, only one of the cells divides into two. There is then a moment when, within the zona pellucida, we pass through a three-cell stage. This has been known for fifty or sixty years, but it remains an embryological enigma since, after this three-cell stage, it starts again, goes to four, and continues with multiples of two. What does it all mean? We don't know exactly, but it is of great importance: we can manipulate mouse embryos and separate the cells inside the zona pellucida of a sixteen-cell embryo and take some of them. We can take another few cells from another embryo, and put them all together inside a new zona pellucida from which the rightful occupant is expelled. Most of the time it fails, but sometimes a chimera emerges. If a black and a white embryo have been chosen, we will have a mouse with mottled fur. This can be done with a very small number of cells. We have tried three different alignments and have obtained mice with characteristics of all three. It has been tried with four and it doesn't work, five, and it doesn't work either. This reminds us that when we divide at the beginning of our life we go through a three-cell stage. Perhaps, at that moment, one of the cells sends a message to the other two [...] to suddenly understand: We are not a population of cells, we are united to form an individual! That is, individualization, what establishes the difference between a population of cells in a culture and an individual is established at the three-cell stage, i.e. very soon after fertilization. (2009, pp. 45-46)

The entire design of the new being takes place at the initial instant. Any slight modification in the individual's global project at that moment will have long-term repercussions. Lejèune summarized in his lecture *The Incarnation of Intelligence* collected in *In the Beginning, Life*: "In the beginning there is a message, and that message is life" (2019, p. 79). The extraordinary sensitivity of the maternal uterus and its response to negative emotions in the face of conception is a sign that nature is working in the direction of searching for optimal conditions at the moment of fertilization. Along these lines, Dr. Ruiz Zambrana (2024) points out that stress as a lifestyle complicates female and male fertility, not only from the perspective of the greater good for the mother. As Lejèune explains, from conception, it is the embryo that directs all the changes that occur in the mother's body, for its own benefit. Everything points to the fact that optimal conditions are directed to the importance of the environment surrounding the initial instant of life.

After reading Lejèune's statement before the Maryville Court of Justice, it does not seem irrelevant that nature foresees for the instant of conception the psychological atmosphere that accompanies an act of love. It is difficult to go back to the first instant to see the repercussions of the conditions at the instant of conception and differentiate them as a key instant beyond the total process of gestation and early childhood, but complexity theory reveals that every complex dynamic system has a strong dependence on initial conditions. In our case, as stated by Caparrós (2013) and as reflected in the title of his work: *The psyche (is) a hypercomplex process*, or as we have stated: *the complex system par excellence*.

In the same vein, Lejèune talks about sensitivity in the transmission of information for the creation of the new being:

To transmit information from parent to child, nature uses the smallest possible language. And this is very necessary, because life takes advantage of the movement of molecules to put order in the erratic movements of the particles themselves, so that this randomness is transformed according to the need of the new being [...] With life we find ourselves at the very limits of matter, energy and information. (2009, p. 37)

### **Complexity Sciences and Psychology**

*Teachers' experience of sensitive dependence at the initial moment and throughout the educational process*

To complete the present research, the experience of education professionals gathered during visits and interviews with teachers in about 600 schools in Spain (Alicante, Murcia and Valencia) will be taken into account when monitoring the internship students of the Faculty of Education of UNIR.

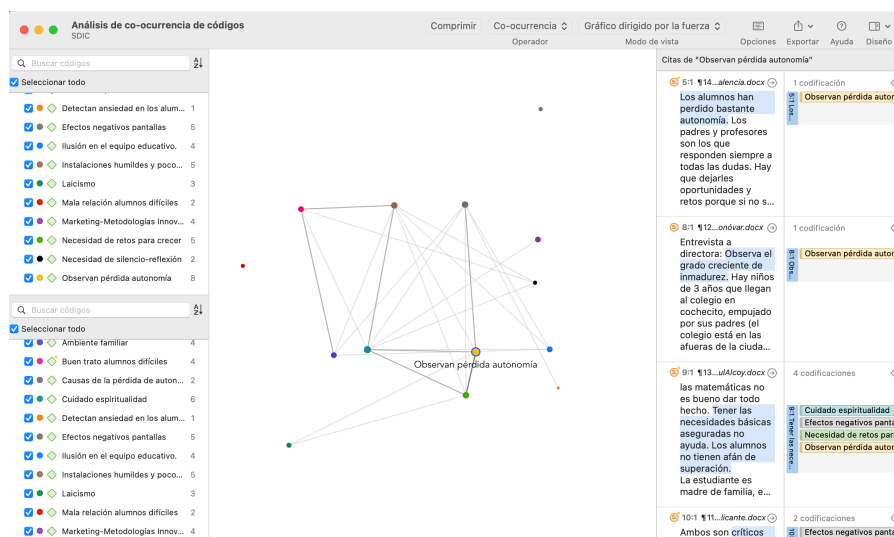
The interviews include conversations with teachers and trainees, as well as members of the management staff of educational centers and psychology offices. The interviews are processed with ATLAS.ti software for qualitative data processing. Not all interviews are of equal quality. A distinction is made between those carried out in psychology offices and those carried out in schools. The first ones collect diagnosed students and have relevant information on the circumstances surrounding the conception and gestation process, getting closer to the initial moment. Under the label of *Special Interviews*, conversations with teachers of long experience are gathered, who have witnessed the evolution through the years dedicated to teaching, together with other younger, but reflective, with true vocation and intuition; interested in analyzing the causes of the decline in the maturity of students. All with a desire to share it for research and deepening the knowledge of the evolution of the intellectual autonomy of students.

The ATLAS.ti software makes it possible to visualize the relationships between the different codes marked in the different texts and the frequency of their occurrence.

## **Results**

**Figure 4**

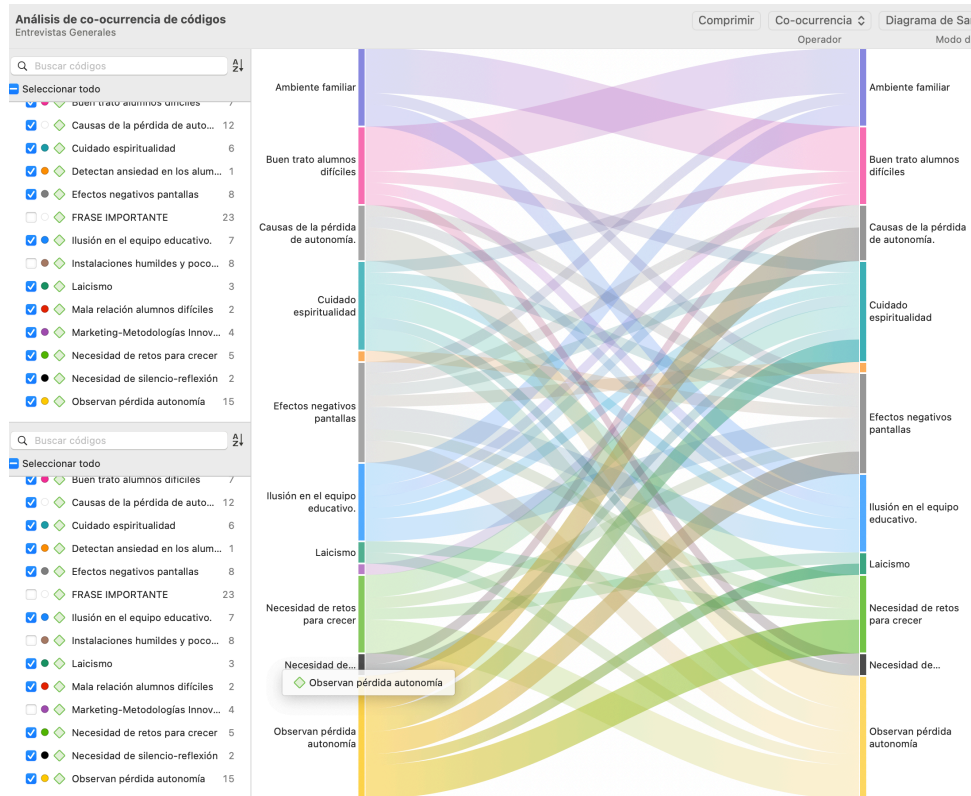
*Loss of autonomy a cause for concern among teachers*



Teachers note the fact of the loss of autonomy in general, despite the efforts of teachers and the continuous involvement of parents in the educational process. the great involvement of parents and teachers generates confusion; it seems to act in the opposite direction.

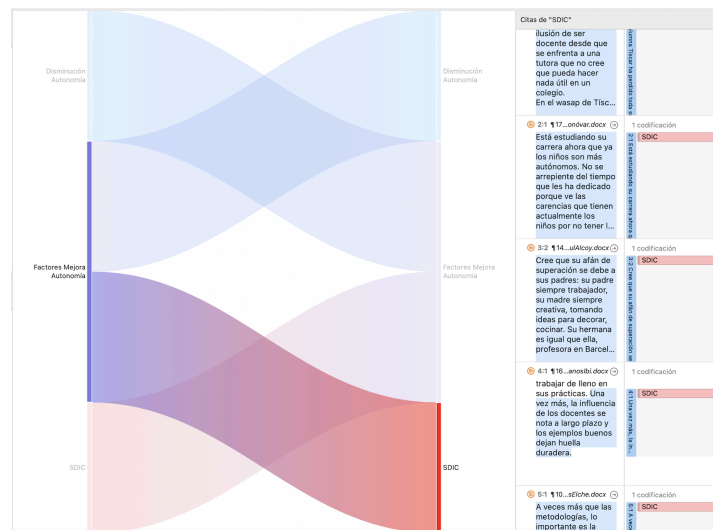
**Figure 5**

*Code co-occurrence graph: Loss of autonomy is a multi-causal phenomenon.*



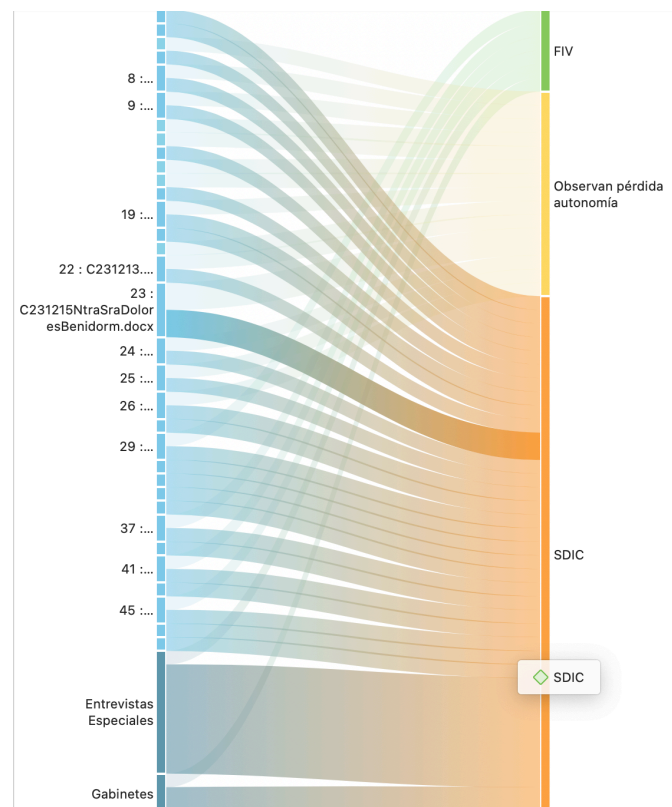
There is no single cause identified by teachers as fundamental in explaining the loss of skills that contribute to intellectual autonomy.

