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Presentation of Content

In the first article we present, *Between equality and authoritarianism: daily interaction in the development of knowledge construction in the classroom* by Ortiz- y Ojeda, Pedro Tomás, Ortiz-Sánchez, Pedro Alfonso Guadalupe, Sánchez-Iturbe, Patricia Guadalupe and Basave-Torres, Rosy Ilda, with adscription in Tecnológico Nacional de Mexico-Instituto Tecnológico de Tuxtla Gutiérrez and Tecnológico Nacional de Mexico-Instituto Tecnológico de Mérida, as the next article we present Impact of food orientation and education strategies on meaningful learning of public servants by Huerta-Chávez, Irma Alicia, Soltero-Sánchez, Jazmín del Rocío, González-Quezada, Esperanza, and Figueroa-Ochoa, Edgar Benjamín, with adscription in University of Guadalajara, University Center of Exact Sciences and Engineering, as the next article we present, *Young Female Talent in Action: Women for a STEAM Future in El Salvador* by Juárez-Salomo, Norma Angélica, Esperanza-Amaya, José Miguel and Cuevas-Olascoaga, Miguel Ángel, with adscription in Universidad Salvadoreña Alberto Masferrer and Universidad Autónoma del Estado de Morelos, as the next article we present, *Building collective narratives from a culture of peace: A tool for dialogue and participation* by Barcenás-Reyes, Gonzalo, Juvera-Avalos, Janett and Meza-De-Luna, María Elena, with adscription in Autonomous University of Querétaro, as the next article we present, *Hardiness and social context in young university athletes* by Ponce-Carbajal, Nancy, Ramírez-Nava, Ruben, Medina-Villanueva, Samantha and Rodenas, Luis, with adscription in Universidad Autónoma de Nuevo León, as the next article we present, *Appearance of destructive pleasure through play in preschool education* by Konstantinovich-Fokin, Sergei, Robles-Cardoso, Claudia Elena and Aguilar-Romero, Martha Patricia, with adscription in Escuela Normal N0. 3 de Toluca – Universidad Autónoma del Estado de México, as the last article we present, *Relationship between impulse control and addiction, emotional intelligence, and academic performance in university students*, by Bojórquez-Díaz, Cecilia Ivonne, Peralta-Zapien, Alejandro, Quintana-López, Victor Alexander and Sotelo-Castillo, Mirsha Alicia, with adscription in Instituto Tecnológico de Sonora and Universidad Autónoma de Baja California.



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Between equality and authoritarianism: daily interaction in the development of knowledge construction in the classroom

Entre la igualdad y el autoritarismo: la interacción cotidiana en el desarrollo de la construcción del conocimiento en el salón de clases

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Abstract

The classroom environment can be considered to develop in a balance between authority and equality between teacher and student. This situation creates a healthy, productive environment, where teachers exercise their authority fairly and equitably, ensuring that students have equal opportunities for academic success. At the same time, authoritarianism must be avoided. In this work, using a mixed methodology, we determine, through semantics, the words that characterize the classroom environment at the undergraduate engineering level. Between equality and authoritarianism: daily interaction in the development of knowledge construction in the classroom level.

Resumen:

Se puede considerar que el ambiente en un salón de clases se desarrolla en un equilibrio entre la autoridad y la igualdad entre el docente y el alumno. Esta situación da pie a un ambiente saludable sano y productivo, en donde el docente ejerce de forma justa y equitativa su autoridad, de manera que el estudiante tenga las mismas oportunidades de éxito académico, al mismo tiempo se debe evitar caer en un autoritarismo, considerando lo anterior, en este trabajo mediante una metodología mixta determinamos por medio de la semántica, las palabras que caracterizan el ambiente de un salón de clase a nivel licenciatura en ingeniería.



Equality, Authoritarianism, Environment, Interaction

Igualdad, Autoritarismo, Ambiente, Interacción

Area: Promotion of frontier research and basic science in all fields of knowledge

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Introduction

In a social group such as the classroom, there is intense interaction between its members, in this case between the student and the teacher. This dialogue is full of interactions through which knowledge is constructed. It can be considered to oscillate between equality, as it is a human quality between two beings that is legally and naturally endorsed. However, the knowledge to be transmitted disrupts this, often leading to the imposition of an implicit logic for the construction of knowledge, which can be transformed into an imposition of ideas and conceptions [Ames Ramello, 2020], [Child Development, 2020].

This phenomenon characterises teaching practice, as it is in this way that teachers transmit their beliefs, values and perspectives to students, often without allowing for debate or critical reflection. This imposition manifests itself in different ways, through the selection of content, the way of teaching, and expectations about students' responses and behaviour [Masschelein, J., & Simons, M., 2020].

Thus, the selection of content is characterised by the teacher's choice of topics to be addressed during teaching and also those to be omitted, defined by beliefs and values, which limits students' exposure to and learning of the teacher's perspectives and knowledge [Brain, 2020].

The teacher's conception of how to present information is typified by the teaching method; if this process is carried out in an authoritarian manner, it discourages active and critical participation by students [Complutense University of Madrid [UCM], 2020].

Another activity within the classroom is assessment and its respective feedback, which is characterised according to the teacher's conceptions of the content taught, accepting as good those answers that align with their ideas and conceptions and penalising those that do not meet this condition [Álvarez Martínez, 2023; Diker, 2023].

The imposition of ideas and conceptions can be considered to have profound implications for students' cognitive and critical development. To analyse these teacher-student relationships in the classroom, several theoretical frameworks can be used, including the following:

Critical theory is based on the idea of challenging power structures by using the ability to question the educational process. According to Paulo Freire, education should be liberating in the sense of empowering students to ask questions in order to transform reality, rather than accepting imposed ideas [García, 2021].

Within the socio-historical current, according to De la Cruz Flores [2022], there is the so-called social representation, where the ideas and beliefs shared by a social group influence the way people perceive and act in the world. In education, teachers influence the way they teach and represent content. This theory was developed by Serge Moscovici.

The ruling classes also impose their vision through schools, so that certain values and norms are taught in the classroom, which of course favour the dominant perspective among others. Antonio Gramsci developed this theoretical framework. Likewise, according to Jürgen Habermas' theory, communication in the classroom should take place in an environment free of coercion and should be oriented towards mutual understanding, where the imposition of ideas is seen as a distortion of authentic communication, characterised by dialogue and the active participation of students.

On a daily basis, teachers tend to generate theories regarding beliefs and assumptions about the teaching and learning process, which influence the way classes are structured and how ideas and concepts are transmitted and imposed on students, considering this situation as the existence of implicit theories or beliefs in teachers. In general terms, beliefs and theories offer different perspectives for analysing how ideas and concepts are imposed in the classroom, and can be useful for reflecting on pedagogical practices and promoting equitable and critical education. Daily interaction in the classroom can be analysed by considering different theoretical frameworks, including:

Critical theory, González [2020] considered above, is a perspective based on the Frankfurt School, which considers that the educational context reproduces inequalities and perpetuates dominant ideologies, in which the imposition of ideas by teachers is considered a form of ideological control, which focuses on analysing emancipation and criticism of structures of power and domination.

On the other hand, constructivist theory considers that the imposition of ideas can be counterproductive, as it limits students' ability to create and develop their own understanding and critical thinking, considering that learning is an active process in which students construct their knowledge through experience and reflection.

Similarly, Pierre Bourdieu's theory in the context of education considers that the educational process is a reflection of society and also a mechanism of social reproduction that maintains cultural and economic inequalities [Bourdieu, 1977].

It is established that the field of education is a social space in which power relations are developed by establishing rules and formalities during the educational process and the reproduction of cultural, social or symbolic capital that define the success or failure of the act of intellectual training.

He considers that power relations in the field of education are imposed by language, culture and symbols, without direct physical coercion, but through the expectations of the ruling class by means of norms and values, so that the socially disadvantaged internalise a feeling of inferiority or irrelevance.

Bourdieu establishes the concept of habitus as a set of dispositions or patterns of perception, ways of thinking or acting that individuals develop during their existence, due to the social context or the place where they are carried out, which consequently influences individual expectations, the development of practices and the chances of success in the activities they undertake.

In addition, the socio-historical theory developed by Lev Vygotsky can be included in the analysis as a conceptual framework. This theory considers the importance of the social and cultural context in cognitive development, viewing learning as a socially mediated process in which language and social interaction play an important role, and where the imposition of ideas is considered a form of mediation that influences the construction of knowledge.

In this theory, the influence of the social and academic environment is fundamental to people's cognitive development.

It is characterised by the consideration that mediation occurs through cultural tools such as language, symbols and objects, which are used to interact with the environment more effectively and enable the development of higher cognitive functions [Vygotsky, 1978].

The same author believes that there is a gap between what a child can do on their own and what they can do with the help of an adult or a more capable peer, which he calls the zone of proximal development [ZPD]. He considers that effective teaching occurs within this zone, where adequate support helps to achieve a higher level of understanding and ability.

Internalisation is a higher cognitive function for Vygotsky, which develops first at a social level called interpsychological, and then internalises at an individual level called intrapsychological, meaning that social interactions are fundamental to cognitive development.

Furthermore, this author recognises that language is a crucial tool in the development of thought. In addition to facilitating communication, it allows for the structuring of thought and problem solving.

Thus, by evaluating language and interactions in the classroom, valuable information can be obtained about the conditions of equality and authoritarianism in the classroom. Teachers and students can also be observed in their use of language to reveal power dynamics and opportunities for participation and learning.

Vygotsky's theory has various applications in educational development, in that it allows for the analysis and development of collaborative teaching processes to establish activities where students work together and support each other in problem solving and knowledge building [Vygotsky, 1995].

According to this theory, in many cases, in order to carry out learning activities, it is necessary to build temporary support called scaffolding, which allows it to be adjusted to the student's needs until they can perform the task independently.

As would be the case when students learn to solve equations, the so-called Zone of Proximal Development [ZPD] of each student is identified and then scaffolding is provided, such as clues or guided examples to understand and appropriate the process. As students gain confidence and skill, support is gradually reduced so that students can solve equations independently.

Methodology

To analyse everyday interaction in the development of knowledge construction in the classroom, an initial analysis is made of an epistemic view based on positivism and post-positivism, characterised by objectivity and the measurement of study variables, such as behaviour patterns, academic performance, and other observable variables using surveys, standardised tests, and other statistical processes, taking into account the verification of the hypothesis and the generalisation of the results using representative samples [Villareal, E. et al. [2021]; Rivas, J., 2023].

Another approach is to consider qualitative methodology, which operates under constructivism and interpretation, emphasising a deep understanding of the phenomenon studied from the perspective of the participants. In the case of the classroom, it is considered to explore the experiences, perceptions, and meanings of teachers and students in their daily interactions through interviews, observations, and content analysis to capture the complexity and richness of all interactions [Alvarez, 2003]

By combining qualitative and quantitative methodology, a more comprehensive approach to educational phenomena can be achieved in terms of epistemic pragmatism, in which the usefulness and applicability of the methods in the research questions are assessed, explaining what happens in quantitative terms and also why and how it happens, which is provided by the qualitative method.

Daily interaction can then be investigated through dialogue and collaboration between teachers and students in the construction of knowledge, highlighting joint participation in activities relevant to cognitive development. This can be analysed with reference to the cultural and historical activity characterised by Vygotsky's theory.

Individual behaviour is related to semantic memory, as it is considered potentially generative because it organises knowledge of words and other verbal symbols, as well as their meaning, referents and the relationships between them [Sánchez-Gómez, et. al., 2022].

Thus, the method of collecting information using semantic networks constitutes a mixed procedure, both quantitative and qualitative in nature, the model of natural semantic networks proposed by: Alvarez, 2003, [Briones, 2001] addresses meaning directly by providing an explanation of the approach through conceptual nodes that form the network.