**Figure 6**  
*Co-occurrence of codes related to SDIC and Autonomy improvement*



Sensitive dependence is observed and it presents a significant relationship with the factors that improve the development of autonomy in the students.

**Figure 7**  
*Frequency of perception of the phenomenon of sensitive dependence*



The SDIC code captures aspects of the interviews that allude to the observation of an unexpected response to difficult situations.



## Discussion and Conclusions

A transdisciplinary analysis highlights the parallelism between the mathematical results of Complexity Sciences, Physics, Genetics and Psychology. The significance of the initial instant is revealed in all of them, conforming to the mathematical modeling observed in the graphs of Tables 1 and 2. A process, which, as Feldman points out, generalizes to a broad set of functions underlying all systems with complex dynamics. There are levels of complexity that in the logistic map of Fig. 1 increase when  $r$  approaches 4.

Complexity Sciences have been extending their fields of application to Biology, Economics, Sociology. Behavioral Sciences are presented as the most delicate field for its introduction since any science that has the human being as its object must deal with the pitfall of a unique phenomenon: freedom. However, in complex thinking, freedom itself can become an object of study.

Some complexity scientists such as Caparrós and Cruz Roche (2013) point to the human being as the hypercomplex organism par excellence. Although, as Feldman points out, mathematical parallels must be understood in a metaphorical sense or in a topological sense, mathematically speaking. Detecting some features can be very revealing given the importance of their application.

The parallels found in the analysis of an essential feature, according to Karl Hoefer, such as the phenomenon of sensitive dependence on initial conditions in physical and biological systems, are illuminating. In the field of physics, they go back to the initial instant of the universe, revealing themselves as an essential character, present in all dynamics as they are located in the adjustment and equilibrium of all essential physical constants. Although without mathematical treatment, it appears in the field of genetics, pointing to a key importance of the initial instant.

Figures 2 and 3 respectively reveal autonomy as a central concern and as a multicausal phenomenon. On the other hand (Fig. 4), the phenomenon of sensitive dependence on the initial conditions is pointed out among the possible causes of loss of intellectual autonomy by psychology professionals, who, with the consequent reservations, point out the importance of the circumstances surrounding the first moments and focus on the different fertilization techniques as an element that could be at the origin of later diagnoses. (IVF Code Figure 5). The results are incipient and still confusing due to the number of variables involved, but they point in the same direction: the crucial importance of the initial moment.

What Feldman already pointed out about the SDIC phenomenon is a constant in the conversations with teachers at different stages (Figure 5): *It seems as if every instant is crucial*; the sensitive dependence is maintained throughout the whole process, since the evolution of the dynamic system is mathematically modeled by a recurrent function:  $x_{n+1} = F(x_n)$  the degree of complexity of the trajectory means that the slightest variations at a point along the trajectory have the same sensitivity as that observed at the initial instant. Each instant acts as an initial instant.

This phenomenon is widely noted by most teachers, especially the EE group, who almost unanimously point out the experience of disproportion between the level of dedication and attention to students with special difficulties and the results obtained, not immediately, but in the short or medium term. Meeting with alumni is revealing for them of the influence that is sometimes not possible to detect in the short term.

The results can be summarized in some key ideas for the teaching task: The human being is strongly affected at the beginning and maintains, to some extent, this sensitive dependence throughout its evolutionary process, behaving as, what several complexity

scientists call, the hypercomplex organism par excellence. This strong sensitivity implies the indeterminism that is inherent to all complex dynamics, which is good news for teaching practice: no one is irretrievably lost. The influences at the beginning, despite being strongly conditioning, do not irremediably determine the human being, since this sensitivity is maintained throughout the process. This allows the educator to work with hope in situations in which it is apparently too late, either because of the magnitude of the circumstances or because of the prolonged effects, knowing that small influences in the right direction can trigger significant changes. Therefore, and opening another line of research, the phenomenon of sensitive dependence points towards an increasing personalization in the educational field. Only from a personal point of view can we activate the appropriate springs and fine-tune the necessary changes, both in the didactics of knowledge and its assimilation processes, as well as in the influence exerted on the learning process by the environment: affective relationships, behavioral models, vocation, meaning and transcendence of life processes.

The confluence of the different fields and the harmony in the teachers' perceptions point to the affirmation of the human being as a hypercomplex organism, strongly affected by the conditions surrounding the moment of its conception; that maintains sensitive dependence throughout its development, showing itself highly receptive to the gaze and expectations of its educators, so that small gestures can be transcendental in the process of the development of its intellectual autonomy.

It is a great responsibility for teachers, but also a cause for hope in difficult cases where it seems difficult to channel trajectories strongly affected by an adverse environment. The Complexity Sciences begin their journey in the field of Educational Sciences by providing mathematical tools for a deeper understanding of the person and what chaos can say about their disconcerting reactions, which escape determinism or prediction, but which are therefore also revealing of the surprising possibilities of change hidden in human beings at any moment of their evolutionary trajectory.

## **Acknowledgments**

To the Santa Fe New Mexico Institute for Complexity Sciences, for making available, in an accessible language, all its research work, together with the computational tools that mathematically model complex processes. Especially Melanie Mitchell and David Feldman, who offer in their courses a broad and detailed view of complex dynamics.

To all the teachers who offered their time and experience in the interviews, sharing their discouragement at the disproportion between their efforts and the results. It is for them that the present research work is carried out, with the desire to deepen the knowledge of the processes of development and the disconcerting reactions of the human being, on the one hand revealing its complexity and resistance to determination, but also the hope that arises from the strong dependence (SDIC), which makes possible what we have called *freedom*, that is, the possibility of the human being to break any conditioning to change his destiny.

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*Dependencia sensible a las condiciones iniciales: un rasgo de los sistemas complejos clave para entender el desarrollo de la autonomía intelectual*

**ANALYSIS OF THE INCIDENCE OF DISTRIBUTED LEADERSHIP ON  
THE SENSE OF BELONGING AND TEACHER COMMITMENT IN THE  
ESTABLISHMENT OF GOOD PRACTICES**  
**ANÁLISIS DE LA INCIDENCIA DEL LIDERAZGO DISTRIBUIDO SOBRE EL  
SENTIDO DE PERTENENCIA Y COMPROMISO DOCENTE EN EL ESTABLECIMIENTO  
DE BUENAS PRÁCTICAS**

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**ABSTRACT**

**Keywords:**

distributed leadership,  
commitment, professional  
learning, belonging.

The purpose of this study is to evaluate the influence of distributed leadership on teacher professionalization and the implementation of "good practices". The literature highlights the importance of distributed leadership in the current educational context, recognizing and valuing different roles within a team. The target population of this research is teachers of the Elbio Fernández Educational Center in Montevideo, Uruguay, which has a total of 300 teachers. The methodology employed follows a sequential explanatory mixed design. The quantitative phase uses a questionnaire to analyze leadership patterns, with a sample of 170 teachers. The qualitative phase includes interviews with 14 teachers to deepen responses and explore the sense of belonging and commitment of the participants. The results indicate that leadership in Elbio Fernandez is distributed, with emphasis on direction and coordination. A positive relationship is established between distributed leadership, sense of belonging, teacher commitment and professionalization. In summary, this study provides valuable information on the interrelationship between distributed leadership, teacher commitment and professionalization, contributing to improve educational management and teacher development for educational success. With the results of this study, it is hoped that educational centers can continue prioritizing distributed leadership models that enable teacher professionalization and the establishment of best practices.

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**RESUMEN**

Este estudio tiene como objetivo evaluar la influencia del liderazgo distribuido en la profesionalización docente y la implementación

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**Palabras clave:**

liderazgo distribuido, compromiso, aprendizaje profesional, pertenencia.

de "buenas prácticas". Se destaca en la literatura la importancia del liderazgo distribuido en el contexto educativo actual, reconociendo y valorando diferentes roles dentro de un equipo. La población a la que va dirigida esta investigación es el cuerpo docente de la Escuela y Liceo Elbio Fernández de Montevideo, Uruguay, que cuenta con un total de 300 integrantes. La metodología empleada sigue un diseño mixto explicativo secuencial. La fase cuantitativa utiliza un cuestionario para analizar patrones de liderazgo, con una muestra de 170 docentes. La fase cualitativa incluye entrevistas a 14 docentes para profundizar en respuestas y explorar el sentido de pertenencia y compromiso de los participantes. Los resultados indican que el liderazgo en Elbio Fernández es distribuido, con énfasis en la dirección y coordinación. Se establece una relación positiva entre el liderazgo distribuido, el sentido de pertenencia, el compromiso docente y la profesionalización. En resumen, este estudio aporta valiosa información sobre la interrelación entre liderazgo distribuido, compromiso docente y profesionalización, contribuyendo a mejorar la gestión educativa y el desarrollo de los docentes para el éxito educativo. Con los resultados de este estudio, se aspira a que los centros educativos puedan continuar priorizando modelos de liderazgo distribuidos que habiliten la profesionalización docente y el establecimiento de buenas prácticas.

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## **Introduction**

Distributed leadership, according to Gronn (2002) is a collaborative approach that recognizes that leadership does not reside exclusively in one person, but emerges and is shared among various individuals according to their skills and the context, fostering collective practices, flexibility in roles and a culture of participation and organizational innovation. Contemporary literature highlights the importance of adopting a distributed leadership model to address current educational challenges, as they go beyond the capacity of an individual leader (Harris, 2014). Authors such as Leithwood et al. (2009) and Harris and Spillane (2008) explain that distributed leadership emerges as a response to external demands faced by schools, leading them to restructure their leadership teams. This approach proposes a collective leadership experience, focusing on interactions rather than actions, recognizing the contribution of all team members (Chatwani, 2018; Hartley, 2023).

Current research highlights the impact of formal and informal leaders on educational improvement processes, with direct and indirect influences on the teaching task and interaction with students (Bektaş et al., 2022; Liu et al., 2021). García-Martínez et al., 2021 advocate the importance of interaction between leaders and faculty, as this relationship favors school improvement and fosters greater commitment and collaboration among teachers.

Given the relevance of management teams in educational quality, this study focuses on analyzing how the promotion of distributed leadership favors the development of good teaching practices, as well as the sense of belonging and commitment to the educational institution. It is recognized that the active participation of teachers is essential for the effective implementation of changes and innovations, contributing to the enthusiasm and commitment to institutional projects.

This has been addressed in contemporary literature, Hardhienata (2019) pointing out in his study some factors to strengthen teaching commitment, such as a close relationship in the team, performance monitoring, care to physical and emotional state and belonging to the organization. Also, the ability to build teams and generate a collaborative spirit and the promotion of positive interpersonal relationships among staff (Olanrewaju and Okorie, 2019). Therefore, the interest of the research lies in studying teacher commitment in order to promote practices that enrich teacher professionalization and improve student learning. It seeks to understand the impact of distributed leadership on teacher engagement, promoting collaboration and professionalization of practices (Thien and Adams, 2021).

To this end, the role of leadership is emphasized to ensure the necessary conditions and create periodic collaborative work spaces (Szczesniul, 2014; Szczesniul and Huizenga, 2014), as well as facilitate access to resources that foster teacher learning.

On this aspect, Krichesky and Murillo (2018) point out that the absence of institutional structures for joint reflection on practice is demotivating for faculty, making the creation of such opportunities by leadership essential. Also, that the possibility of exchange provides the resources to learn about practice, encouraging reflection and dialogue.