With the aim of investigating the interpretation of the teacher-student relationship, a group of students was asked to answer the question: How would you describe the treatment you receive in your personal interaction with your teacher? This question was asked to a group of 30 first-semester students who were beginning their engineering studies and were enrolled in a mathematics course at the end of the semester. They were asked to provide five defining words and classify them according to a hierarchy, assigning a score of one to the most accurate and five to the least accurate. The following table shows the responses.

Box 1

Table 1

Defining words

Gender	WORDS THAT RESPONDED				
	1	2	3	4	5
M	Justice	Justice	Equity	Domination	Respect
M	Dictatorship	Totalitarianism	Equality	Justice	Fairness
M	Inclusion	Absolutism	Inclusion	Absolutism	Totalitarianism
F	Despotism	Equity	Arbitrary	Intolerance	Coercion
M	Dictatorship	Repression	Impartiality	Repression	Justice
M	Equity	Inclusion	Dictatorship	Inclusion	Coercion
M	Censorship	Justice	Intolerance	Imposition	Despotism
M	Inclusion	Dictatorship	Parity	Inclusion	Solidarity
M	Equity	Neutrality	Justice	Totalitarianism	Fairness
M	Despotism	Justice	Imposition	Dictatorship	Tolerance
F	Parity	Recognition	Repression	Justice	Dictatorship
M	Balance	Impartiality	Equity	Oppression	Solidarity
M	Justice	Control	Censorship	Despotism	Fairness
M	Balance	Equity	Inclusion	Parity	Equality
M	Despotism	Absolutism	Coercion	Neutrality	Dictatorship
F	Inclusion	Justice	Dictatorship	Equity	Intolerance
M	Oppression	Totalitarianism	Fraternity	Fraternity	Repression
M	Equity	Despotism	Equity	Censorship	Impartiality
M	Oppression	Parity	Balance	Inclusion	Fairness
M	Impartiality	Justice	Dictatorship	Fraternity	Neutrality
M	Inclusion	Repression	Parity	Justice	Dictatorship
F	Neutrality	Totalitarianism	Uniformity	Uniformity	Justice
M	Totalitarianism	Equity	Totalitarianism	Equity	Balance
M	Repression	Dictatorship	Despotism	Intolerance	Despotism
M	Equity	Despotism	Impartiality	Absolutism	Fairness
M	Despotism	Justice	Fraternity	Despotism	Dictatorship
M	Repression	Absolutism	Parity	Repression	Totalitarianism
M	Equity	Dictatorship	Uniformity	Equity	Parity
M	Despotism	Totalitarianism	Impartiality	Totalitarianism	Tolerance
M	Impartiality	Parity	Repression	Dictatorship	Absolutism
M	Impartiality	Subjugation	Equity	Absolutism	Fraternity

Source: Own elaboration.

As can be seen in the table above, the atmosphere surrounding the daily interaction between students and teachers is described, where there is mutual respect and collaboration between both protagonists of the pedagogical act, in which the role of the teacher was that of a facilitator rather than the traditional role of an authoritarian figure.

The aim was to create an environment of comfortable participation, where opinions could be expressed without fear of judgement, sharing ideas in a two-way flow of communication between the teacher and the students, always attentive to feedback, characterising mistakes as learning opportunities rather than failures, and encouraging students to take responsibility for their own learning, with the idea of fostering critical thinking and autonomy.

The atmosphere was not controlled by a hierarchical relationship in which the teacher had unquestionable authority and the students felt they had less freedom to express themselves.

It was also important to avoid communication flowing from the teacher to the students with little feedback from the students, where the teacher makes all the decisions and the students must follow them without question, and where obedience and compliance with rules often come at the expense of creativity and active participation, preventing anxiety or fear of making mistakes, which can inhibit their learning and participation [Pérez, 2022].

Results

After identifying the key concepts to include in the analysis of the research question, the information was collected as mentioned in the previous paragraph. With the data obtained, the concepts were identified to construct the relationship of a semantic network. There are various methodologies for performing this action, from natural language processing [NLP] techniques, in which concepts and relationships are extracted from the data, to digital tools such as Gephi or NodeXL.

A graphical representation of nodes and relationships as edges in a graph can be used, using specialised software such as Gephi or NodeXL. However, due to the characteristics of the research, the methodology referred to in Figueroa, et. al. [1981] called natural semantic networks is used.

In this methodology, the words that define the answers to the research question are classified into hierarchies from 1 to 5 by each of the participants, as shown in Table 1.

The number of these hierarchies per participant is multiplied by their semantic value, that is, the multiplication of the frequency of occurrence per hierarchy obtained by each of the defining words, indicating the semantic weight of each of the defining words, as shown in Table 2 below.

Box 2

Table 2

Semantic Categories

ESTABLISHMENT OF SEMANTIC CATEGORIES										
		valxjerar		valxjerar		valxjerar		valxjerar	Also, the valxjerar	
VALUES[val]	5		4		3		2		1	
HIERARCHIES[hi er]	1		2		3		4		5	
1. Dictatorship	2	10	3	12	3	9	2	4	4	39
2. Despotism	5	25	2	8	1	3	2	4	2	42
3. Totalitarianism	1	5	4	16	1	3	2	4	2	30
4. Absolutism	0	0	3	12	0	0	1	2	1	15
5. Repression	2	10	2	8	2	6	2	4	1	29
6. Censorship	1	5	0	0	1	3	1	2	0	10
7. Oppression	1	5	0	0	0	0	1	2	0	7
8. Imposition	0	0	0	0	1	3	1	2	0	5
9. Intolerance	0	0	0	0	1	3	2	4	1	8
10. Coercion	0	0	0	0	1	3	0	0	2	5
11. Arbitrariness	0	0	0	0	1	3	0	0	0	3
12. Domination	0	0	0	0	0	0	1	2	0	2
13. Control	0	0	1	4	0	0	0	0	0	4
14. Subjugation	0	0	1	4	0	0	0	0	0	4
15. Equity	5	25	3	12	4	12	3	6	5	60
16. Justice	1	5	6	24	1	3	3	6	2	40
17. Inclusion	4	20	1	4	2	6	3	6	0	36
18. Parity	1	5	2	8	3	9	1	2	1	25
19. Impartiality	3	15	1	4	3	9	0	0	1	29
20. Balance	2	10	0	0	1	3	0	0	0	13
21. Neutrality	1	5	1	4	0	0	1	2	1	12
22. Uniformity	0	0	0	0	0	0	1	2	0	2
23. Fraternity	0	0	0	0	2	6	2	4	1	11
24. Equality	0	0	0	0	1	3	0	0	1	4
25. Solidarity	0	0	0	0	0	0	0	0	2	2
26. Tolerance	0	0	0	0	0	0	0	0	1	1
27. Recognition	0	0	1	4	0	0	0	0	0	4
28. Respect	0	0	0	0	0	0	0	0	1	1
sum of hierarchies	29		31		29		29		29	

Five individual words corresponding to the research question stimulus were considered. In the response process, all students developed the hierarchy individually, avoiding free association, with five minutes given to establish the concept, seeking to generate greater hierarchical richness.

As a result of the evaluation of the values and hierarchies in Table 1, the hierarchies that obtained the highest values are located and presented in Table 2, which can be grouped within the concept of authoritarianism, representing their position from the highest value with their respective percentage.

Box 3

Table 3

Authoritarianism

Authoritarianism		
Defining words	Value	Percentage
Despotism	42	100
Dictatorship	39	92.8571429
Totalitarianism	30	71.4285714
Repression	29	69.047619
Absolutism	15	35.7142857
Censorship	10	23.8095238
Intolerance	8	19.047619
Oppression	7	16.6666667
Imposition	5	11.9047619
Coercion	5	11.9047619

Source: Own elaboration.

With a score of 42 and 100 per cent, the concept of despotism indicates that interaction with the teacher tends to be arbitrary and that the group does not participate in decisions regarding the group's leadership. It is considered that absolute power is exercised without any restrictions, whether regulatory or institutional, and that this power is arbitrary, tyrannical and exercised by a single person.

In the case of the word dictatorship, it had a score of 39 and the associated percentage was 92.85%. In this assessment, it is considered that only the teacher governs and manages pedagogical development, without participation in the class for consensus building.

A percentage of 71.42% considers that the interaction between pedagogical actors in the classroom can be described as totalitarianism, as they consider that the teacher controls everything through warnings and proposals that are disadvantageous to the development of the teaching activity, as well as repressive actions that generate resentment.

Repressive action in the classroom, estimated to occur with a frequency of 29% to 69.04%, takes place in the school environment with the application of exaggerated order, with actions to silence and contradict spontaneous participation, and with remarks that affect good relations between students and the teacher.

The feeling that the teacher has absolute power was reported by 35.71% of respondents, who felt that the teacher is not governed by the laws or regulations established for the proper conduct of educational activities.

Censorship also occurs in 23.80% of cases, in the form of the suppression or prohibition of independent activities in education, such as watching videos, reading information other than notes, and limiting opinions. However, the existence of an unwillingness on the part of the teacher to accept different opinions, beliefs or behaviours was expressed by 19.04% of students, who described it as intolerance, a characteristic that is reflected in societies considered to be closed and authoritarian.

Apparently, 16.66% feel oppressed, as they consider that the teacher's authority is exercised unfairly and, to a certain extent, cruelly, considering that their fundamental rights and freedoms are denied.

On the other hand, 11.90% consider the impositive way of establishing a topic or act, as on some occasions it was interpreted and felt to be forced or authoritarian, causing resistance or social conflict as a reaction.

Similarly, 11.90% of students mentioned the use of force or threats, relating them to the use of force or threats to compel them to do something against their will, to a certain extent to ensure obedience and control of the class group. In the case of the other external factor analysed, namely equality, the following results were obtained, using the same compilation as in Table 2 from Table 1:

Box 4

Table 4

Equality

Equality		
Defining words	Value	Percentage
Equity	60	100
Justice	40	66.6666667
Impartiality	29	48.3333333
Parity	25	41.6666667
Balance	13	21.6666667
Neutrality	12	20
Fraternity	11	18.3333333
Equality	4	6.6666667
Recognition	4	6.6666667
Solidarity	2	3.3333333

Source: Own elaboration.

According to the table above, the score of 60, which corresponds to 100 per cent of responses, refers to equity, which is the fairness and impartiality with which treatment, resources and opportunities are provided, seeking to correct inequality in order to ensure access to reaching one's full potential. It is considered a fundamental principle in the fight against discrimination and social exclusion.

Justice has a representative value of 40 [66.66%], which implies that rights must be upheld and sanctions applied to those who violate them. It is considered that everyone should be given their due according to the law, ethics and morality. This concept is a fundamental element in any democratic society and is manifested in the judicial system, which seeks to resolve conflicts in an equitable and transparent manner.

The issue of impartiality was considered within the range of options with a percentage of 48.33, indicating that the quality of not showing favouritism towards any of the parties in a situation involves fair and objective decision-making, ensuring that everyone is heard.

Parity is a quality that refers to equality in terms of quantity, quality or status, with a value of 25 and a percentage of 41.66. It implies equal representation and participation of men and women in the classroom, in the sense of gender equality and the elimination of inequality gaps.

Balance is considered to be the state of equilibrium between the different elements that make up the relationship between teacher and student, considered as the harmony between the teacher's personal and professional life, as well as the equitable distribution of resources and emotional stability. It is considered to be the balance between individual and collective well-being. This word had a value of 13 and a percentage of 21.66.

Neutrality is characterised by the position of not taking sides in a conflict, which is very important in the academic context, where it should be characterised by maintaining objectivity and avoiding external influence, allowing one to act as a mediator and facilitate the fair resolution of conflicts. It was given a value of 12 and a percentage of 20.

The feeling of solidarity and brotherhood among people is described as fraternity. Students rated the feeling of cooperation, support, and sense of belonging to the classroom community with a value of 11 and a percentage of 18.33. In general terms, this concept aims to build more just and cohesive societies.