Pedraza et al. (2010) in their study make visible the relationship between several factors, pointing out that job stability has an impact on the employee's tranquility, motivation and emotionality, showing a greater disposition towards the organization's objectives.

Similarly, Herrera (2012) concludes in his study that both a sense of belonging and job stability are essential for the proper functioning of an organization. In this line, Kachchhap and Horo (2021) account for the positive influence of support and organizational climate on teachers' sense of belonging, being able to experience a collegial atmosphere in which a unified goal is achieved. Together, in the study proposed by Pesonen et al. (2019) it is evident that the sense of belonging is built through joint practices and shared tasks, efforts in the professional relationship between teachers, and reflecting and sharing one's own pedagogical thinking.

Benawa et al (2017) also list within the factors, motivating teachers to innovate and obtain the best results from work, encouraging teamwork, attending to the psychological aspect of teachers (stress levels, depression), and improving confidence, clarifying and reinforcing assigned tasks, encouraging the development of cohesion as a team of teachers, creating effective communication and supporting the good ideas of each teacher.

Considering the above, the problem statement and research questions focus on the impact of distributed leadership on teacher professionalization, considering resistance and factors that may hinder its full implementation. The need to actively involve teachers in the promotion of joint work initiatives and common goals is emphasized, overcoming resistance and conditions that may limit their participation.

At the level of convenience and practical implication, this study aims to generate a greater professionalization of the faculty, connected to a sense of belonging and commitment to the institution. From a social and scientific perspective, it is hoped that this study will inspire other schools to adapt their management teams, based on evidence of the positive impacts of distributed leadership.

Based on the foregoing, the present study is based on a general research objective, which is further developed into five specific objectives.

Thus, the general objective focuses on identifying the impact of distributed leadership on teacher professionalization, their sense of belonging to the institution and their degree of commitment.

Specific objectives:

1. Know the leadership modality that prevails in Elbio Fernández.
2. Examine the trend on teachers' sense of belonging.
3. Identify the level of commitment of the participants.
4. Analyze the impact of leadership modalities on teacher commitment and involvement.
5. Reflect on how distributed leadership and teacher empowerment influence teacher professionalization.

## **Method**

### ***Design***

In this study, the type of mixed design is sequential explanatory (Creswell, 2017). As explained by Pérez Peña et al. (2023), this type of study facilitates a deeper and more detailed understanding of complex research problems. Bagur-Pons et al. (2021) point out that this type of design has contributed to understanding the dynamism of educational phenomena. The first stage of this study was the quantitative phase, in which the data derived from the Distributed Leadership Inventory questionnaire, validated in Spanish by García-Martínez et al. (2020), originally developed by Hulpia (2009) (Table 2). The



purpose of this part was to diagnose the forms of leadership present in the selected population. In a second stage, emphasis was placed on issues requiring further in-depth analysis. For this purpose, qualitative analysis was used to examine the findings obtained in the interviews, with the intention of learning about the faculty's perceptions of their sense of belonging, institutional commitment, as well as other factors that may limit their professional growth.

Following Hernández-Sampieri et. al. (2017), the following stages of the sequential explanatory design were developed: quantitative data collection, quantitative data analysis, qualitative data collection, qualitative data analysis, interpretation, and total analysis.

### ***Sample***

The context of the research is Montevideo, Uruguay, with a population of 3,286,314 inhabitants and an educational structure that includes public and private schools. The study is conducted at the Elbio Fernandez School and Lyceum, a private institution with 1600 students that stands out for its bilingual, secular, humanistic and innovative approach. The institution has more than 155 years of history and has been a pioneer in school reform in Uruguay, maintaining an innovative profile and adapting to the demands of today's society. In this educational institution there is some mobility in the faculty, with a percentage that varies between 12.7% and 27.8%. This mobility poses challenges for the continuity of institutional projects and will be analyzed in relation to teaching commitment and sense of belonging.

This research focused on the teaching staff of the Elbio Fernández School and Lyceum in Montevideo, Uruguay, with a total population of 300 teachers. The quantitative sample included 170 teachers. Stratified random sampling was used to calculate the sample of participants. The formula used considered the size of the universe, confidence level, proportion of the variable, variance and sampling error.

From the analysis of responses to the questionnaire, key characteristics of the representative sample were identified. In terms of gender, diversity was observed, with 14.7% of men and 85.3% of women, reflecting the gender distribution in the institution. The age variable revealed a concentration in the 31-40 age range, while the experience variable highlighted a prevalence of permanent contracts (70.6%) before temporary contracts and teachers with 11-20 years of experience (30%).

In the qualitative part, in-depth interviews were conducted with 14 teachers, in line with the qualitative methodology. For the selection of the interviews, a convenience sampling was carried out, following the specific needs of the study.

The characterization of the participants showed that 85.6% were women, the average age was 43 years, with teaching experience ranging from 7 to 41 years, and length of service between 1.5 and 27 years. Regarding the type of contract, 63% have definitive contracts, in line with the quantitative findings.

### ***Instruments***

For the quantitative phase, the Distributed Leadership Inventory questionnaire was used, validated in Spanish by García-Martínez et al. (2020), originally developed by Hulpia (2009). Adaptations were made to adjust it to the Uruguayan context considering the most common leadership figures in the country. The questionnaire consists of 52 items that address various dimensions of leadership: Management Leadership (items 1-13), Coordination Leadership (items 14-25), Center Performance (26-43), Job Satisfaction (44-48, 51) and Leadership Identity (49,50)

The validity and reliability of the instrument were evaluated using Cronbach's Alpha, obtaining a coefficient of 0.974 indicating excellent reliability.

**Table 1**  
*Reliability statistics*

Cronbach's alpha	N of elements
,974	52

The collection of responses was carried out by means of an online form built in Google Forms, facilitating the anonymous and dynamic participation of the subjects. The 5-point Likert scale represented total disagreement to total agreement.

*For the qualitative phase*, regarding the design of the qualitative interviews, a script was developed considering the research objectives and the relevant literature. The thematic cores were identified and a single battery of questions was designed for all participants.

*Responses were categorized, resulting in key dimensions. The following table details the main categories and the questions associated with them.*

**Table 2**  
*Main categories and associated questions*

MAIN CATEGORIES	QUESTIONS
SENSE OF BELONGING	Do you feel comfortable at the center? Do you feel that your teaching performance is in line with what is promoted by the center? Why?
TEACHING COMMITMENT	Do you feel committed to the institution? In what examples do you observe this? What factors do you think influence this commitment and sense of belonging to the center?
LEADERSHIP STYLE	How do you think the leadership modality impacts your engagement with the center? Do you feel that the leadership modality empowers your task and promotes your teaching professionalization? In what examples do you identify it?
TEACHER PROFESSIONALIZATION AND BEST PRACTICES	Do you consider that the leadership modality in your center favors the establishment of good practices? What are your experiences in this regard?

### ***Data Analysis***

After data collection, analysis proceeded in accordance with the Declaration of Helsinki (World Medical Association, 2013) guaranteeing the confidentiality and anonymity of the participants. The analysis consisted of the following stages: quantitative data collection, quantitative data analysis, qualitative data collection, qualitative data analysis, interpretation and total analysis (Sampieri, 2017).

In the quantitative phase, the DLI questionnaire was used for descriptive, correlational and factorial analyses with SPSS 24 software. Frequencies, means, standard deviations, contingency tables, Pearson's Chi-square were used to describe variables and comparative investigations.

The qualitative analysis was carried out by means of content analysis, using the coding technique to extract relevant aspects, establish relationships and build concepts, models and theories with an interpretative approach.

Subsequently, the data were visualized through diagrams using Atlas.t software as a processing aid.

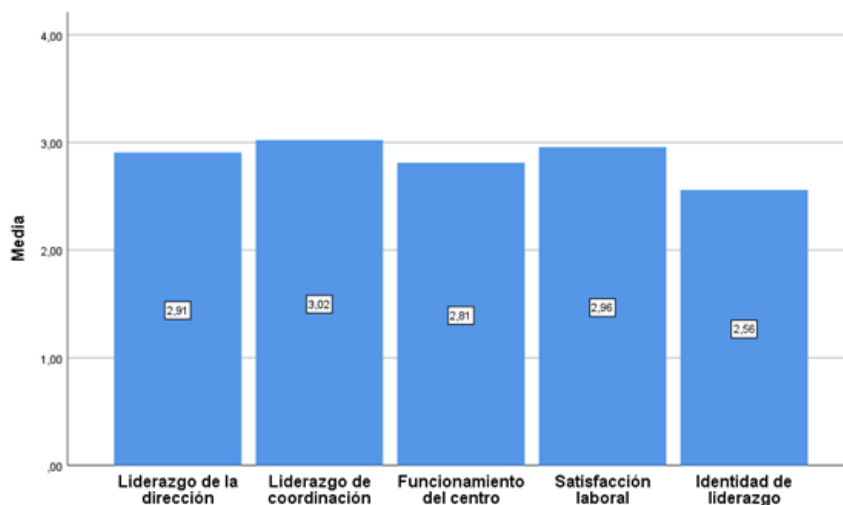
## Results

### *Quantitative Phase*

According to the groupings of the DLI questionnaire, using exploratory factor analysis, the following dimensions were obtained: management leadership, coordination leadership, center functioning, job satisfaction and leadership identity, as shown in the following table.

The following image shows the comparison of the means of each dimension.

**Figure 1**  
*Average of the different dimensions*



According to the results obtained in the questionnaire (Table 2), the analysis of each of the dimensions is presented.

**Table 3**  
*Questionnaire results*

QUESTIONNAIRE ITEMS	Media	Deviation
1. establishes a vision for the center that is reflected in the Management Project?	2,96	,76
2. reflects, through dialogue with staff, on the vision of the center?	2,98	,91
3. favors opportunities for teachers to improve their professional skills?	2,94	,99
4. offers support to teachers in their professional performance?	2,85	,93
5. explain your reasons for questioning, at times, the work or certain actions of teachers?	2,83	,90
6. are you available after class to assist teachers when they need help?	2,91	,99
7. seeks the personal well-being of teachers?	2,98	1,01
8. encourage me to grow professionally?	2,96	1,00
9. encourages me to innovate my teaching practices?	3,01	,94
10. ensure that teachers have the "time and space" to interact professionally?	2,87	1,15
11. evaluate staff performance?	3,08	,86
12. participates in the evaluation of the teaching and learning process of the faculty?	2,78	,99
13. participates in the formative evaluation of teachers?	2,63	1,02
14. establishes a vision for the center that is reflected in the Management Project?	2,94	,81
15. reflects, through dialogue with staff, on the vision of the center?	3,02	,87
16. offers support to teachers in their professional performance?	3,03	,92
17. explain your reasons for questioning, at times, the work or certain actions of teachers?	2,99	,91
18. are you available after class to assist teachers when they need help?	3,05	,96
19. seeks the personal well-being of teachers?	3,10	,91
20. encourage me to grow professionally?	3,04	,91
21. encourages me to innovate my teaching practices?	3,08	,94
22. ensure that teachers have the "time and space" to interact professionally?	2,99	1,04
23. evaluate staff performance?	3,10	,89
24. participates in the evaluation of the teaching and learning process of the faculty?	3,02	,94
25. participates in the formative evaluation of teachers?	2,89	1,00
26. Our center has an effective management team.	3,15	,83
27. The management team manages the center efficiently.	3,12	,82
28. The management team supports the goals I would like to achieve in our center.	2,92	,85
29. All members of the management team are equally involved in the achievement of the center's central objectives.	2,88	1,02
30. In our center, each teacher occupies the role that belongs to him/her, taking into account his/her competencies.	2,75	,98
31. The members of the management team distribute their time equally.	2,64	,93
32. The members of the management team are clear about the school's objectives.	3,27	,82
33. The management team assumes the responsibilities linked to its position.	3,37	,80
34. The management team shows willingness to innovate.	3,31	,80
35. The functions of the management team are defined.	2,99	,93
36. Coordination and supervision of tasks and responsibilities among the staff is a form of leadership that allows the school's goals to be achieved.	3,00	,85
37. Leadership is shared among the staff.	2,62	1,05
38. As a teacher I feel that I am allowed to participate in the center's decision making.	2,16	1,20
39. As a teacher, I consider that I participate in the center's decision making.	1,92	1,17
40. There is a coordination structure that makes decision making effective.	2,57	1,06
41. Functional communication between personnel is facilitated.	2,63	,98
42. There is an optimal level of autonomy in decision making.	2,32	,97
43. My center motivates me to develop my teaching skills.	2,99	,95
44. I am proud to be part of the team at this center.	3,27	,89
45. I am really concerned about the fate of our center.	2,34	1,48
46. I find that my values and the values of this center are similar.	2,87	,99
47. I often talk to my friends about how delighted I am to work at this center.	2,60	1,11
48. I am glad I chose this center to work at.	3,20	,91
49. To what extent do I consider my job as a lead teacher?	2,47	,99
50. I like to play my leadership role.	2,65	1,10
51. I want to continue my professional role at this center.	3,47	,89
52. If I could choose again, I would change my job for another profession.	,83	1,23

In the "Management Leadership" dimension, the results indicate a marked tendency towards "agree". The items "encourages me to innovate", "evaluates staff performance", "seeks the personal well-being of teachers" and "reflects, through dialogue

with staff, on the vision of the center” stand out. The mean (M) of 2.71 and standard deviation (SD) of 0.74 suggest a consistency in the responses.

Similarly, in “Coordination Leadership”, the majority of responses are around “agree” and “strongly agree”. The highest mean (M=3.02) and a SD of 0.77 indicate a positive acceptance of this type of leadership. The top three highest averages coincide with those given to the management figure “Evaluates staff performance”, “Encourages me to innovate my teaching practices” and “Seeks the personal well-being of teachers”. Within this figure, another item that stands out “is available after class to assist faculty when they need help”.

In contrast, “Center Functioning” reveals less variability in responses, with a mean of 2.81 and a SD of 0.73. The general perception of this dimension is positive, although with less enthusiasm than in the previous dimensions.

One of the items that stands out coincides with those indicated for the figures of Management and Coordination: “The management team shows willingness towards innovation”. Thus, we can interpret that the innovation profile of the institution is present in the perception of the professors.

On the other hand, “The members of the management team are clear about the school objectives” and “The management team assumes the responsibilities linked to their position”.

Finally, the item “In our center there is an effective management team” is also weighted, obtaining a higher mean than the score given to the figures of Management and Coordination separately (3.15 vs. 2.91 and 3.02 respectively), which suggests that there is greater acceptance of a leadership figure as a management team than as individual entities.

In the “Job Satisfaction” dimension, the mean of 2.96 indicates a positive level of satisfaction. The highest averages were obtained for the items “I am proud to be part of the team at this center”, “I am glad I chose this center to work at” and “I want to continue to play my professional role at this center”.

“Leadership Identity” obtains the lowest mean (M=2.56), suggesting a lower prevalence of the leader teacher figure compared to the management and coordination figures.

The correlations between the dimensions of the study will be presented below. The correlation analysis reveals significant and positive relationships between the dimensions as shown in the following table:

**Table 4**  
*Analysis of questionnaire correlations*

<b>Spearman's Rho</b>	<b>Management leadership</b>	<b>Coordination leadership</b>	<b>Operation of the center</b>	<b>Job satisfaction</b>	<b>Leadership identity</b>
<b>Management leadership</b>	1,000	,738**	,790**	,606**	,301**
	.	,000	,000	,000	,000
	169	169	169	169	169
<b>Coordination leadership</b>	,738*	1,000	,707**	,491**	,312**
	,000	.	,000	,000	,000
	169	169	169	169	169
<b>Operation of the center</b>	,790*	,707**	1,000	,638**	,398**
	,000	,000	.	,000	,000
	169	169	169	169	169
<b>Job satisfaction</b>	,606*	,491**	,638**	1,000	,470**
	,000	,000	,000	.	,000
	169	169	169	169	169
<b>Leadership identity</b>	,301*	,312**	,398**	,470**	1,000
	,000	,000	,000	,000	.
	169	169	169	169	169

Note. \*\*. The correlation is significant at the 0.01 level (bilateral).

"Management Leadership" shows strong correlations with "Coordinating Leadership" (0.738) and "Center Functioning" (0.790). As expected, coordination and leadership form a single management team, reflecting a close connection.

"Coordinating Leadership" is also strongly correlated with "Center Functioning" (0.707), indicating that both aspects are interrelated in the perception of the respondents.

Regarding "Job Satisfaction", a moderate correlation is observed with "Management Leadership" (0.606) and "Coordinating Leadership" (0.491), suggesting that effective leadership contributes positively to job satisfaction. The strongest connection is with "Center Functioning" (0.638), indicating that effective center management significantly influences job satisfaction.

In contrast, "Leadership Identity" shows weaker correlations with the other dimensions, indicating a less obvious connection to overall leadership and center functioning.

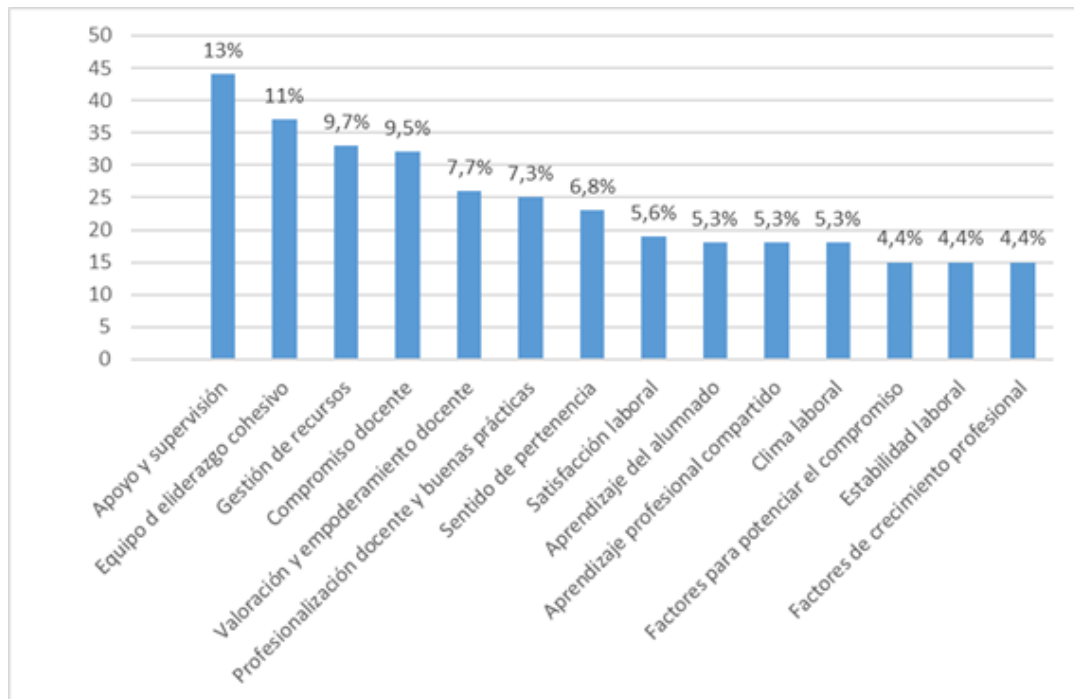
In summary, the results suggest a generally well-weighted leadership in the educational context analyzed. Areas of strength include reflection on the school's vision, innovation in teaching practices and clarity in school objectives. However, there are areas that could benefit from improvement, especially in the promotion of leadership identity among the teaching staff.

The correlations underscore the critical importance of effective leadership to center functioning and job satisfaction.

### **Qualitative Phase**

The final scheme of the frequencies of the dimensions, with the addition of the emerging dimensions that emerged from the interviews, is presented below:

**Figure 2**  
*Frequency of dimensions*



The qualitative analysis of the interviews reveals several interrelationships between the dimensions evaluated. The main conclusions are discussed below, highlighting quotes from the participants that illustrate the connection between the categories.

Job satisfaction and sense of belonging are visible in the participants' responses, emphasizing the importance of feeling comfortable in the institution and being aligned with its values and guidelines. The relationship between job satisfaction and sense of belonging is linked to the work environment, leadership, professional development, and institutional support. The connection with the leadership team, in particular, stands out, demonstrating that support and accompaniment contribute significantly to the feeling of belonging.

Some fragments that visualize it:

"The attitude of a school's management team towards its teachers plays an important role in the commitment and sense of belonging that can be maintained with the school in which they work. In my personal case, I feel a lot of support and accompaniment, both professional and personal, from the Management Team of the school where I work. These factors affect my work and my attitude towards the place and the people I live with on a daily basis" (Teacher 1)

The history and profile of the center also emerge as elements that strengthen the sense of belonging, contributing to the commitment and emotional connection of teachers with the institution.

"I believe that the knowledge of the history of the institution strengthens day by day the commitment and sense of belonging that I have with the center" (Teacher 2).

"The history of the school helps me feel part of that legacy and the social and educational responsibility it represents" (Teacher 3).

Likewise, collaboration, teamwork, and shared professional learning emerge as fundamental to satisfaction and a sense of belonging. Resource management, especially in

terms of leadership that fosters coordination spaces and opportunities to exchange ideas, is presented as an effective strategy to professionalize teaching practices and promote good practices.

"The promotion of good practices can be observed in the coordination, in the informative talks, in the exchange meetings, in the seminars, in the motivation towards work, in the school results" (Teacher 2).

"We promote teacher welfare policies, collaborative work, listening and action with respect to initiatives proposed by teachers, the creation of various projects, the promotion of collectivity and fellowship, a space to listen to problems and search for solutions" (Teacher 4).

Institutional support and supervision are considered essential for teachers' professional growth. The connection between leadership, professional development and individual growth is evident in the responses.

In conjunction with this, the participants' responses showed that job stability is associated with teaching commitment. The connection between feeling part of the institution, team support and job stability drives teachers' commitment.

"The support I receive on a daily basis from the management team, as well as the value they place on me as a teacher, has a direct impact on my commitment to the center" (Teacher 5).

Participants also make reference to the connection between this commitment and job stability, finding diverse responses regarding this relationship. There is also a difference between those participants with a term contract and those with a permanent contract:

Participants with a definitive contract:

"I definitely think there is a relationship between job stability and a person's level of commitment to where they work." (Teacher 6)

Participants with term contracts:

"Since it is a term contract, it generates some insecurity" (Teacher 7).

The leadership modality is presented as a determining factor in teacher satisfaction and commitment. Leadership team cohesion, teacher appreciation and empowerment, along with effective support and supervision, contribute to student learning. The direct relationship between positive leadership, team motivation and impact on learning is highlighted in the responses.