Equality is considered to mean that all people have the same rights and opportunities. This situation was rated with a value of 4 and a percentage of 6.66 per cent. In this sense, the aim is to promote inclusion in the classroom by eliminating inequalities and promoting inclusion without discrimination on the grounds of race, gender, religion and sexual orientation, among others.

Recognition, which values and respects the identity, achievements, and contributions of others, has the same percentage and value as equality. This condition develops self-esteem and a sense of belonging, which fosters an environment of inclusion and motivation.

Finally, with a percentage of 3.33 and a rating of 2, is solidarity, considered as mutual support and cooperation between individuals or groups in situations of difficulty and injustice. Due to empathy and joint action to achieve common goals and overcome adversity, it is valued for the achievement of more just and humane societies.

Conclusions

Interaction within the classroom allows us to understand the relationship between power and learning in the educational environment, characterised by the idea that students should have equal opportunities for learning and participation. As can be seen from the above results, the word equity dominates in terms of equal treatment [García, 2009].;[Secretaría de Educación Pública [SEP], 2020]

In general terms, it is considered that in order to achieve equal treatment, it is necessary to have equal access to educational materials, such as books, the internet, and the library, as well as additional support from the teacher, through fair and impartial treatment, characterised by respect and consideration regardless of origin, gender, abilities, etc. [Zuñe et. al. 2021]

Active participation is also necessary to encourage the entire classroom to participate in class activities, ensuring that no one is excluded or marginalised. Another important element is that assessments must be impartial and based on clear and consistent criteria for all students.

These ideas are evident in the terms that the assessment action must be impartial, as well as gender parity, and balance in the teacher's treatment of the student must not be absent, so that authority relationships are neutral and fraternal and tend to achieve equality among all actors in the classroom.

At the opposite end of the spectrum is authoritarianism, characterised by the existence of rigid discipline in the classroom, where teachers tend to impose strict rules that lead to severe punishments in order to maintain order in the classroom.

It was described by students as despotism, dictatorship or totalitarianism in decreasing order, which manifests itself in the classroom as a lack of flexibility or adaptation to the needs of individual students.

To a certain extent, there is one-way communication, characterised by the teacher giving instructions from the top down and the students obeying without question, with an emphasis on generating obedience and compliance with rules, which eliminate creativity and critical thinking.

Thus, for the educational process to take place in an effective learning environment, it is necessary to find a balance between authoritarianism and equality through democratic leadership, characterised by flexibility, where students have the opportunity to participate by having a say in certain decisions.

When leading the group, it is advisable to avoid severe punishments and use positive discipline strategies that encourage mutual respect and self-regulation. It is also advisable to adapt teaching to the needs of students and their learning styles in order to promote equality without sacrificing structure. Finally, the use of critical thinking to question constructively, in order to balance the authority of the teacher with the autonomy of the student, can be taken into consideration in this type of exercise.

Declarations

Conflict of interest

The authors declare that they have no conflict of interest. They have no competing financial interests or known personal relationships that could have influenced the article reported in this article.

Contribution of the authors.

Ortiz-y-Ojeda Pedro Tomás: Contributes to the development of the idea, its analysis and the writing of the article.

Ortiz-Sánchez Pedro Alfonso Guadalupe: Contributes to the questionnaire and the processing of information, drafting and writing of the article.

Sanchez-Iturbe Patricia Guadalupe: Contributes to the generation, drafting and application of the questionnaire, its analysis and the writing of the article.

Basave-Torres, Rosy Ilda: Contributed to the management of the submission process.

Availability of data and materials

The data obtained for this research are available in an electronic repository owned by the Didactics and Application of Basic Sciences academic body.

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Abbreviations

PNL	Natural Language Processing
	National Technological Institute of
TecNM	Mexico
UCM	Complutense University of Madrid
ZDP	Zone of proximal development

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Background

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Impact of food orientation and education strategies on meaningful learning of public servants

Impacto de las estrategias de orientación y educación alimentaria en el aprendizaje significativo de servidores públicos

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Abstract

In order to bring social programs closer to the vulnerable population, having food orientation and education strategies in the public social assistance sector is a key task. For this reason, several training sessions have been held for public servants in charge of food programs at the state level, with the aim of contributing to the development of new healthy eating habits that will have an impact on improving the nutritional status of the undernourished and malnourished population. This research was conducted with a quantitative, longitudinal, descriptive and nonexperimental approach [Hernández et al., 2014; and Bernal, 2016] and a census was conducted. The instrument was validated by expert judgment, including five food issues. The main finding, after applying the measurement instrument [pretest and posttest] to 125 trained public servants, shows the impact on the significant learning achieved.

Resumen

Contar con estrategias de orientación y educación alimentaria en el sector público de asistencia social, es una tarea medular para el acercamiento de los programas sociales a la población vulnerable. Por ello, se impartieron diversas capacitaciones a servidores públicos encargados de los programas alimentarios a nivel estatal, a fin de contribuir en el desarrollo de nuevos hábitos alimentarios saludables que incidan en la mejora del estado nutricional de la población con carencia alimentaria o desnutrición. Esta investigación se efectuó bajo un enfoque cuantitativo, de corte longitudinal, de tipo descriptivo y no experimental [Hernández et al., 2014; y Bernal, 2016], y se realizó un censo. El instrumento se validó por jueceo de expertos, incluyendo 5 temas alimentarios. El principal hallazgo, tras ser aplicado el instrumento de medición [pre-test y post-test] a 125 servidores públicos capacitados, muestra el impacto en el aprendizaje significativo logrado.

Impact of food orientation and education strategies on meaningful learning of public servants			
Goals <ul style="list-style-type: none"> Measure meaningful learning achieved by trained public servants Identify the impact of the training achieved 	Method	Research type <ul style="list-style-type: none"> Quantitative Descriptive Nonexperimental Longitudinal study 	Census <ul style="list-style-type: none"> N = 125 people
		Data analysis and hypotheses testing <ul style="list-style-type: none"> Descriptive statistics SPSS Statistics 25 	
		Measure instrument <ul style="list-style-type: none"> Five variables Expert judgment Cronbach's Alpha 	
Findings <ul style="list-style-type: none"> Meaningful learning of public servants > 5% Significant relationship of the FGES with the SLSP at the state level. 		Contribution <ul style="list-style-type: none"> Validation of measure instrument (pretest and posttest) and measure meaningful learning achieved. 	

Impacto de las estrategias de orientación y educación alimentaria en el aprendizaje significativo de servidores públicos			
Objetivos <ul style="list-style-type: none"> Medición del aprendizaje logrado por la capacitación a servidores públicos. Identificación del impacto logrado tras la capacitación. 	Método	Tipo de investigación <ul style="list-style-type: none"> Cuantitativa Descriptiva No experimental Estudio longitudinal 	Censo <ul style="list-style-type: none"> N = 125 personas
		Instrumento de medición <ul style="list-style-type: none"> Cinco variables Jueceo por expertos Alfa de Cronbach 	Análisis de datos y prueba de hipótesis <ul style="list-style-type: none"> Estadística descriptiva SPSS Statistics 25
Resultados <ul style="list-style-type: none"> Aprendizaje significativo de servidores públicos > 5% Relación significativa de la FGES con el SLSP a nivel estatal. 		Contribución <ul style="list-style-type: none"> Validación del instrumento de medición (pre-test y post-test) y medición del aprendizaje logrado. 	

Training on food issues, Quantitative study, Public sector

Capacitación en temas alimentarios, Estudio cuantitativo, Sector público

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1. Introduction

The public sector responsible for social assistance has a fundamental task of utmost importance in implementing food programs at the state level properly: creating food education and guidance strategies. First, these strategies must be aimed at the public servants in charge of these programs, who, in addition to being knowledgeable about food issues, are key to successfully changing the eating habits of the vulnerable population, as the ultimate beneficiaries. These strategies contribute to the empowerment of beneficiaries by providing them with basic knowledge about food and skills that influence healthy decision-making through proper nutrition.

Within food guidance and education, the concept of assistance has shifted from a passive beneficiary population, which only received support without any additional commitment, to an active population that is part of the citizen participation approach. Thus, the beneficiaries of food programs are directly responsible for changing their eating habits, with a focus on the constant improvement of the nutritional status of each individual suffering from food deprivation or malnutrition. In this regard, this document presents an assessment of the significant learning achieved after training on food issues, considering the initial and final evaluations in accordance with the provisions of the descriptive letters for each topic taught in the food programs.

However, the technique used in this research has added value in relation to other techniques such as qualitative research, given that the research was conducted using a quantitative, longitudinal, descriptive, and non-experimental approach [Hernández et al., 2014; and Bernal, 2016], and was applied to 100% of those responsible for food programs in the 125 municipalities of the state in which the research was conducted. The quantitative method has advantages over other methods in that it allows for the obtaining of numerical, objective, reliable, and comparable results. Furthermore, in this case, a census was conducted, making it possible to generalize the behavior of the population.

The problem to be solved with this research is to contribute to the development of healthy eating habits among the beneficiary population, which will improve their nutritional status.

This will be achieved by providing basic knowledge on various topics related to food guidance and education in order to empower beneficiaries to make healthy decisions through proper nutrition.

To this end, the research question is: What is the impact of implementing food guidance and education strategies on the meaningful learning of trained public servants?

The central hypothesis is:

- H_0 : The implementation of the food guidance and education strategy [FGES] by a state social assistance institution does not impact the meaningful learning of trained public servants [MLSP].
- H_a : The implementation of the food guidance and education strategy [FGES] by a state social assistance institution has an impact on the meaningful learning of trained public servants [MLSP].

This research article consists of nine sections, which are described below to clarify and explain the content of each section in general terms. The first section presents an introduction to the research topic, emphasizing the problem to be solved, the central hypothesis, the added value of the technique used, and the general aspects of the research. The second section presents a review of the literature and provides an overview of the theory underpinning the research, referring to the food landscape in Mexico, the assessment of eating habits as an essential element of dietary guidance, educational strategies, and meaningful learning.

The third section details the method used, the type and design of the research, the description of the variables, the measurement instrument, the participants, the procedure, and the techniques for data analysis. The fourth section includes the results and discussion, with descriptive statistics, as well as the discussion in light of the supporting theory described in the state-of-the-art review according to the scientific method.

The fifth section contains the conclusions and recommendations, presenting the main results, limitations, and future work. The sixth section includes the appendices, which show the instrument used, with the items applied for the development of the research.

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Section seven includes statements on conflicts of interest, authors' contributions, availability of data and materials, funding for the research, and acknowledgments to the participants, public servants responsible for implementing food programs in the state, and the state social assistance institution that allowed the evaluations for this research to be carried out. Section eight lists the abbreviations used in this article.

Finally, the ninth section lists the references of the authors who have directly contributed to this study according to the literature review: background, rationale, support, differences, and discussions.

2. State of the art review

2.1 Food situation in the country

Despite having a long history of programs and policies aimed at improving the nutrition of the most vulnerable population, Mexico still faces a major challenge in terms of public health for this population. However, the future is encouraging, both in Mexico and worldwide, as there are comprehensive programs that address education, health, nutrition, and development simultaneously, as well as community participation in the planning, monitoring, and evaluation processes [Barquera et al., 2001].

However, cultural, social, and economic diversity in Mexico marks differences in nutrition, which, although it covers a physiological need, is not the same for everyone.

For example, diverse access to food, in terms of production, distribution, and purchase, as well as cultural accessibility, has nutritional and epidemiological consequences that call for an explanation of these phenomena [Bertran, 2010].

Article 4 of the Political Constitution of the United Mexican States establishes that: "Every person has the right to nutritious, sufficient, and quality food.

The State shall guarantee this right." This contributes to Sustainable Development Goal SDG 2: "End hunger, achieve food security and improved nutrition, and promote sustainable agriculture."

Therefore, in order to achieve sustained development, the conditions of inequality that are so marked in the population must be minimized, given that food is conceived as a basic physiological need and, until this is ensured, it will not be possible to speak of a developed country. Thus, according to the Food and Agriculture Organization of the United Nations [FAO], the following conditions must be met in order to achieve food security: physical availability of food; economic and physical access to food; utilization of food; and stability over time of the other three dimensions [Acosta, 2017].

Consequently, there is research proposing that governments should be responsible for promoting access to a nutritionally balanced, safe, and culturally acceptable food basket, as well as encouraging sports and educational institutions that promote good eating habits [Castañeda-Sánchez et al., 2008]. Thus, in order to achieve food security for the Mexican population, it is necessary to redesign food production and social policies and strategies, strengthening institutional governance mechanisms with the participation of all in order to ensure sufficient, stable, safe, and sustainable food availability [Urquía-Fernández, 2014].

In this regard, it is worth mentioning that Mexico has neglected food production, which has repercussions on the complex and multifactorial problem of food security, attributed to the economic, energy, and financial crises, the effects of climate change, water scarcity, and the concentration of power in the markets [Soria & Palacio, 2014].

However, food assistance programs in Mexico have historically focused on mitigating the nutritional deficiencies of vulnerable groups. Nevertheless, nutritional epidemiological changes must be taken into account to ensure that these programs do not contribute to the development of overweight and obesity.

For this reason, it is recommended that food programs be evaluated taking into account poor nutrition and culture, in order to promote social policies for sustained economic growth, equitable income distribution, clean water, healthy food, nutritional education, and health and nutrition services for all [Morales-Ruán et al., 2013].

Not to mention that hunger is a problem in most developing countries, affecting the well-being and progress of their populations.

The problem is mainly detected not so much by the lack of food, but by the way it is distributed [Salazar, 2016]. In this same context, Mexico evaluated the Food Support Program and the Crusade Against Hunger, which sought to improve the diet and nutrition of families, obtaining a rating of 8 out of 10 in terms of their performance. However, due to its limited coverage, it was found that this program left out the vast majority of the population living in extreme poverty, given the insufficiency of resources allocated to support households.

The intensity of relative poverty is greater in households with children, as is absolute poverty. The former refers to the gap between the income households need to stop going without food [Huesca et al., 2016].

A global challenge is to achieve food security, particularly in developing countries such as Mexico, where development is unsustainable due to population growth, low income levels, and rapid urbanization. As a result, a high percentage of the population does not have sufficient income to purchase basic food items and therefore suffers from nutritional insecurity [Aguirre et al., 2017]. In the same vein, achieving food security remains a challenge affected by poverty and hunger despite the implementation of policies and plans to combat these issues over the last four decades [López & Sandoval, 2018].

Even though there are public sector food programs aimed at providing sufficient quantities of food to vulnerable populations such as indigenous and rural communities, children, and women, Mexico continues to have alarming rates of overweight and obesity, which contribute to chronic diseases due to hunger, micronutrient deficiencies, high-energy diets, poor food quality, and misinformation among the Mexican population [Aguirre et al., 2017].

About Food Aid Programs [FAP] in Mexico, it can be said that these are present in 44% of households, with the highest concentration in indigenous households [70%], those with very low socioeconomic status [70%], and those experiencing moderate to severe food insecurity.

In this regard, it is necessary to review the resources of these programs and target them at populations with greater needs and nutritional vulnerability [Morales-Ruán et al., 2018].

Food insecurity persists in Mexico, given that one in five households with the greatest deprivation suffers from this public health condition. In this regard, comprehensive action by the State is needed to strengthen economic access for this population [Shamah-Levy et al., 2021].

It is worth mentioning that problems continue to exist in terms of access to and availability of food for the Mexican population, as well as the replacement of traditional diets, which have been affected for more than four decades by the introduction of new products, mainly due to the signing of the North American Free Trade Agreement [NAFTA] in 1994. As a result, Mexicans have replaced their corn and bean diets with countless high-calorie products, which affects public health with the incidence of overweight and obesity [Sandoval et al., 2025].

It should also be noted that over the last four decades, more than half of the Mexican population has fallen into poverty and vulnerability, suffering from shortages in food, housing, education, and/or health care [Ortega-Marín & González-Rosas, 2023]. In addition, food consumption decisions in rural areas are restricted by the physical and geographical conditions of the territory, such as topography and transport networks [Ríos-Llamas & Tapia-Galindo, 2024].

On the other hand, public food policy in Mexico is extremely limited. Since 1940, it has focused on availability and access, while since 1980 it has focused on achieving access for sectors of the population with extreme needs. Therefore, it seems that this issue does not concern the Mexican State, because it is only partially addressed [Arellano-Esparza, 2022].

However, on April 17, 2024, the General Law on Adequate and Sustainable Food [GLASF] was enacted, representing a new public policy on food and nutritional security in our country. It focuses on ensuring that all Mexicans have access to nutritious, sufficient, and quality food. It also aims to change the Mexican food system, from the equitable distribution of food to food education.

This is a major step forward, but it represents a challenge both in terms of resource allocation and coordination between public institutions [Ortega-Ibarra et al., 2025] and society in order to implement it successfully.

Finally, in order to understand the food landscape in the country, it is necessary to understand the relationships between all those involved, from institutions and social actors to the population itself, as well as beliefs, practices, knowledge on food issues, and food consumption choices to satisfy mainly physiological needs, the direct impact of which is reflected in the quality of life of the Mexican population [Sandoval et al., 2025].

2.2 Assessment of knowledge and eating habits

At a university in San Pablo, Madrid, Spain, an assessment was carried out on 105 students from various degree programs in nursing, pharmacy, human nutrition and dietetics, and podiatry, who had taken the Nutrition and Dietetics course for one year.

These students completed a dietary record and a questionnaire on their knowledge, eating habits, and lifestyles, as well as their weight and height. This study concluded that having knowledge about nutrition does not imply changes in the diet of those who possess it, nor in healthier lifestyles [Montero et al., 2006].

At a secondary school in Mexico, the eating habits and nutritional status of adolescents were assessed. When the questionnaire was completed, it was found that statistically, eating habits are not related to nutritional status. However, when eating habits are clinically deficient, adolescents present problems of malnutrition, overweight, and obesity [Castañeda-Sánchez, et al., 2008].

In Spain, the Food and Nutrition Education Program [FNEP] was evaluated. It included messages and strategies for food and nutrition education aimed at housewives to improve their skills, as they are responsible for the well-being of their families, especially in relation to food and nutrition, which was corroborated [Trescastro et al., 2012].

In Mexico, the school program “Play and Food Bring Health to Your Life” was evaluated. It was implemented in public elementary schools as a useful strategy for modifying habits in elementary school children to reverse childhood obesity and overweight, as well as chronic degenerative diseases among children in Mexico. It was found that changing behaviors requires coordinated actions both inside and outside the school with all stakeholders in the education sector, promoting actions based on the adoption of a healthier lifestyle [Niembro & Sosa, 2013].

A study was conducted in Paraguay to assess the level of knowledge and eating habits after training household heads in dietary guidelines, taking into account socioeconomic data and dietary education classified into knowledge, attitudes, and practices in urban and rural areas. It was found that heads of households from both areas increased their knowledge in a similar way, and that there was a significant increase among groups, modifying dietary habits and reducing the consumption of non-recommended foods [Villalba & Dávalos, 2013].

At the University of Castilla La Mancha in Spain, a study was conducted on the diet of the university population, finding that it is of poor quality, with 90% needing to make changes towards a healthier eating pattern. Nutritional education is suggested as an essential tool to achieve this [Cervera et al., 2013].

In Ecuador, they reviewed their food programs and suggest that a food and nutrition policy requires up-to-date, high-quality, disaggregated information in order to respond to various interventions in different territories. Therefore, it is crucial to have monitoring systems, mechanisms, and instruments that allow decision-makers and operators to know whether goals and results are being met, in order to reorient if possible [Salazar, 2016].

In Peru, the eating habits of medical students at the University of San Martín de Porres were evaluated, and it was found that most skipped breakfast and consumed fast food. Therefore, it is suggested that universities intervene to promote nutrition education and implement strategies such as providing healthy breakfasts [Torres-Mallma, et al., 2016].

In Chile, a quasi-experimental study was conducted with qualitative measurements of 43 teachers and quantitative measurements of 302 students from three schools in the La Reina community in Santiago, Chile.

The teachers were trained and then developed an action plan, successfully changing eating habits and consumption, increasing fruit and water consumption, and improving the way sandwiches were prepared [Fierro et al., 2019].

A study conducted among students in Argentina, given the prevalence of overweight and obesity, found that it is important to implement training programs in schools and in the community in order to promote healthy eating and physical activity to prevent chronic diseases [Horna et al., 2018]. A study of 500 university students in Ecuador also concluded that students' willingness to prepare their own meals affects their satisfaction with their food consumption [Lapo et al., 2019].

In Peru, an educational strategy was developed to contribute to improving the eating habits of secondary school students with the aim of involving and empowering the educational community in food culture, eating habits, and nutritional health [Velázquez et al., 2021].

In Mexico, an early educational intervention was carried out targeting 50 housewives in the central area of Tamaulipas, giving three presentations on selected topics related to food and nutrition and two practical workshops. The results showed that the total number of participants increased their knowledge of healthy eating habits by 14%, which will contribute to a healthier lifestyle [González-Hinojosa et al., 2022]. Currently, 59.1% of families in Mexico do not have sufficient economic resources to obtain food that is adequate in quality and quantity. Food insecurity leads to high human, social, and economic costs in Mexico, as it is highly correlated with loss of productivity, high rates of poverty and marginalization, poor use of human potential, and social exclusion, with greater emphasis on the country's indigenous and rural communities [Ayala, 2024].

Consequently, food security conditions in Mexico reflect an urgent need for education and awareness campaigns to improve the population's eating habits, which will help reduce problems of malnutrition, overweight, and obesity [Acosta, 2017].

In Colombia, qualitative research was conducted to analyze how scientific skills learned in school influence students' food choices. It was found that learning environments focused on inquiry, scientific research, and critical understanding of scientific knowledge enable the development of skills to analyze, question, and propose nutritional alternatives, linking science with everyday life [Ramos, 2025].

In Panama, research was conducted on children and adolescents in a children's home, confirming that nutrition education is a fundamental tool for promoting healthy habits, such as knowledge of a diet rich in probiotics and prebiotics, which helps fulfill various vital functions of the body, such as disease prevention and promoting intestinal health. as a longitudinal study was conducted in which, after the educational intervention, the knowledge of the study population improved [Bonilla & Caballero, 2025].

Finally, in the same vein, a study was conducted in Colombia with a view to corroborating the need to improve students' eating habits and develop strategies for nutrition and physical activity, highlighting concerns about students' physical, academic, and emotional well-being and the lack of relevant strategies, leading to the development of the proposal "Sowing Healthy Habits" [Leal, 2025].

2.3 Meaningful learning

The theory of meaningful learning proposed by Ausubel et al. [1976] states that learners acquire new knowledge based on prior knowledge, which allows them to interrelate what they have learned with what they are about to learn, unlike rote learning. This theory considers learning to be a process that occurs when new knowledge or information is related to the prior knowledge [cognitive structure] of the learner in a non-arbitrary and substantive way, based on the anchoring of relevant ideas or aspects [Guamán & Venet, 2019].

Likewise, this theory goes beyond traditional learning of a change in the individual's behavior to a change in the meaning of their experience. In this sense, there are several elements that affect people's learning. First, there are teachers and their teaching methods. Second, there is the structure of the curriculum's knowledge and how it is produced.

Huerta-Chávez, Irma Alicia, Soltero-Sánchez, Jazmín del Rocío, González-Quezada, Esperanza, and Figueroa-Ochoa, Edgar Benjamín. [2025]. Impact of food orientation and education strategies on meaningful learning of public servants. *Journal of Social Researches*. 11[27]1-17: e21127117.