"From the management team it is crucial for me to be supportive and to have the sense of support and appreciation of the work. I am shown almost daily that my work is valued and that I am doing it correctly" (Teacher 8)

"I feel that I am listened to when it comes to suggestions for classroom practices and that, when I exchange these ideas, I am given the confidence that I can successfully put these ideas into practice" (Teacher 9)

"Our coordination provides us with endless opportunities for professional improvement, bringing us new ideas, reading material, and opportunities for individual and collective reflection, which motivates us to innovate, improve, evaluate and reflect on our work. At the same time, the evaluations have always been very positive, always highlighting strengths and marking weaknesses with constructive comments. In this way, it motivates us, it empowers us as teachers" (Teacher 10).



## **Discussion and Conclusions**

This research arose with the intention of analyzing and determining the incidence of distributed leadership on the sense of belonging and teacher commitment in the establishment of good practices at the Elbio Fernández School and High School. For this purpose, existing leadership patterns were examined using the DLI questionnaire and interviews were conducted to deepen the sense of belonging, commitment and teacher professionalization.

In order to assess whether the research has answered the questions and achieved the proposed objectives, the results are presented on the basis of these. In general terms, it can be concluded that all the proposed objectives have been satisfactorily met.

In relation to the first specific objective, regarding the type of leadership that prevails at Elbio Fernandez, both the questionnaire and the interviews provided essential information, revealing a distributed leadership with emphasis on direction and coordination. The cohesion of the leadership team is highlighted, giving it high marks for effective management. In addition, it is noted that team members take responsibility and are available to support the faculty when needed.

This corresponds with recent literature, concluding with what was exposed by Olanrewaju and Okorie (2019), who considered that the most valued characteristics of leadership are connected to the leader's accessibility, decision-making capacity and commitment to his staff.

Likewise, it is clearly evident from both instruments, a special emphasis on the disposition to leadership innovation, being an essential part of the institution's profile.

At the same time, the results reveal a follow-up of teachers' trajectories through evaluation processes. In the participants' responses, classroom observations and constructive feedback are specifically mentioned, showing the leadership team's interest in collaborative learning, with attention to their formative processes emerging as something that could still be improved. This can also be connected to one of the key professional growth factors identified, which highlighted teachers' interest in obtaining greater time flexibility and resources for their professional development (Thien and Adams, 2021).

The findings also show that teachers value the autonomy they enjoy in their classrooms, and that there is room for improvement in terms of participation in decisions of a more institutional nature. This is in agreement with other studies such as Szczesiul and Huizenga (2014).

Specifically, the figure of teacher leaders was found to be more blurred compared to those who held the position formally, in line with the study by Printy and Liu (2021).

At the same time, they emphasize the opportunities it provides for leadership, teamwork, coordination and exchange of experiences.

Regarding the question about the sense of belonging of the teachers working in the institution, in accordance with the second objective of the research, it was confirmed that the sense of belonging is positively influenced by the leadership, the work environment and the support of the management team. This corresponds with the role given to work climate in recent literature, with the leader being understood as an integral component of creating and maintaining school climate (Legros and Ryan, 2015).

Next, the question about teacher commitment at the school was answered, verifying the third objective, as a high level of commitment was identified among participants, with factors such as leadership and a sense of belonging playing a fundamental role. It was also found that teaching commitment is influenced by job stability and recognition by the leadership. This is supported by research such as that of

Hickey et al. (2022) and Liu et al. (2021) in which they emphasize how distributed leadership fosters innovation and collaboration among teachers, which is critical to engagement and job satisfaction. Kirk et al. (2023) highlight in their research that distributed leadership is key to strengthening teacher commitment, as it promotes collaborative decision-making and autonomy within the classroom, which increases educational innovation and professional satisfaction.

This connects with the next objective, finding that distributed leadership, focused on direction and coordination, has a positive impact on commitment and job satisfaction. The favorable impact of this modality on the involvement of teachers, also connected to an identification with the values proposed by the center, has been demonstrated.

This is confirmed in the literature, where commitment is recognized as loyalty to the values of the center, as well as the emotional bond that teachers demonstrate towards their work, constituting in turn an internal force that drives them to improve their job performance (Altun, 2017). According to Thien et al (2014) it is essential to know the level of commitment of teachers, as it reflects their involvement in the center and the degree to which they agree with and strive to achieve the set goal. Harris (2022) also highlights how a distributed leadership approach can enhance ownership by fostering a culture of support and cooperation among faculty members, which, in turn, increases faculty commitment and engagement with institutional goals. This perspective supports the relationship between leadership, sense of belonging, and teacher commitment.

With respect to the examination of the relationship between leadership and the establishment of “Best Practices”, it was found that leadership favors innovation and the adoption of best practices. This vision is consistent with a view of leadership as a special form of influence that inspires change and fosters professional cooperation toward the creation of alternative practices. In this regard, Amores and Rittaco (2011) emphasize the importance of establishing a collaborative professional culture that enables and facilitates change for improvement. Amels et al. (2023) emphasize that the distribution of leadership not only favors innovation in the classroom, but also influences teachers' motivation to improve their practices, since they feel more supported and valued by their leaders. This finding highlights the importance of shared leadership that empowers teachers to actively contribute to the continuous improvement of the educational environment.

It was also corroborated that distributed leadership and empowerment contribute significantly to teacher professionalization, with participants especially valuing the recognition of teaching dedication.

This is consistent with the study conducted by Kun and Gadanez (2019) in which recognition is highlighted as a source of job satisfaction. At the same time, the importance of positive emotions, such as self-efficacy and agency as motivation towards a goal. Nguyen et al. (2023) explore the relationship between distributed leadership and teacher well-being, highlighting how educational leaders can positively influence teachers' engagement and sense of belonging by fostering a collaborative environment that allows for autonomy and professional development.

Similarly, having examined how distributed leadership and teacher empowerment influence teacher professionalization, the need for greater participation in institutional decision-making is evident, with a greater prevalence of autonomy in classroom practices.

It was also confirmed that teacher empowerment is positively related to work commitment, highlighting the importance of promoting structures that facilitate the active participation of teachers. Lam et al. (2023) emphasize the importance of distributed leadership practices to promote innovation in schools, linking them directly to improved job satisfaction and teacher commitment. According to their research, the

empowerment of teachers and their active participation in decision making are key factors in increasing their sense of belonging and promoting greater collaboration within the educational community

Listening and respect are mentioned by the authors Olanrewaju and Okorie (2019) in their study, presenting themselves as an essential characteristic of leadership, highlighting the attention and teaching motivation towards the achievement of their objectives. Legros and Ryan (2015) stress the importance of involving all stakeholders and giving them an authentic and valued voice.

The findings of the specific objectives described above allow us to address and respond to the general objective by satisfactorily identifying the impact of distributed leadership on teacher professionalization, their sense of belonging to the institution and their degree of commitment.

Understanding these factors contributes to the continuous improvement of educational management, promoting an environment conducive to the integral development of teachers and, therefore, to the educational success of students.

In the present study, the dimensions of job satisfaction and sense of belonging were addressed jointly, recognizing their close interrelation in the participants' responses. The connection between feeling satisfied in the work environment and experiencing a strong sense of belonging was evidenced by several key factors. These include the work environment, leadership, professional development of teachers, respect for institutional guidelines, shared values, alignment with the methodology promoted by the center, institutional support for teachers' performance, accompaniment and achievement of professional objectives.

The identification of the participants with the educational center was based on the concordance between institutional values and guidelines and their own. This alignment was identified as an essential component in cultivating a deep-rooted sense of belonging. Likewise, the support of the leadership team was highlighted as a significant catalyst for job satisfaction and the strengthening of the emotional bond with the institution.

In conclusion, this study has provided a comprehensive view of the leadership dynamics at Elbio Fernandez, highlighting areas of strength and opportunities for improvement. The conclusions and recommendations provide a valuable starting point for the ongoing development of educational institutions.

Thus, the findings of this research have practical implications for educational management:

- Promotion of Distributed Leadership: recommendation to promote distributed leadership that strengthens the participation and commitment of all members of the institution, strengthening the active participation of teachers in decision making.
- Recognition and support: emphasis on constant recognition and support for teachers, fostering an environment conducive to professional and personal growth.
- Incentive to Good Practices: stimulus to the implementation and exchange of good practices among teachers, with special attention to continuous improvement.
- Promotion of the sense of belonging: deepening of additional strategies to strengthen the sense of belonging, which results in a greater involvement of teachers with institutional projects.
- Formative evaluation: strengthening of formative evaluation instances, especially those related to teacher participation, to improve the quality of leadership.

For future research, we suggest conducting longitudinal studies to evaluate the impact of interventions over time, expanding the sample and extending the study to multiple educational institutions to identify common or divergent patterns in different contexts, and exploring additional variables that may influence the sense of belonging, teacher commitment and professionalization.

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**HARMONIZATION IN PROFESSIONAL TECHNICAL HIGHER EDUCATION.  
THE EXPERIENCE OF CFT UV AND STATE CFT OF VALPARAÍSO  
ARMONIZACIÓN EN LA ENSEÑANZA SUPERIOR TÉCNICA PROFESIONAL.  
HARMONIZATION IN PROFESSIONAL TECHNICAL HIGHER EDUCATION.**

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**ABSTRACT**

**Keywords:**

harmonization, Vocational  
Technical Higher Education,  
Technical Training Center.

State efforts to strengthen Vocational Technical Higher Education have been important, targeting a socially and economically vulnerable student population. The Technical Training Center of the University of Valparaíso, historically involved in the training of technicians, together with the Valparaíso State Technical Training Center, legal continuator of the same process, generated continuity in the training offer, in terms of harmonization and articulation, as part of a State policy, whose objective was to enhance the employability of graduates in the region. The research is developed under a qualitative, descriptive and exploratory methodology, where the authorities of both institutions that participated in the harmonization process are interviewed, information that was analyzed through the Atlas TI software and incorporating the Documentary Registry with the purpose of knowing information of the governance of institutions. The exploratory scope allowed us to shed light on how the harmonization was created, describing a work framed in an agreement where the institutions commit to delivering an academic offer in accordance with the requirements of the productive sector of the Valparaíso region, which accounts for an innovative, transparent act with great benefits for students.

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**RESUMEN**

**Palabras clave:**

armonización, Enseñanza Superior  
Técnica Profesional, Centro de  
Formación Técnica.

Los esfuerzos estatales para fortalecer la Enseñanza Superior Técnica Profesional han sido importantes, apuntando a una población de estudiantes social y económicamente vulnerable. El Centro de Formación Técnica de la Universidad de Valparaíso, involucrado históricamente en la formación de técnicos, junto al Centro de Formación Técnica Estatal de Valparaíso, continuador legal del mismo proceso, generaron la continuidad a la oferta formativa, en cuanto a la armonización y articulación, como parte de una política de Estado, cuyo objetivo fue potenciar la empleabilidad de los egresados de la región. La investigación se desarrolla bajo una metodología cualitativa, descriptiva y

exploratoria, donde se entrevistan a las autoridades de ambas instituciones que participaron del proceso de armonización, información que fue analizada a través del software Atlas TI e incorporando el Registro documental con el propósito de conocer información de la gobernanza de las instituciones. El alcance exploratorio permitió dar luces de cómo se gestó la armonización, describiendo un trabajo enmarcado en un convenio en donde las instituciones se comprometen en la entrega de una oferta académica acorde a los requerimientos del sector productivo de la región de Valparaíso, lo que da cuenta de un acto innovador, transparente y con grandes beneficios para los estudiantes.