<https://doi.org/10.35429/JSR.2025.11.27.2.1.17>

Third, there is the social context in which learning takes place during the educational process [Ausubel, 1983].

The theory of meaningful learning emerged during the rise of constructivism, as a response to behaviorism, where activism and discovery learning were strong [Ordóñez & Mohedano, 2019]. However, this learning can occur through both reception and discovery.

According to Ausubel [2000], it is classified as: representational learning, in which meaning is attributed to certain symbols without defining attributes; concept learning, defined as common objects, events, situations, or properties that characterize a sign or symbol; and propositional learning, in which there are combinations of words in sentences that represent concepts.

Meaningful learning [Ausubel et al., 1976] is defined as a process whereby new information is integrated directly, non-arbitrarily, and substantively into the learner's cognitive structure. This theory has two important elements: non-arbitrariness and substantivity. In the first case, non-arbitrariness refers to the fact that new knowledge is not related to just any knowledge, but rather to the most relevant cognitive structure, known as the cognitive substructure. The cognitive structure, known as subconsumers. This means that relevant prior knowledge becomes an anchor for new knowledge and facilitates its retention.

To do this, it is important to understand that learners start from their own cognitive structure, that is, the concepts and ideas they possess in a given area of knowledge and the way in which it is organized. Meanwhile, these experiences and prior knowledge of learners will affect learning in a beneficial way. In this sense, learning is meaningful when it is possible to teach a subject in a way that is not arbitrary to what the person already knows, but rather, based on what the person knows, a relevant aspect of the cognitive structure is identified and teaching is carried out to achieve this type of learning [Ausubel, 1983].

Meaningful learning occurs when new information can be connected or related to a relevant concept already existing in the learner's knowledge, anchoring prior knowledge to the new information.

This does not mean that knowledge is simply associated, but rather that when interaction between them occurs, new knowledge is generated in the cognitive structure of the individual learner, allowing them to see the difference, growth, and development of knowledge.

To do this, learners must be willing to relate new knowledge not arbitrarily but substantially, identifying that learning is meaningful to them [Ausubel, 1983].

Although meaningful learning has mostly been studied within the university context, where new teaching-learning strategies are created by replacing traditional teaching with constructive learning based on students' existing knowledge to create new knowledge [Huerta-Chávez et al., 2022; Soltero-Sánchez et al., 2023; González-Quezada et al., 2024]. In the public sector, it is important to start with knowledge management, that is, how knowledge is created, shared, and applied, as well as intellectual capital, specifically human capital, which, when formed from the knowledge it possesses, can replicate it in the population subject to social attention, as well as organizational learning [Huerta-Chávez, 2019; Huerta-Chávez & Castro-Valencia, 2019; Huerta-Chávez et al., 2020; Huerta-Chávez, 2021; Huerta-Chávez & Figueroa-Ochoa, 2023].

However, it highlights the importance of meaningful learning in all populations, identifying the problem of food loss and waste due to cultural context, menu planning, and infrastructure, making it extremely necessary to establish strategies to reduce this problem [Carrillo, 2025]. Likewise, the meaningful learning proposed by Ausubel et al. [1976], whose pedagogical approach, as already explained in this section, highlights the importance of connecting knowledge with that previously acquired.

However, it presents obstacles to the traditional teaching-learning process, which is why neuroeducation must now be considered as an alternative for establishing strategies that take into account cognitive diversity and emotional aspects, promoting not only the development of meaningful learning but also the comprehensive development of the learner [Tepale, 2025].

3. Materials and methods

3.1 Research type and design

This research was conducted using a quantitative approach. The data collected was used to test the central hypothesis, according to the numerical measurement performed and the descriptive statistical analysis, in order to establish the behavior of the variables studied and test the theory underlying this research.

It was longitudinal in nature, with data collected at two points in time, at the beginning and end of the training. It was also descriptive and non-experimental, and the study was carried out without intentional manipulation of the variables, as they were only observed in their natural environment [Hernández et al., 2014; and Bernal, 2016].

3.2 Variables

3.2.1 Food guidance and education strategy [FGES]

Training on nutrition guidance and education for public servants responsible for implementing state-level food programs, providing basic knowledge to develop healthy eating habits, so that they in turn contribute to the empowerment of the beneficiaries of these programs in the municipalities to make healthy decisions through proper nutrition and have an impact on reducing food insecurity and other problems that affect the public health of this population. The variables included in this strategy are:

1. TEWP, the healthy eating plate.
2. TDWJ, the healthy drinking jug.
3. HEEA, healthy eating.
4. PHAC, physical activity.
5. AVGE, a vegetable garden for everyone.

3.2.2 Meaningful learning for public servants [MLPS]

Learning achieved by those in charge of state-level food programs based on prior knowledge and training provided on topics related to dietary guidance and nutrition education.

3.3 Measuring instrument

For this research, an instrument was developed with five variables covering the topics taught and five items for each, for a total of 25 questions.

The instrument was validated by expert judgment, and to ensure reliability, Cronbach's alpha index was calculated using the following equation 1:

$$\alpha = \frac{\kappa(1 - \sum_{i=1}^{\kappa} S_i^2 / S_t^2)}{\kappa - 1} \quad [1]$$

Where:

S_i^2 is the variance of the item i

S_t^2 is the variance of all the totals

κ is the number of items

If the items combine additively and measure the unobservable characteristic in the same direction, then the items are strongly correlated and, therefore, the instrument is reliable. In this case, the α coefficient tends to be 1. This corroborated the reliability of the scale, i.e., that it effectively measures the dimensions of service performance, and therefore the results obtained are valid and reliable.

This same instrument was applied as a pre-test and post-test to measure the impact of the food guidance and education strategy on the meaningful learning of public servants responsible for implementing food programs at the state level.

3.4 Participants

Based on a census, 125 public servants from the state of Jalisco in Mexico participated, one from each municipality that has state food programs, achieving 100% representation. Therefore, the calculation of a statistical sample was omitted.

3.5 Procedure

In a state-level public social welfare institution in Mexico, a food guidance and education strategy was implemented through training sessions on food guidance topics.

To this end, those responsible for food programs in the 125 municipalities of Jalisco, initially defined as the target population, were invited to attend the public social welfare institution's facilities in order to learn and replicate the knowledge acquired to the beneficiaries of the food programs, using the food guidance and education material provided, whose main objective was to achieve a change in knowledge and practices in food consumption to improve their nutritional status.

The method used to collect the information was longitudinal, that is, before the training was given, a pretest with 25 items related to the theoretical content was administered, and after the training, a posttest was administered, which consisted of evaluating the knowledge acquired to identify the impact on learning, specifically in the following topics:

1. TEWP, the healthy eating plate.
2. TDWJ, the healthy drinking jug.
3. HEEA, healthy eating.
4. PHAC, physical activity.
5. AVGE, a vegetable garden for everyone.

3.6 Data analysis

Data analysis was performed using descriptive statistics, tabulation, and graphs to analyze the results obtained from the pre-test and post-test in order to verify the central hypothesis. The data were processed using the statistical program SPSS [Statistical Package for the Social Sciences] version 25 and Microsoft Excel for spreadsheets. Statistical tests were performed to assess the reliability and validity of the instrument using Cronbach's alpha, as well as descriptive statistics and normality tests.

4. Results and discussion

To measure the reliability and internal consistency of the instrument, Cronbach's alpha index was calculated, obtaining an acceptable index above 0.700 [Hair et al., 1999; Nunnally, 1978]. Therefore, these values show that the items in each construct are consistent and measure the same characteristic, making it a reliable instrument [see Table 1].

Box 1

Table 1

Reliability index of the measuring instrument.

Variables	Cronbach's alpha >0.700 [Nunnally, 1978]
TEWP	0.991
TDWJ	0.978
HEEA	0.994
PHAC	0.756
AVGE	0.769

Source: Own elaboration [2025]

Of the public servants trained, 22% were men and 78% were women, bearing in mind that a census was conducted, including 100% of those responsible for implementing food programs in the 125 municipalities of Jalisco [see Figure 1].

Box 2

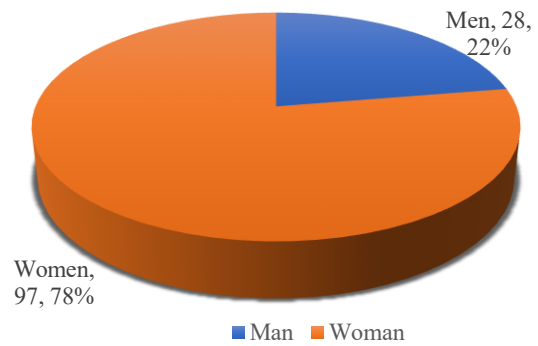


Figure 1

Trained public servants by gender.

Source: Own elaboration [2025]

In terms of age, 43% of trained public servants are under 30 years old, 50% are between 30 and 60 years old, and only 7% are over 60 years old [see Figure 2].

Box 3

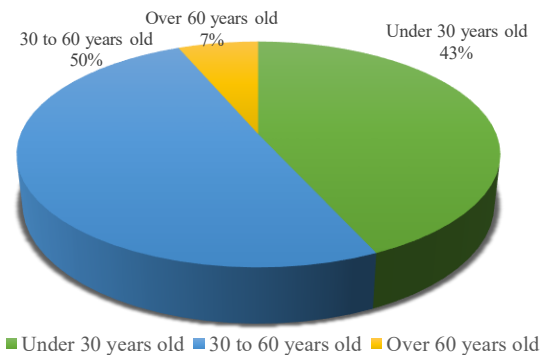


Figure 2

Age of trained public servants.

Source: Own elaboration [2025]

Now, the values obtained for the TEWP variable, the healthy eating plate, on a scale of 0/100, in each of the items that comprise it, both in the pre-test and in the post-test, are as follows: TEWP1, benefits of the healthy plate, 90% and 95% respectively; TEWP2, healthy eating plate groups, 78% and 88% respectively; TEWP3, food groups with reduced consumption, 91% and 97% respectively; TEWP4, main energy source food group, 68% and 74% respectively; and TEMP5, meaning of the color red, 66% and 75% respectively [see Figure 3].

Box 4

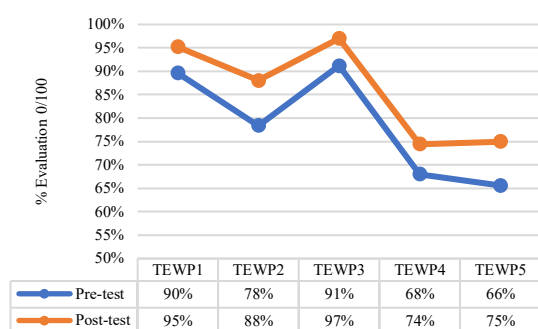


Figure 3

Pre-test and post-test of training on the topic “The healthy eating plate”.

Source: Own elaboration [2025]

In the TDWJ variable, the good drinking jug, the values obtained in both the pre-test and post-test for each of the items are: TDWJ1, illustration of the good drinking jug, 95% and 100% respectively; TDWJ2, proportions of the good drinking jug, 72% and 82% respectively; TDWJ3, levels of the good drinking jug, 88% and 98% respectively; TDWJ4, health problems due to insufficient water consumption, 84% and 90% respectively; TDWJ5, number of glasses of water recommended for drinking, 89% and 98% respectively [see Figure 4].

Box 5

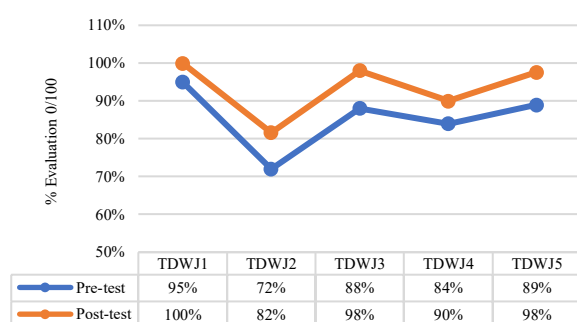


Figure 4

Pre-test and post-test of training on the topic “The jug of good drinking”.

Source: Own elaboration [2025]

The values obtained for the HEEA variable, healthy eating, in both the pre-test and post-test for each item are: HEEA1, factors of healthy eating, 69% and 75% respectively; HEEA2, recommended portions of fruit and vegetables, 71% and 77% respectively; HEEA3, percentage of recommended fat consumption, 59% and 66% respectively; HEEA4, recommended salt intake, 69% and 78% respectively; HEEA5, reduction in sugar intake, 84% and 90% respectively [see Figure 5].

Box 6

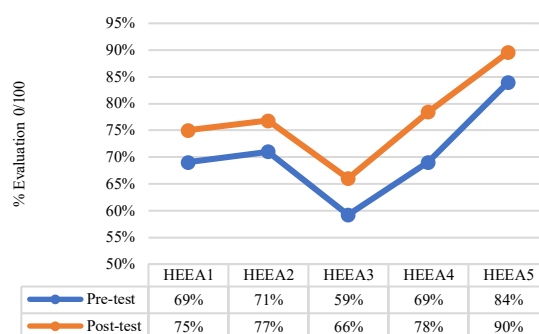


Figure 5

Pre-test and post-test of training on the topic of “Healthy Eating”.

Source: Own elaboration [2025]

With regard to the PHAC variable, physical activity, the values obtained in both the pre-test and post-test for each of the items are: PHAC1, concept of physical activity, 88% and 94% respectively; PHAC2, recommended time for physical activity, 86% and 91% respectively; PHAC3, importance of physical activity, 88% and 100% respectively; PHAC4, sport for people with motor disabilities, 93% and 99% respectively; PHAC5, benefits of physical activity, 89% and 95% respectively [see Figure 6].

Box 7

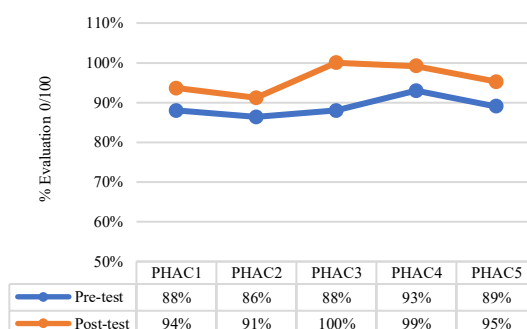


Figure 6

Pre-test and post-test of training on the topic of “Physical activity”.

Source: Own elaboration [2025]

In the AVGE variable, a garden for everyone, the values obtained in the pre-test and post-test for each item are: AVGE1, concept of a garden, 92% and 99% respectively; AVGE2, benefits of having a garden, 93% and 99% respectively; AVGE3, preparing a garden, 92% and 98% respectively; AVGE4, caring for seeds to germinate and plants to bear fruit, 93% and 100%, respectively; AVGE5, ways of planting vegetables, 93% and 99% respectively [see Figure 7].

Box 8

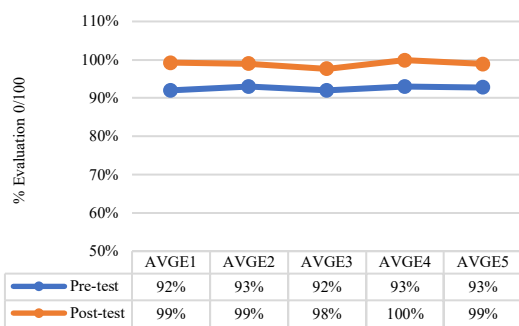


Figure 7

Pre-test and post-test of training on the topic “A vegetable garden for everyone”

Source: Own elaboration [2025]

The measures of central tendency in the pre-test with respect to the minimum values highlighted the HEEA variable for healthy eating, which had the lowest value of 0.59, followed by the TEWP variable for healthy eating with 0.66. In contrast to the maximum values, the TDWJ variable for healthy drinking stood out with a value of 0.95, followed by the PHAC variable for physical activity and the AVGE variable for a garden for all with a value of 0.93. The means obtained range from 0.7040 for the HEEA variable for healthy eating to 0.9260 for the AVGE variable for a garden for all.

However, with regard to the standard deviation measures, the values range from 0.00548 to 0.11781, which confirms that the data are very close to the mean, or expected value.

These data are in decimal form, but they are percentages on a scale of 0/100% [see Table 2].

The measures of central tendency in the post-test with respect to the minimum values highlighted the HEEA variable for healthy eating, which had the lowest value of 0.66, followed by the TEWP variable for healthy eating with 0.74. In contrast to the maximum values, three variables stood out: TDWJ for healthy drinking, PHAC for physical activity, and AVGE for a garden for all, with a value of 1.00. The means obtained range from 0.7220 for the HEEA healthy eating variable to 0.9900 for the AVGE vegetable garden for all variable. However, with regard to the standard deviation measures, the values range from 0.00707 to 0.10849, which confirms that the data are very close to the mean, or expected value.

These data are in decimal form, but they are percentages on a scale of 0/100% [see Table 2].

Box 9

Table 2

Measures of central tendency of the pre-test and post-test for each variable.

	Variable	N	Minimum	Maximum	Mean	Standard deviation
Pre-test	TEWP	125	0.66	0.91	0.7860	0.11781
	TDWJ	125	0.72	0.95	0.8560	0.08562
	HEEA	125	0.59	0.84	0.7040	0.08933
	PHAC	125	0.86	0.93	0.8880	0.02588
	AVGE	125	0.92	0.93	0.9260	0.00548
Post-test	TEWP	125	0.74	0.97	0.8580	0.10849
	TDWJ	125	0.82	1.00	0.9360	0.07537
	HEEA	125	0.66	0.90	0.7720	0.08585
	PHAC	125	0.91	1.00	0.9580	0.03701
	AVGE	125	0.98	1.00	0.9900	0.00707

Source: Own elaboration [2025]

The learning assessed in the pre-test and post-test allows us to verify the central hypothesis, rejecting the null hypothesis and accepting the alternative, where the implementation of the food education and guidance strategy [FGES] by the state social assistance institution has an impact on the meaningful learning of the trained public servants [SLSP], since in the 25 items used to evaluate the five variables, it is possible to find that in all of them, significant learning was detected, ranging from 5% to 12%, detecting a difference between the initial and final learning achieved [see Figure 8].

Box 10

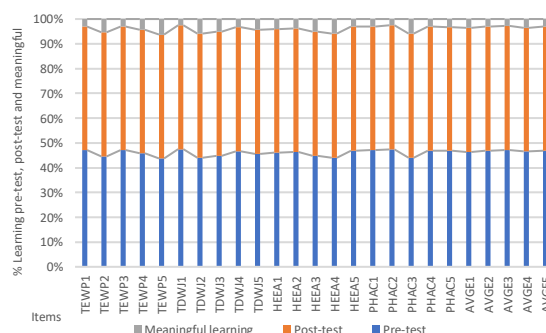


Figure 8

Meaningful learning achieved

Source: Own elaboration [2025]

The results obtained in the pre-test, post-test, and meaningful learning for each item are:

TEWP1	90%	95%	6%
TEWP2	78%	88%	10%
TEWP3	91%	97%	6%
TEWP4	68%	74%	6%
TEWP5	66%	75%	9%
TDWJ1	95%	100%	5%
TDWJ2	72%	82%	10%
TDWJ3	88%	98%	10%
TDWJ4	84%	90%	6%
TDWJ5	89%	98%	9%
HEEA1	69%	75%	6%
HEEA2	71%	77%	6%
HEEA3	59%	66%	7%
HEEA4	69%	78%	9%
HEEA5	84%	90%	6%
PHAC1	88%	94%	6%
PHAC2	86%	91%	5%
PHAC3	88%	100%	12%
PHAC4	93%	99%	6%
PHAC5	89%	95%	6%
AVGE1	92%	99%	7%
AVGE2	93%	99%	6%
AVGE3	92%	98%	6%
AVGE4	93%	100%	7%
AVGE5	93%	99%	6%

These results corroborate the theory described in Mexico's food scenario, which mentions that there have always been food programs and policies aimed at improving the nutrition of vulnerable populations, including education, health, food, and development.

However, this has not yet been achieved, because strategies are needed to promote access to the basic food basket, redesign food production policies and strategies, promote physical activity, and encourage good eating habits.

In fact, Article 4 of the Mexican Constitution highlights the population's right to nutritious, sufficient, and quality food, for which the State itself is responsible, contributing to SDG 2, which refers to ending hunger, achieving food security, improving nutrition, and promoting sustainable agriculture [Acosta, 2017; Barquera et al., 2001; Bertran, 2010; Castañeda-Sánchez, et al., 2008; Soria & Palacio, 2014; Urquía-Fernández, 2014].

In this regard, evaluations of food programs and social policies that promote changes in eating habits and food distribution should continue to be generated. Food aid programs should also be better targeted [Aguirre et al., 2017; Huesca et al., 2016; Morales-Ruán et al., 2013; Salazar, 2016]. In addition, income should be provided to prevent food deprivation [Shamah-Levy et al., 2021] and the shift away from diets based on beans and corn [Sandoval et al., 2025] and the poverty and physical-geographical conditions that limit access to food [Ortega-Marín & González-Rosas, 2023; & Ríos-Llamas & Tapia-Galindo, 2024].

Even though public food policy was focused on food availability and access [Arellano-Esparza, 2022], the enactment of the General Law on Adequate and Sustainable Food [GLASF] now contemplates both equitable distribution and food education [Ortega-Ibarra et al., 2025] to improve the quality of life of the population.

Studies conducted at various universities and in the evaluation of food programs continue to identify two main trends: some claim that having the knowledge to improve eating habits will not directly influence a change in attitude toward choosing healthy diets [Montero, et al., 2006; Niembro & Sosa, 2013] while other studies show that knowledge of healthy habits can lead to healthy eating plans and prevent health problems [Bonilla & Caballero, 2025; Castañeda-Sánchez et al., 2008; Cervera et al., 2013; Fierro et al., 2019; González-Hinojosa et al., 2022; Horna et al., 2018; Lapo et al., 2019; Leal, 2025; Ramos, 2025; Salazar, 2016; Tepale, 2025; Torres-Mallma, et al., 2016; Trescastro et al., 2012; Villalba & Dávalos, 2013; Velázquez et al., 2021].

In addition to these findings, it should be noted that currently 59.1% of families in Mexico lack sufficient economic resources to obtain adequate nutrition in terms of quality and quantity. This leads to significant human, social, and economic costs for Mexico, as it is highly correlated with productivity, high rates of poverty and marginalization, wasted human potential, and social exclusion, especially in the country's indigenous and rural communities [Ayala, 2024]. Therefore, education and awareness campaigns are needed to improve the population's eating habits and address public health problems such as overweight, obesity, and malnutrition [Acosta, 2017].

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This confirms the urgent need to continue with food education and guidance strategies, as was done in this research.

The results obtained showed percentages greater than 5% in meaningful learning, which corroborates Ausubel's theory, whereby considering the knowledge that the learner already has allows them to generate new knowledge from the interrelation of concepts or knowledge they already possessed, producing the anchoring of ideas and relevant aspects [Ausubel et al., 1976; Ausubel, 1983; Ausubel, 2000; Carrillo, 2025; Guamán & Venet, 2019; Ordóñez & Mohedano, 2019].

Finally, meaningful learning is relevant for the public sector, mainly in educational institutions [Huerta-Chávez et al., 2022; Soltero-Sánchez et al., 2023; González-Quezada et al., 2024] and in other government agencies based on knowledge management, intellectual capital, and organizational learning that impacts what is learned and can be replicated with the population to whom public programs are dedicated [Huerta-Chávez, 2019; Huerta-Chávez & Castro-Valencia, 2019; Huerta-Chávez et al., 2020; Huerta-Chávez, 2021; Huerta-Chávez & Figueroa-Ochoa, 2023].