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## Introduction

The international experience in relation to harmonization already has a long history, for this purpose agreements were established with different regions globally in Higher Education, "Latin America and the Caribbean (1974), the Arab States (1978), Europe (1979), Africa (1981) - through the Arusha Convention - and Asia and the Pacific (1983)", Association for the Development of Education in Africa (2015, p. 2). In this context, it is pointed out that harmonization is not synonymous with uniformity, standardization, regulation, condensation, homogenization or unification of all higher education systems. Rather, harmonization refers to the coordination of educational programs with agreements on minimum academic standards and the guarantee of equivalence and comparability of qualifications between and within countries. Thus, the experience developed in other countries has been a process based on the trust and confidence of the parties, and there must be, as a *sine qua non* condition, consensual agreements that imply elements of portability and transfer of qualifications between the parties.

With regard to harmonization, most experiences point to favorable results because it has been understood that the most important factor contributing to the success of the harmonization process in higher education has been the participation and consensus building at the level of national agencies, the public and key stakeholders. This has been the case in the European Economic Community, where, following the Bologna agreements, the effects in terms of harmonization have been positive, and new suggestions and strategies have even been incorporated,

Lisbon defined organizational, legal and methodological measures to create a single European education and research area within the Bologna Process. It was an important step in improving the education system in Europe and ensuring its compatibility and comparability between countries (Bykowska et al., p.543).

Specifically in Central America, Costa Rica presents a case of harmonization in the university curriculum, including "General Studies" in the training plan of three state universities. Through an agreement between the universities, the courses that comprise the General Studies are recognized in the other two universities, regardless of the institution that taught them, the method used and the subjects studied.

In Chile, harmonization is seen as a response to public policy on the need for institutions to agree on harmonization processes and provide the educational community with an academic offer in accordance with the training needs of the territories and, consequently, of the country.

Under this scenario, the State CFTs initiate their academic activities to strengthen Higher Technical Professional Education (hereinafter ESTP), associating with technical training centers (hereinafter CFTs) related to State universities, who through harmonization agreements share training models and institutional experiences, "but respecting the institutional particularities and the characteristics of the regional societies to which the curricula of the institutions respond" (De Armas et al., 2021, p. 61).

Thus, the Valparaíso Region State Technical Training Center (CFT) and the University of Valparaíso Technical Training Center (CFT) have signed an agreement on harmonization and coordination with the aim of developing a training proposal that identifies the real training needs in the region and responds to public policy on higher technical education, so that there is only one public and state CFT in the region, as pointed out by Rodrigo Jarufe, rector of the Valparaíso Region State Technical Training Center: "a mandate in the law that speaks of the harmonization of institutions, of the technical training centers that were created (...) by state universities."

(University of Valparaíso, November 9, 2018). In the same vein, Aldo Valle, as an authority at the University of Valparaíso, points out that:

What we are doing precisely is to give shape to an act of harmonization (...), with the purpose that in the region we harmonize, add, integrate efforts, capacities, experiences, and in this way we have in the Valparaíso Region the best offer of technical training of a public nature (Universidad de Valparaíso, November 9, 2018).

Therefore, both institutions undergo a process of curricular harmonization to establish coherence between different curricula, committing to the development of a harmonized path of the curricula, with an integrative and systemic approach, taking into account the fundamentals of the competency-based model, i.e., learning oriented to know how to know, know how to do and know how to live together.

The success of curriculum harmonization efforts requires conditions that are essential for it to become a reality. It is not enough, then, with the will to harmonize the curriculum; it is also necessary to consider the need for minimum conditions that prepare for this harmonization and for the change of mentality that it implies (Díaz, 2006, p. 25).

Although there are no experiences that account for harmonization in the ESTP, the description provided by Rivera (2022, p 7), clarifies the advantages that this process entails, "the need for connection between the labor market and training in a broad sense of competencies, through harmonization between levels that facilitates upward mobility of labor trajectories", the purpose on which both educational institutions are focused,

At this point, attempts of articulation between actors are observed emerging (...) new relevant actors, such as state CFTs and Local Public Education Services, which are an expression of the changes brought about by the education reforms implemented between 2015 and 2018, through which it is possible to integrate territorial criteria, sustainability of the TVET system (Rivera, 2022, p. 7).

There is no doubt that the interest of ESTP institutions in harmonizing their educational offerings lies in the opportunity to update their curricula, incorporating the recognition of educational processes, certifications and homologations of academic units that promote student mobility.

### ***Conceptual Framework***

In reference to curricular harmonization, circumscribed to the academic and professional field developed by the educational institutions, it has generated articulated and harmonized instances to structure redesigns and innovations, optimizing the training offer and ensuring quality training under these premises, it can be added that,

Harmonization can be understood as a process of ensuring articulation, both horizontally and vertically, between programs and institutions among various higher levels of education systems. In other words, it is the process of establishing benchmarks for qualifications, programs [...] and certifications (Woldegiorgis 2013, p 15).

Therefore, having ensured articulation in its different guidelines (horizontal and vertical) and whose reference points have been satisfactorily established, it is possible to review several proposals that define it, thus corroborating that "almost all literature describes the harmonization of higher education as the establishment of a common frame of reference to facilitate comparability, compatibility and mutual recognition of higher education systems (Knight, 2012; Okeke, 2012; Eriksen, 2003; Hoosen et al, 2009; DeLong

and Dowrick, 2002, cited by Girma, 2019, p. 92), in parallel to what is described by Girma, "harmonization refers to the coordination of educational programs with agreements with minimum academic standards and ensuring equivalence and comparability of qualifications between and within countries" (AAU, 2007 cited by Woldegiorgis, 2013, p. 15).

Consequently, harmonization becomes relevant when the institutions agree to review their postulates and training proposals in order to establish areas of productive development in the region, which is why it is understood that,

Harmonization of higher education is essentially a process that recognizes the significance of regional cooperation in education and the importance of establishing a "knowledge area" in which activities and interactions in higher education, mobility and employment opportunities can be easily facilitated and increased (Sirat et al., April 14, 2014).

Therefore, in order to carry out the regional cooperation process, harmonization and its intrinsic relationship with the elements it contains, such as:

A multidimensional and multi-stakeholder process that takes place at different levels of the system and promotes integration in the region. [...], in curriculum development, educational standards and quality assurance, joint structural convergence, coherence of systems, as well as compatibility, recognition and transferability of degrees to facilitate mobility (Hahn & Teferra, 2013, p. 127-128).

The harmonization work, represents an articulation a point of curricular convergence whose purpose is to tend to the recognition of completed formative processes or in the evidence of units and results of learning achieved, "the duration of studies, in the minimum contents, in the levels of deepening in each level of studies, in the unit of measurement of the effort that learning requires (...) in the guarantee quality of the programs" (Videa, Escobar and De Armas, 2019 cited by De Armas et al, 2021, p. 61- 62), therefore harmonization "establishes a certain convergence between different curricula" (De Armas et al., 2021, p. 61), the result of which are innovative programs formulated through competencies that represent the training needs of the production sector "which implies harmonizing in terms of the competencies developed in the study process of a career" (Díaz, 2006, p. 25). In concomitance with the above, the harmonization is understood as a mechanism that analyzes the formative development within each institution, with its processes of self-evaluation and evaluation of plans and programs, allowing the academic authorities to define a work route that circumscribes the harmonization in the educational institution, thus Fiallos et al. (2020, p.25) defines it as:

Construction of a common space for higher education that, in addition to the search for consensus, will facilitate the recognition of people's qualifications and competencies, both to continue their studies and their working life and to increase mobility in the region.

In this work initiated by educational institutions, the consensus aims essentially at "the incorporation of a credit system and common criteria for curricular harmonization in order to set standards and generate confidence and inter-institutional convergence" (Latin American and Caribbean Space for Higher Education, 2009a cited by Calvo, 2009, p. 15).

Thus, those who participate in the harmonization process focus on contrasting educational models, to glimpse common connections in the understanding that it is a "process of convergence between compatible curricular designs that make possible the articulation between the levels: mega, macro, meso and micro curricular that promote

interdisciplinarity and internationalization with the purpose of contributing (...) with quality education"(González, 2019, p.133), proposing collaborative actions that generate an "understanding and convergence of educational structures, the creation of opportunities for flexible training itineraries in higher education and homologate curricula in their curricular content" (Fiallos et al. 2020, p.25). This is understood when there is coordination to harmonize the curricula, which implies the unification of curricular contents according to the graduation profile of related careers, validating and recognizing academic certifications.

## **Method**

Considering the research question: How does the process of harmonization between CFT UV and CFT Estatal de Valparaíso influence the labor insertion of students? whose general objective is: To describe the harmonization process carried out between CFT Estatal de Valparaíso and CFT UV in 2019, corresponds to execute a qualitative, descriptive and exploratory research, "qualitative research focuses on understanding and deepening the phenomena, exploring them from the perspective of the participants in a natural environment and in relation to the context (Hernández et al., 2010, p. 364). Therefore, it is explained as a process through which the information gathered by the researcher, establishing relationships, interpretations, inferences and conclusions. "The qualitative paradigm, the researcher is oriented not only to acquire information, but to learn from experiences and points of view of other individuals, assess processes and generate theories from the perspective of informants (Alejo and Osorio, 2016, p. 75). According to the descriptive approach, according to Guevara et al. (2020, p. 171) explains that, "The objective of descriptive research is to get to know the situations, customs and prevailing attitudes through the accurate description of activities, objects, processes and people", and that it is framed in the interviews conducted with the authorities of both institutions. In the exploratory scope, considering that it is an unpublished research in CSP "it is applied to phenomena that have not been previously investigated and there is an interest in examining their characteristics" (Ramos, 2020, p. 2).

### ***Sample***

Related to the sample, this "corresponds to a portion of the population that is taken to conduct the study, which is considered representative"(Hurtado, 2000, p. 154) for the development of the research a non-probabilistic intentional or convenience method was established based on the "convenience accessibility and proximity of the subjects for the researcher"(Manterola and Otzen, 2017, p. 230) that for the research concerns the authorities of the CFT Estatal de Valparaíso: Academic director, deputy director of institutional management, deputy director of teaching, head of curriculum and former authorities CFT UV: deputy academic director and head of career and teacher TNS in Nursing; also, 3 professionals who taught in both institutions and 2 students who entered the CFT UV and finished their studies at the State CFT of Valparaíso. A total of 11 interviewees provided a holistic view of the harmonization carried out by the institutions, and the authorities also provided documented information on the educational model, study plans and programs, and academic regulations, among other documents, to provide a context for the harmonization carried out.

### ***Instruments***

In the research, a semi-structured interview prepared *ad hoc*, previously validated by experts in the area of education, was applied to the directors of CFT Estatal de Valparaíso and former directors of CFT UV, it was subsequently used with teachers and students who participated in this process, i.e. started the training activity in CFT UV, finishing the technical career in CFT Estatal de Valparaíso. The interview with the actors who participated in the harmonization allowed gathering information on the harmonization executed, considering that "semi-structured interviews, despite having a previously established script, are flexible and allow the researcher to delve deeper into a relevant or interesting aspect for his research (Tracy 2013 cited in Mendoza, 2018, p. 88). The interview covered topics such as conceptualization of harmonization, objectives, differences and similarities between curricula, institutional collaboration, student participation, evaluation of the effectiveness of harmonization, benefits; a total of 15 questions. These were carried out through zoom, previously defined with the participants, date and time of the meeting.