5. Conclusions and recommendations

Following the detailed analysis carried out in the presentation of results, it is concluded that the variables evaluated as part of the food guidance and education strategy have contributed to the development of healthy eating habits among the beneficiary population, as well as improving the nutritional status of that population.

Thus, the basic knowledge provided in the various topics of food guidance and education has contributed to the empowerment of beneficiaries by encouraging healthy decision-making with proper nutrition. This reflects the verification of the central hypothesis.

The above is confirmed in each of the responses obtained in the pre-tests and post-tests administered to the 125 public servants responsible for operating food programs and various food strategies in the municipalities of the state of Jalisco.

The results obtained show higher percentages of correct answers in the post-test, which allows us to see the impact on the meaningful learning achieved. In general, the implementation of the food guidance and education strategy has had a considerable impact on the knowledge of the beneficiaries of food programs and their strategies, which allows the state public social assistance institution to make decisions to strengthen and maintain these actions.

The main limitations faced by this research were the exclusive use of descriptive statistics. Therefore, we suggest the use of structural equation modeling and the inclusion of new variables that influence the improvement of eating habits in the population.

6. Annexes

The variables and items of the instrument used in the pre-test and post-test are shown below:

1. Illustration of the good drinking jar
2. Proportions of the good drinking jar
3. Levels of the good drinking jar
4. Health problems caused by insufficient water intake
5. Recommended number of glasses of water to drink

Variable	Item
TEWP	1. Benefits of the healthy eating plate
	2. Groups of the healthy eating plate
	3. Food groups to consume in moderation
	4. Main food group as a source of energy
	5. Meaning of the color red
TEWJ	1. Illustration of the good drinking jar
	2. Proportions of the good drinking jar
	3. Levels of the good drinking jar
	4. Health problems caused by insufficient water intake
	5. Recommended number of glasses of water to drink
HEEA	1. Factors for healthy eating
	2. Recommended fruit and vegetable portions
	3. Recommended fat consumption percentage

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- PHAC
4. Recommended salt consumption
 5. Reducing sugar intake
1. Physical activity
 2. Recommended amount of physical activity
 3. Importance of physical activity
 4. Sports that people with motor disabilities can do
 5. Benefits of physical activity
- AVGE
1. Definition of a vegetable garden
 2. Benefits of having a vegetable garden
 3. Preparing a vegetable garden
 4. Caring for seeds to germinate and plants to bear fruit
 5. Ways to plant vegetables

7. Declarations

7.1 Conflict of interest

The authors declare that they have no conflict of interest. They have no financial interests or personal relationships that could influence the results reported in this research paper.

7.2 Authors' contributions

Huerta-Chávez, Irma Alicia: Materials and methods, review of the state of the art, results and discussion; and contribution to the writing of the article.

Soltero-Sánchez, Jazmín del Rocío: Introduction, review of the state of the art, references, and contribution to the writing of the article.

González-Quezada, Esperanza: Conclusions and recommendations, appendices, declarations, abbreviations, and contribution to the writing of the article.

Figueroa-Ochoa, Edgar Benjamín 4th author: Abstract, materials and methods, results and discussion; and contribution to the writing of the article.

7.3 Availability of data and materials

The databases and statistical analyses are available upon request by email to the corresponding author of this article.

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The authors did not receive financial support for the design, planning, and execution of the research, nor for the publication of this article. Therefore, the financial, material, and human resources were absorbed by the authors of this scientific article.

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8. Abbreviations

AVGE	A vegetable garden for everyone
FNEP	Food and Nutrition Education Program
FAO	Food and Agriculture Organization of the United Nations
FGES	Food guidance and education strategy
HEEA	Healthy eating
GLASF	General Law on Adequate and Sustainable Food
SDG	Sustainable Development Goal
FAP	Food Aid Programs
PHAC	Physical activity
MLSP	Meaningful learning of trained public servants
SPSS	Statistical Package for the Social Sciences
TEWP	The plate of good eating
TDWJ	The jug of good drinking
NAFTA	North American Free Trade Agreement

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Young Female Talent in Action: Women for a STEAM Future in El Salvador

Joven Talento Femenino en Acción: Mujeres por un Futuro STEAM en el Salvador

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Classification:

Area: Humanities and Behavioral Sciences

Field: Pedagogy

Discipline: Educational theory and methods

Subdiscipline: STEAM education and technology.

Abstract

Technological and scientific advancement in today's world has generated a growing demand for professionals in the fields of Science, Technology, Engineering, Art, and Mathematics [STEAM]. However, many young people, especially women, face obstacles in exploring their potential in these disciplines, whether due to a lack of information, fear of failure, or gender stereotypes. Considering the need to provide adequate information for decision-making when choosing a career, this research shares a pedagogical proposal designed by Salvadoran institutions, promoted by the Ministry of Education, and sponsored by the Organization of Ibero-American States [OEI], whose purpose has been, from its inception, to inspire and motivate 8,000 high school female students to consider careers in STEAM as a life opportunity. Through a combination of practical information, inspiring testimonials, and thematic workshops, both in-person and online, a support project was designed and implemented, proposing strategies to understand that disciplines linked to science and technology not only offer stability and professional growth, but also allow for the solution of real problems and generate a positive impact on society. Throughout the program, participants can explore the multiple possibilities offered by STEAM careers, learn about success stories of professionals who have overcome obstacles, and discover tools and resources available to begin their journey in these areas. More importantly, they develop skills to overcome their fear of dreaming big and envision a future filled with opportunities in science, technology, and innovation.

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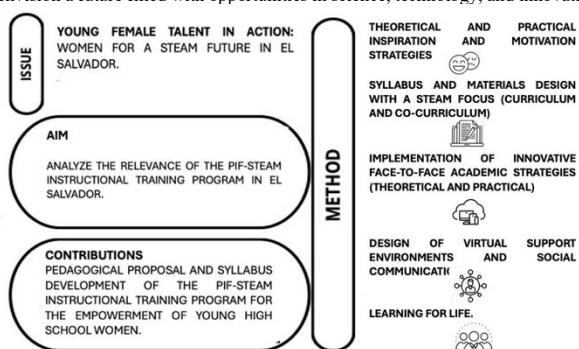
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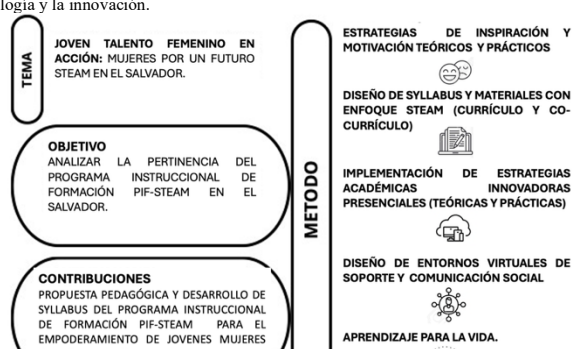


Resumen

El avance tecnológico y científico en el mundo actual, ha generado una creciente demanda de profesionales en las áreas de Ciencia, Tecnología, Ingeniería, Arte y Matemáticas [STEAM, por sus siglas en inglés]. Sin embargo, muchos jóvenes, especialmente mujeres, enfrentan obstáculos al explorar su potencial en estas disciplinas, ya sea por falta de información, miedo al fracaso o estereotipos de género. Tomando en cuenta la necesidad de proporcionar información adecuada para la toma de decisiones ante la elección de carrera, la presente investigación comparte una propuesta pedagógica diseñada por instituciones salvadoreñas, promovida por el Ministerio de Educación y auspiciada por la Organización de Estados Iberoamericanos [OEI] cuyo propósito ha sido desde su planteamiento inspirar y motivar a 8,000 mujeres estudiantes de educación media superior, a considerar carreras en STEAM como una oportunidad de vida. A través de una combinación de información práctica, testimonios inspiradores y talleres temáticos tanto presenciales como virtuales, se diseñó y llevó a cabo un proyecto de acompañamiento planteando estrategias para comprender que las disciplinas vinculadas con la ciencia y la tecnología no solo ofrecen estabilidad y crecimiento profesional, sino que también permiten resolver problemas reales y generar un impacto positivo en la sociedad. A lo largo del programa, las participantes tienen la oportunidad de explorar múltiples posibilidades que ofrecen las carreras STEAM, conocer historias de éxito de profesionales que han superado obstáculos y descubrir herramientas y recursos disponibles para iniciar su camino en estas áreas. Más importante aún, desarrollan habilidades para perder el miedo a soñar en grande y visualizar un futuro lleno de oportunidades en la ciencia, la tecnología y la innovación.



Pedagogical Innovation, STEAM, Methodology



Innovación Pedagógica, STEAM, Metodología

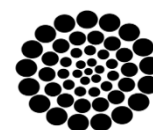
Area: Development of strategic leading-edge technologies and open innovation for social transformation

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Introduction

This article addresses the first of four segments developed during the research on the relevance, syllabus development, and implementation of the PIF-STEAM Instructional Training Program in El Salvador, led by the Universidad Salvadoreña Alberto Masferrer [USAM]. The main objective of this program is to promote the interest and active participation of young women at the high school level in the areas of Science, Technology, Engineering, Arts, and Mathematics [STEAM], in order to inspire and guide them in their choice of university careers, fostering inclusion, equity, and a culture of peace.

Through the design of a comprehensive empowerment program, the program seeks to strategically contribute to the development of participants' academic, work-related, and personal skills, strengthening their confidence and preparing them to face academic and professional challenges in the aforementioned fields.

With the intention of understanding the project in its proper dimension, it is worth mentioning that the four segments considered for the design, implementation, and analysis of results developed in the PIF-STEAM are:

- a. Pedagogical proposal and syllabus development of the PIF-STEAM Instructional Training Program.
- b. PIF-STEAM Implementation Plan.
- c. Analysis of the Secondary Education Curriculum as a basis for the development of the PIF-STEAM; and finally;
- d. The Learning Outcomes of the Pedagogical Proposal, implementation, and analysis of the PIF-STEAM.

As mentioned, this article addresses the challenges and strategies implemented for the design of the pedagogical proposal and the development of the syllabus content, outlined in the first segment of the PIF-STEAM Instructional Training Program, emphasis is placed on the importance of having tools that support students in their decision-making regarding pre-university study alternatives, promoting in-depth reflection on the implications of their choices, especially in relation to opportunities to access higher education in STEAM fields.

The hypothesis guiding the project is that, through the STEAM training program for young women, it is possible to stimulate interest in these fields and encourage continued studies in higher education, thus contributing to strengthening the National Higher Education System.

The innovative added value of the project lies in the support provided to students during the transition from secondary school to university. Through combined strategies—both in-person and virtual—participants are provided assistance and follow-up in the final stage of secondary education. This intervention seeks to reduce the training opportunity gap, which, depending on the context, can begin to manifest itself at an early age in schools and homes, affecting access to STEAM careers, labor market integration, and participation in research and development projects.

This article presents background on the origin of the proposal, describes the program's in-person and virtual components, the academic resources and materials used, the assessment strategies applied, and the methodological aspects that support the program's design and implementation.

Background

The research presented in this article arose from a call for proposals from the Organization of Ibero-American States for Education, Science, and Culture [OEI], the entity responsible for implementing all necessary actions for the proper execution of the project, ensuring strict compliance with the stipulated clauses, programs, schedules, deadlines, and costs, under the supervision of the National Directorate of Higher Education [DNES/MINEDUCYT] of El Salvador.

The OEI is the largest multilateral cooperation agency between Spanish- and Portuguese-speaking Ibero-American countries. With more than 3,000 staff members spread across 20 countries, its mission is to view education, science, and culture as essential tools for human development and generators of opportunities for a more inclusive and equitable future [OEI, 2024].