### ***Data Analysis***

According to the qualitative research, the interviews with the directors of the State CFT of Valparaíso, former directors of the CFT UV, teachers and students who worked in both houses of study were analyzed with the Atlas TI software, version 23, to detect conceptual relationships, codes and categories that delimit the analysis of harmonization. This software analyzed the interviews (transcribed and previously uploaded in PDF format) and processed the information by analyzing the contents and opinions expressed in them, establishing codes (thematic lines) that were finally grouped into 4 categories for the final analysis: harmonization, areas of knowledge, seal competencies and public policies; in parallel, the institutional documents provided by the authorities were reviewed. These were ordered and analyzed through the documentary record technique and according to Morales (2015 cited in Martínez, 2023, p.70), "it is recognized as a scientific procedure and obeys a process that is characterized by being systematic to investigate, collect, organize, analyze and interpret information about a topic". The work carried out by the harmonization committee is based on the review of educational models, academic offerings, curricula and programs and, from this examination, to connect the findings with the categories derived from the IT Atlas.

## **Results**

The results of this research show an unprecedented process of curricular harmonization in ESTP.

The interviews conducted with authorities, teachers and students were analyzed in the Atlas IT software, which yielded the following categories: harmonization, areas of knowledge, seal competencies and public policies. The work of the harmonization team focused on qualitatively analyzing each category through the interviews and reporting on the harmonization process with the information from the documentary record.

Regarding the harmonization category, two topics were considered to complete this category: harmonization between CFT UV - CFT Estatal de Valparaíso and Effectiveness of harmonization.

**Table 1**

*Authorities CFT Valparaíso State CFT, former authorities CFT UV, teachers and students*

Categories	Interviewees	NO
Harmonization	Deputy Director of Institutional Management CFT Estatal de Valparaíso	1
	Deputy Director of Teaching CFT Estatal de Valparaíso	2
	Head of Curriculum CFT Estatal de Valparaíso	3
Areas of knowledge	Academic Director CFT Estatal de Valparaíso	4
	Former Deputy Academic Director CFT UV	5
	Former head of career and professor of TNS in Nursing CFT UV - CFT Estatal de Valparaíso	6
Competencies seal	CFT UV - CFT State of Valparaíso	7
	CFT UV - CFT State of Valparaíso	8
Public policies	CFT UV - CFT State of Valparaíso	9
	Student CFT UV - CFT Valparaíso State CFT	10
	Student CFT UV - CFT Valparaíso State CFT	11

### ***Qualitative Analysis Corresponding to the Category Harmonization***

With the result of the qualitative analysis, harmonization proposes a construction that brings together the competencies declared in both institutions "in order to establish a practice of academic harmonization for collaboration and mutual recognition among the various higher education institutions" (Alvarado et al., 2009, p. 3), considering common spaces that evidence similar training routes between both educational models.

In concomitance with the above, interviewee No. 5, defines harmonization in a conceptual way as:

The review of training plans and programs and the establishment of convergences related to the meeting points between thematic units, learning outcomes and allocation of theoretical and practical hours for the achievement of learning among the institutions that agree to share their educational models.

In the same vein, interviewee No. 1 circumscribes harmonization to the work carried out by the harmonization committee:

The concept of harmonization was understood as harmonizing the different moments and components of the curricular aspects of both institutions, where harmonization also invited to analyze the relevance of the two educational projects. The needs that the environment had to find common points, to consider not only the convergence of these training plans, but also to see if these plans can dialogue and that they can be appreciated as similarities although they are different plans.

Interviewee No. 3 points to the revision of the plans and programs of both institutions, considering that "they are different instances, to seek beyond convergence, but rather that they be coherent with each other". According to the above, interviewee No. 4 describes the harmonization, in view of the work that was carried out between the two educational centers:

It is the continuity of studies, the study of the curriculum. The main objective that is by law that creates the 15 State CFTs, but there is nothing written and the idea was to highlight that the student who was studying in the CFT UV could continue his studies in the State CFT of Valparaíso in the same time that had been given to him when he started his studies.

A similar position is offered by interviewee No. 2, who states that "the objective was to unite study plans, to follow up in order to achieve the purpose that was the completion of these students' careers".

Finally, interviewee No. 6 explains that she understood harmonization as "the transfer of training from one institution to another and making it possible for students to continue their studies".

In general, according to those interviewed, it was a collaborative effort in which educational models were brought closer together and activities were programmed in order to achieve a harmonization where the center of the proposal was the training needs of the students.

#### *Harmonization between CFT UV - CFT State of Valparaíso*

With the elements that make up the harmonization, through the coordination of programs, the guarantee of equivalence and comparability of qualifications, an agreement of articulation and harmonization between CFT UV and State CFT is established, which implies that students who entered the CFT UV can continue their studies in the State CFT, and take harmonized programs. In fact, the work carried out was a commitment of both educational institutions and of the professionals who participated in the comparative study of plans and programs and educational models.

According to interviewee No. 2, "it was a challenge, to see the integration and planning in academic subjects, and to configure them in the academic record". For interviewee #3, participating in a harmonization process represented,

A challenge from several points of view, since it was an institution that was starting with harmonized careers, therefore the development of resources, material, procedures[...] was a function of the closing of those careers. It also led us to rethink and rethink our academic regulations in terms of validations and mechanisms for recognizing subjects.

According to interviewee No. 5, it was "a great challenge, there is no literature or research on harmonization in CSP". For interviewee #1 it meant:

An apprenticeship there was not much to look for, there were not many examples to take; I feel that a challenge, until we missed the last [...] so it was complex learning, the system, the platform and reaching agreements with the ministry.

Interviewee No. 4 further explains the state of the art with respect to harmonization in the CSP, explaining that:

It was the first experience that was made in Chile, therefore, the meaning explained as academic director in giving a future experience and see what problems we could have along the way. Although the harmonization was successful, according to us it was to gain the experience of how between two houses of study, to talk curricularly and to harmonize the careers

From a personal point of view, interviewee No. 6 says that "it meant an opportunity for the students to finish their degree as well as a job opportunity for me".

In accordance with what was expressed by the interviewees, the work carried out by the professionals who formed the harmonization committee was relevant for the educational community and the higher education institutions that participated in this agreement. Not only was the work collaborative and participatory, but it also allowed for the sharing of learning and experiences that strengthened the curricular proposal in each of the harmonized careers.

### *Effectiveness of Harmonization*

As a result of this process, the participation of the authorities of the institutions that were part of the harmonization was relevant, resulting in a successful work for both students and the educational community. It was a transparent, conscious, collaborative and consensual work with all stakeholders. As a result of this work, interviewee N°5, expresses that:

More than 80% of the students who belonged to CFT UV decided to continue their studies in the State CFT. Both institutions have educational models based on competencies, public and state training and their curricular structure considers regional productive development.

A similar position is held by interviewee No. 6,

The harmonization process was effective to the extent that the student, as the main actor of this work, saw the academic opportunities and continuity of studies, therefore, he did not feel excluded; on the contrary, all his personal and academic needs were met in order to complete his training process in the estimated time.

Interviewee No. 4 highlights the academic indicators that showed a harmonious and positive process, emphasizing the results obtained:

It is evaluated by the graduation rate of the students. We received 120 students from the CFT UV and they had to be with us for a year and a half and they graduated 100 (timely graduation), which is a very good number. It can be presented as follows: Within the positive results, 120 students from the CFT UV were received after a year and a half at ..... 100 students graduated, i.e. they obtained their degrees in a timely manner. ( Interviewee N°4).

From the student's point of view, interviewee #10 highlights,

The effectiveness of this process can be measured on the basis of the dropout rate, which, although high during the first year, has decreased notably since the harmonization process was implemented. The quality of the curriculum and the program was strongly enriched in terms of the competencies delivered.

From the teacher's perspective, interviewee #8 argues that "this process was effective in improving the experience of students who were finally favored to access an institution that gave them greater student benefits, in terms of financing". In the same context, interviewee 9 notes that the process:

It represented a significant advance in technical education in the region. This effort not only sought to improve the quality of training, but also reflects a commitment to collaboration and integration of resources, which is essential in a constantly evolving educational context.

Finally, interviewee No. 7, in her capacity as a teacher, emphasizes that the harmonization has allowed "Generating a more inclusive and relevant technical training, aligned with the needs of students and the region, preparing graduates to contribute effectively to society and the world of work"



### ***Harmonization Process between CFT UV and CFT State of Valparaíso***

In developing the harmonization process between the two institutions, the relevant authorities defined the professionals in the academic field. They present previous experiences in the implementation of educational projects, curricular innovations and the formulation of competency-based curricula.

Once the harmonization commission was structured, a comparative work was carried out between the academic offer of the CFT UV and the training areas that the State CFT of Valparaíso must train by law, in addition to its commitment to respond to the requirements of the regional productive sector. At the same time, the authorities of both institutions convened the students of the CFT UV day and evening sessions to report on the work of harmonization with the purpose of providing an academic alternative in tune with the training demands of the Valparaíso region. It is in this sense that interviewee N°5 describes the process that took place between the two universities:

The authorities of the State CFT talked to the students of the day and evening sessions of the CFT UV, explaining the work and how the harmonization was carried out [...]. In addition, the rector of the State CFT talked with the delegates of the CFT UV careers and answered questions and concerns about this process and the relevance of access to free access.

Interviewee No. 1 discusses the work done with the students of the CFT UV:

It was through Focus where we explained to the students what the state seal is, what they gain are opportunities because there are also details, for example in English that can enhance employability, the income for which they are eligible and another element that was important is that we integrated the issue of free education and expected benefits through harmonization.

According to interviewee No. 4, the participation of the rectors of the institutions that participated in the harmonization process stands out:

At the beginning this has to do more with the rectors than anything else with the will to make a continuity of studies, propitiated by the University of Valparaíso to be able to make this harmonization and give a continuity of studies to the students of the CFT UV.

From the student's perspective, interviewee No. 11 comments that participation was reflected "mainly at the beginning of the process, both on the part of the management teams and the teaching staff. There were also meetings in which students were able to express their legitimate doubts and concerns about this process"

### ***Qualitative Analysis for the Category Areas of Knowledge***

The analysis of this category shows the concentration of programs in their respective areas, considering similar lines of content in different training areas related to Higher Education and connected to the regional and national productive sector and to the occupational profiles arising from these sectors.

It is in this context that the interviewees define the areas that were worked on, highlighting the relevance for the educational project and the sectorial realities of the Valparaíso region. Thus, interviewee No. 5 mentions the careers "Logistics, Business Administration with mention in Financial Management, Public Management and TNS in Nursing", which are susceptible to analysis by the State CFT of Valparaíso. Interviewee No. 1 explains the work done:

This topic was worked on by the curricular area, academic area, academic registration area and also in the financial area in order to receive and receive students [...] regarding the areas of knowledge, we worked on public

management, nursing and business administration, mentioning financial management and logistics.

Interviewee No. 3 states that "work on the recognition of the graduate profiles of the grids that can be harmonized, except for Public Management and TNS in Nursing, which were organized from the beginning, but rather Financial Management and Logistics".

According to the interviewees of the State CFT, the areas of knowledge are related to the training needs of the Valparaíso region, therefore, of the 12 careers presented by the CFT UV, only 4 responded to its educational postulates.

### ***Harmonization Process for the Areas of Knowledge Category***

The implementation of this category corresponds to the formative development of CFT UV related to the areas of Administration and Commerce, and Health. These were chosen by the State CFT of Valparaíso, assimilating the offer to its academic and institutional work, considering the productive and economic development of San Antonio, Los Andes and Viña del Mar, cities where the State CFT provides technical training.

**Table 2**

*Areas of knowledge*

	CFT UV	CFT Estatal de Valparaíso
Administration and Commerce	Business Administration with mention in Financial Management	Business Management
	Public Management	Public Management
	Logistics	Logistics Management
Health	TNS in Nursing	TNS in Nursing

According to its postulates, CFT UV proposes a training offer linked to the productive sector, since they are the ones who validate each of the technical careers. For this purpose, a group of professionals (directors, managers, service chiefs) is selected to represent the training and orientation of the technician, whose function is to define graduation profiles and names of the technical careers, through a validation matrix, representing the productive areas where they are inserted.

For the CFT Estatal de Valparaíso, the provision of a training offer is in line with the training demands of the productive sector of the Valparaíso region. According to this analysis, the CFT UV careers, mentioned above, are in accordance with the mission they hold and are in line with their postulates.

For the design of the training offer, the proposed careers were reviewed by the academic team of the CFT Valparaíso State, in the case of this analysis, after the harmonization, submitting them to the judgment of the board of directors who "in ordinary session determines their validation and approval" (CFT Valparaíso State, 2020, p. 24). Under this premise, the institution considers it appropriate to identify its careers in view of the work they carry out in their territories and the consequent productive development of the Valparaíso region, and for this purpose they modified the name of the careers so that they represent the *management* that the technicians carry out in the work environment.

### ***Qualitative Analysis for the Category Competencies Seal***

Having defined the areas of knowledge, it is the competencies that must be incorporated in the State CFT in compliance with Law 20.910 considering that Higher Education institutions, and especially in the ESTP, the implementation of an educational model related to the development of competencies for the timely insertion into the world of work is relevant, and that they are also consistent with the mission, which are framed in the so-called *Seal Competencies*, which consider the representativeness of the institution in all its areas of training and also tend to relate to other educational institutions promoting integration and insertion into the world of work.

Guiding this work interviewee No. 5 points out that: "in the seal competitions. State CFT is required by law to develop competencies such as, innovation, entrepreneurship, English, sustainability and civic education." He deepens this argument interviewee No. 4 clarifying that:

The truth is that the disciplinary competencies were the ones that coincided and where we placed the seal that had to do with subjects such as innovation, entrepreneurship, English, sustainability, civic education, as we are mandated by law.

According to interviewee #1, the responsibility of career managers lies in that,

They have to train in innovation, entrepreneurship, technology, civic education and sustainability, and this is our hallmark; we have to square the hours of the public management and nursing careers in order not to transfer an excess of credits because we could not cut back on the hard discipline.

According to Law 20.910, the mission of the State CFTs is to provide competencies that contribute to the productive and economic development of the country. Thus, the implementation of training plans should include competencies related to employability, civic education, sustainability and equity, competitiveness and productivity, ethics, environment and English.

### ***Harmonization Process for the Seal Competency Category***

The process of harmonization of the seal competency requires the effective application of the seal, establishing a conceptualization based on competencies. It is important to determine how the institutions comply with the missionary objectives, incorporating in their postulates the seal competencies, such is the case of CFT UV that declares as Mission "To train competent Higher Level Technicians, responsible and committed to their work and social environment, actively collaborating to the productive development of the region and the country" (Centro de Formación Técnica de la Universidad de Valparaíso, 2015, p. 4) on the other hand CFT Estatal states that the institutional Mission refers to:

We are the State CFT of the Valparaíso region, a public technological institution, which trains higher level technicians, developing skills with a focus on employability, associating it with industrial and community needs, in terms of product and service, to contribute to regional sustainable development (CFT Estatal de Valparaíso, 2020, p. 4).

Both postulate the connection with the productive sector, meeting the training demands for regional economic development. Therefore, the seal competencies reflect these principles. In particular, CFT Estatal complies with the mandate of the law that

requires that all its training plans must include competencies to promote the student's timely employability.

**Table 3**

*Competencies seal*

CFT UV	CFT Estatal de Valparaíso	Subjects CFT Estatal de Valparaíso
Social responsibility	Employability	Labor legislation Employability workshop and change management
Solidarity Fraternity Respect	Civic education Ethics	Civic education, ethics and social responsibility
Troubleshooting Healthy living	Sustainability and equity Environment	Sustainability for competitive development
Innovation and entrepreneurship	Competitiveness and productivity	Innovation and entrepreneurship workshop ICT Workshop
	English	English Workshop I and II

By incorporating the competencies seal into the curriculum, they become subjects. Curricular adjustments are established that allow maintaining the number of hours stated in the careers of the CFT UV. Thus, the work developed by the harmonization commission did not establish important changes in the training plans, where areas of competence or domains were migrated, complemented with the core competences that are part of the educational project of the State CFT.

With the support of the career managers and the professionals in charge of harmonization, academic loads are defined for the achievement of learning, considering the relevant learning in each module, assigning an important and significant percentage of the total hours stated for each module.

In this way, students who migrated to the State CFT in 2020, take the subjects of the new study plan in a year and a half (3 semesters) related to the competencies stamp.

***Qualitative Analysis for the Category Public Policies***

Public policies are state guidelines that transcend and establish elements of support for an important sector of the population, not only in economic terms but also with the skills that ensure a timely and, if possible, successful labor market insertion. Therefore, the free education policy is focused so that students who belong to the 60% of households with lower incomes can access higher education without incurring associated costs to study a curriculum at a university, professional institute or CFT, therefore, entering higher education is a desire of many vulnerable young people, which thanks to this public policy paves the way to achieve it. "OECD countries routinely point out in their public policy documents in the field of PSHE that a central criterion of equity is equal access to this type of education and to higher education in general"(CPCE - Unesco and Vertebral, 2020, p. 2).

In accordance with the above, interviewee No. 5 states that the State CFT has a mission that is "to respond to public policy and provide continuity of studies to students who came from the CFT UV". It also points out that the institution should "give continuity to a formative process initiated in CFT UV and the possibility for students who decided to continue their studies in the State CFT to have access to free education".

Interviewee N°1 emphasizes the responsibility as an institution to comply with public policy and its educational model:

The curricula and the descent according to the specific considerations that had to do with us taking charge of the public policy, on the other hand there was a need of the University of Valparaíso through its CFT that had the mission to harmonize itself in function of the community and for the students who needed to graduate.

In this context, interviewee No. 1 gives her vision regarding the strengthening of ESTP:

The strategic view of the harmonization has to do with the public policy of the state CFTs where the university decided to make the agreement with us is a state policy; it was not minor to continue with the legacy of the CFT UV; if all the universities deliver the careers to the public entities as the State CFTs between them both harmonizing us would be a strengthening to the public education.

Interviewee No. 11 considers relevant "the promotion of the free education policy, which made technical education more accessible to young people in the region".

The interviewees show their commitment to the authorities who appointed them to fulfill this purpose, which is to provide the educational community of CFT UV with a real option to continue their studies in a public and regional State CFT.

### ***Harmonization Process for the Public Policy Category***

The harmonization with respect to public policies whose center is free education, implies that the State, through the Ministry of Education, seeks that more and more students have access to Higher Education, providing greater economic resources through scholarships, credits and especially free education so that the economic requirement is not an impediment for students with scarce resources, but with great academic abilities, to pursue a technical or university degree.

In the harmonization work, gratuity was a determining factor, as disparate realities became evident. CFT UV has a 3-year accreditation (basic), and according to the regulations of free education, the institution must exhibit an advanced or excellence accreditation. In the case of the State CFT created by Law 20.910, institutional accreditation is not required, therefore, they can access State funds, which, among other benefits, provide free education.

## **Challenges and Implications of Harmonization**

The purpose of the harmonization was to provide the best training offer for the Valparaíso region, therefore the team's effort was to design training plans that interpret the labor needs of the productive sector, ensuring the student's effective entry into the world of work. Therefore, this effort meant facing great challenges.

From the curricular point of view, higher level technical careers must have a minimum duration of 1,600 classes or four semesters in their curriculum, therefore, the squaring of hours in the harmonized careers meant analyzing the relevance and pertinence of each learning outcome and its contribution to the graduate profile. In addition, the incorporation of the stamp subjects, which by law must be taught by State CFTs, significantly increased the number of hours of the training plan; in view of this

problem, the modules of the CFT UV training plan, corresponding to the first year, which contained part of the stamp subjects, were considered, and through the recognition of prior learning (RAP) these subjects were not taught.

From the teaching perspective, the training model of the CFT UV is designed under the focus on labor competencies, i.e. the productive sector is part of the survey and design of the careers and the CFT Valparaíso State proposes a training model based on competencies, considering the training needs of the productive sector, but it is its board of directors who validates the academic offer. Therefore, teachers who migrated to the state school had to adapt their academic planning to the demands of this new training structure, which meant training in educational platforms, incorporating into their academic work innovative learning resources that required time and dedication for their execution, which was complex when they also had to perform work duties in other institutions. Finally, regarding the pandemic, teaching in hybrid mode was a tremendous challenge, considering that the first class of students was received in that context. Designing classes by allocating diachronic and synchronous hours led to rethinking the training process and exploring new educational environments, this time virtual, for the achievement of student learning.

The student who entered the State CFT is part of a socially and economically vulnerable community and his objective was to increase his employment and income levels, with the possibility of improving his quality of life and his family environment, therefore, he saw in the proposal of the State CFT of Valparaíso an opportunity to increase his competencies and insert himself quickly in the labor market, considering that this training offer develops competencies that the productive sector requires.

This is how timely job placement was achieved through the relationship between the educational institution and the productive sector, expanding their training with the skills required by this sector.

According to those interviewed, these programs made it possible for students to enter the labor market and for those who were employed to enhance their credentials and access better employment within the company.

## **Discussion and Conclusions**

This research describes a work that is framed in an articulation and harmonization agreement where the institutions are committed to provide the students with the best academic offer, which makes possible a timely labor insertion and with academic tools according to the demands of the productive sector of the region.

From the beginning, the work of the harmonization committee has focused on the students as the main element, trying to meet their expectations and academic projections, maintaining a fluid communication with all the members of the community headed by its highest authorities. This strategy was undoubtedly crucial for 120 students who came from CFT UV to continue their studies at CFT Estatal. They learned first-hand about the work carried out and the scope that the harmonization means for their academic development, considering the contribution of the institution in the development of competencies that complement their initial training and project them towards better work environments, and from the economic point of view, studying free of charge was not a minor element, since it meant an important support for him and his family environment, coming from a vulnerable social and economic stratum.

The harmonization process developed between CFT Estatal de Valparaíso - CFT UV showed an innovative, creative and transparent work for the educational community of the Valparaíso region. Although this is an isolated experience within ESTP, it is necessary to promote collaborative efforts between public and private educational institutions that make it possible to exchange experiences and support in order to offer careers that make a real contribution to the productive and economic development of the region and the country

For harmonization between educational institutions to be effective, it requires a commitment from the entire educational establishment. It is not enough to demonstrate that there is an intention to harmonize the curriculum; it is also necessary to state the need for the State, through the Ministry of Education, to commit itself to support the harmonization processes, considering that there are other areas that are part of this work, such as the legal and administrative areas and the department of student affairs, which are part of the governance of the educational institutions, who must effectively monitor the students who enter through harmonization and inform the government entities about the student's curricular progress, state scholarships and agreements with the productive sector.

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