Within the framework of the agreement established between the State and Government of El Salvador—through the Ministry of Education, Science, and Technology [MINEDUCYT]—and the OEI, the objective was to design an instructional program in STEM areas aimed at young women, contributing to the strengthening of the National Higher Education System through the implementation of strategic actions aligned with the National Higher Education Policy.

After submitting the required tender and documents, the project was awarded to the Universidad Salvadoreña Masferreriana of El Salvador. The University certified its technical and professional competence before the Ministry of Education, Science, and Technology [MINEDUCYT] of El Salvador to meet the demand of 8,000 young people representing 200 classroom sections. In turn, USAM partnered with 15 Higher Education Institutions [HEIs] in the country, which, given the scale of the project, agreed to participate in the academic activities, providing physical infrastructure, technology, and management teams. Special mention should be made of the Higher School of Innovation and Technology, attached to the Secretariat of Innovation of the Presidency of El Salvador [ESIT], which is responsible for activities on the Moodle platform.

Box 1

Table 1

Salvadoran institutions participating in PIF-STEAM 2025.

Institutions
Alberto Masferrer Salvadoran University [USAM]
School of Innovation and Technology [ESIT]
Andrés Bello University [UNAB]
Technological University of El Salvador [UTEC]
Don Bosco University [UDB]
Central American Technological Institute [ITCA]
University of the East [UNIVO]
Catholic University of El Salvador [UNICAES]
University of Sonsonate [USO]
Evangelical University of El Salvador [UEES]
Francisco Gavidia University [UFG]
Specialized Institute of Higher Education [EMCGGB]
Specialized Institute of Higher Education [IEPROES]
Pedagogical University of El Salvador [UPED]
Key Institute El Salvador

The contract for the consultancy resulted in the design, implementation, monitoring, and evaluation of the instructional program, structured in both in-person and virtual modalities, with the goal of encouraging continued education toward higher education and motivating participants to pursue studies in STEAM fields.

Program Description

Currently, technological and scientific advancement has increased the demand for professionals in STEAM [Science, Technology, Engineering, Arts, and Mathematics] fields. However, many young people, especially women, face barriers that limit their access and participation in these disciplines, whether due to a lack of information, fear of failure, or the persistence of gender stereotypes [Acevedo, 2018; Alcibar et al., 2023].

According to data provided by the Ministry of Education, Science, and Technology [MINEDUCYT] of El Salvador, in 2018 the net educational enrollment rate at the higher education level was 11.89% for young people aged 18 to 24, while the gross enrollment rate reached 19.37%. The least in-demand programs continued to be those related to the sciences, such as Biology, Physics, Chemistry, and Mathematics [MINED Plan, 2018].

In the international context, UNESCO reports that women represent only 35% of students in STEAM fields at the higher education level [UNESCO, 2019]. The organization warns that these gender gaps limit opportunities for innovation and restrict new perspectives for addressing current and future challenges. It also emphasizes that lifelong learning and access to quality education for girls and women, aligned with scientific and technological advances, is a priority established in both the Beijing Platform for Action and the Sustainable Development Goals [UN Women, 2022].

In this context, the PIF-STEAM Instructional Training Program was specifically designed to inspire and motivate students, presenting it as a transformative opportunity.

Through a combination of practical information, inspiring stories, and dynamic activities, the program seeks to demonstrate that STEAM disciplines not only offer stability and professional growth, but also allow them to address real problems and generate a positive impact on society. For eight weeks, in-person sessions are facilitated by mentors who address STEAM-related topics through practical activities, encouraging exploration in various areas.

Thematic breaks are also offered to promote interaction among participants and strengthen support networks.

The program also features a Moodle platform that complements in-person activities, offering a virtual space called the "Virtual Cafeteria," where students, mentors, and family members can be connected, thus consolidating a comprehensive support network.

The program is designed to inspire and motivate students to consider STEAM careers as an opportunity for personal and professional transformation. Through a combination of relevant information, inspiring testimonials, and practical activities, the program seeks to demonstrate that scientific and technological disciplines not only offer stability and professional growth, but also provide the opportunity to address real-life problems and generate a positive impact on society.

Box 2

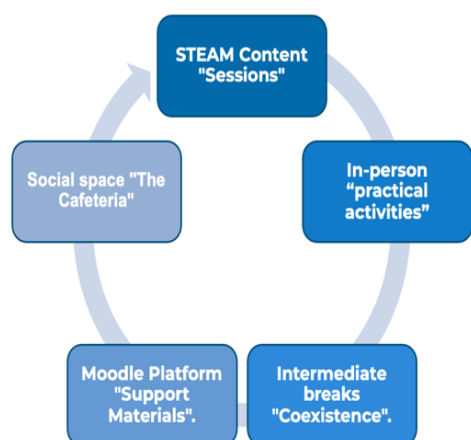


Figure 1

Program components

Own elaboration, 2025

Throughout the program, participants have the opportunity to explore the many possibilities offered by STEAM careers, learn about success stories from professionals who have overcome obstacles, and discover tools and resources available to help them begin their journey in these fields.

Program Modules and Virtual Platform

The design and implementation of a program aimed at encouraging and raising awareness among high school students about the opportunities available to access higher education, especially in STEAM fields, is a key strategy for strengthening the effectiveness of the National Higher Education System.

Throughout 16 in-person workshops, participants had the opportunity to explore knowledge through experimentation and practice, fostering the development of critical thinking geared toward solving real-world problems. Activities include engineering challenges, scientific research, programming and coding, simulations and modeling, as well as creative math and robotics competitions, as detailed in Table 2.

Box 3

Table 2

PIF-STEAM 2025 practical workshops.

WORKSHOP NAME
Practical Workshop 1: Group Integration Dynamics
Practical Workshop 2: Art and Culture in Science
Practical Workshop 3: Chemistry in Everyday Life
Practical Workshop 4: Opportunities Fair
Practical Workshop 5: Hard Skills
Practical Workshop 6: With All the Attitude
Practical Workshop 7: Guess My Job?
Practical Workshop 8: Extraordinary Women
Practical Workshop 9: Perspectives from the Industry
Practical Workshop 10: A Sustainable World
Practical Workshop 11: Exploring Cyberspace
Practical Workshop 12: Analyzing My Digital Footprint
Practical Workshop 13: Applied Engineering
Practical Workshop 14: Applied Mathematics
Practical Workshop 15: Applied Science
Practical Workshop 16: Applied Technology

To illustrate the interplay of actors involved in the program, Figure 2 presents the main actors, starting with the convening and managing bodies, university authorities, the curriculum design team, the administration and management team, and, of course, the mentors.

Special mention should be made of the coordinators and liaisons at each location, as well as those responsible for recruiting mentors, whose work is crucial to the program's success.

Box 4



Figure 2

Actors involved

Own elaboration, 2025

The key areas addressed during the program's implementation are a) motivation and inspiration to dream big and break down cultural or gender barriers; b) support in visualizing a future with opportunities in innovation, science, and technology; and c) promoting the connection between STEAM disciplines, the ability to solve real problems, and generate positive social impact. Thus, this program has focused not only on informing but also on transforming perspectives and attitudes, preparing participants to embrace the potential that STEAM careers can offer on their path to professional and personal success.

The general content is illustrated in Figure 3.

In developing these, some challenges arose for the in-person sessions, such as: a) a large number of stakeholders involved, including participants, mentors, designers, and managers; b) addressing relevant groups and providing safe spaces, while maintaining a focus on female high school students within higher education institutions; c) working within a defined schedule and with specific, pre-allocated resources and a limited budget.

Box 5



Figure 3

Module Theme

Own elaboration, 2025

The topics for each module have been selected, and the supporting materials have been developed, and they are:

The topics for each module have been choose and the supporting materials have been developed, and they are:

Session 1: Introduction to STEM Careers: A Broader View

Session 2: Opportunities in the STEAM World

Session 3: Key Skills for Success in STEAM

Session 4: Inspiration Through Life Stories

Session 5: Challenges and Benefits of a Career in STEAM

Session 6: Resources and First Steps toward a STEAM Career

Session 7: Practical Activities in STEAM I

Session 8: Practical Activities in STEAM II

Regarding the practical workshops, these have been generally designed for mentors as an example of what can be done, but each location is free to propose the use and development of its specialties, considering its installed capacity.

Regarding the Virtual Classrooms, the implementation, monitoring, management, and hosting of content on the Platform was carried out through the Moodle platform, which was managed by the School of Innovation and Technology [ESIT]. ESIT was responsible for publishing the academic content for each planned session, facilitating access to the materials designed for use by mentors in each session, and supplementary study materials, as follows:

A) The training program is divided into modules according to the instructional design.

B] A single course was enabled on Moodle, in which all students were enrolled.

C] Program progress was recorded by unlocking sessions based on weekly sessions. The system will mark each week as complete if the student has consumed all resources.

D] Four identification roles were enabled at the system level: students; mentors; coordinators; administrators; and technical support, responsible for availability, participant lists, and platform passwords.

In addition to the reserved materials, practical virtual experiences were developed by areas of interest that are given in parallel to the face-to-face sessions starting in the third week. The contents have been organized in an agenda where each week the work is divided as shown in Figure 4:

Box 6

SCHEDUL	SCHEDULED ACTIVITY
9:00 a 9:15	Registration and Welcome
9:15 a 10:00	Mentoring Conferences
10:00 a 10:45	Practical Workshop I
10:45 a 11:00	Break
11:00 a 11:45	Mentoring Conferences
10:45 a 12:30	Practical Workshop II
12:30 a 12:45	Closing and Questions

Figure 4

Time organization

Own elaboration, 2025

Program Resources

The resources to be used in the program, both in-person and online, are:

- **Reading materials:** Documents, articles, and specialized books.
- **Moodle platform:** Virtual support classroom with complementary teaching resources, forums, and a cafeteria space for social interaction.
- **Specialized software:** Design, programming, and simulation tools.
- **Mentor network:** STEAM professionals ready to guide students.
- **Science and technology kits:** Materials for practical experiments.
- **Program agenda:** Details for 8 in-person weeks, plus 2 virtual weeks that will run parallel to the in-person weeks starting in the third week.

Finally, the program has been designed with a humanistic approach that seeks to train professionals capable of integrating technical knowledge with a deep understanding of human needs and values. This perspective promotes the development of technical skills alongside critical, reflective, and ethical competencies, thus fostering a more equitable and conscious society. Among the competencies promoted are interdisciplinarity, ethics and social responsibility, critical thinking, creativity and artistic expression, as well as inclusion and diversity [UNESCO, 2019].

Learning assessment system

The assessment system for this STEAM program is designed to be comprehensive and formative, fostering both individual and collaborative learning. Each module incorporates a variety of assessment methods to ensure deep understanding and practical application of concepts. Self-assessments invite personal reflection on progress and knowledge assimilation, while practical assessments allow participants to demonstrate their skills through the development of individual and team projects. Active participation is assessed by recording contributions in forums, debates, and group activities, promoting the exchange of ideas and teamwork.

In addition to verbal feedback provided by mentors, performance rubrics are used to provide a structured and transparent assessment based on specific criteria that reflect the learning objectives of each module. Feedback from mentors, experienced professionals in the STEAM field, offers constructive observations and personalized guidance, supporting skill development and continuous improvement. This multifaceted approach ensures that participants not only acquire theoretical knowledge but also develop practical skills and a critical mindset, preparing them for success in STEAM careers.

Methodology

The program is based on an active and interactive learning approach, combining theory with practical experiences to ensure effective student participation. The following strategies are used:

The project's specific stages, for the pedagogical proposal and syllabus development of the PIF-STEAM Instructional Training Program, considered the participation of a team of professionals in the multidisciplinary curriculum design as follows:

An international specialist in STEAM curriculum design and management, responsible for syllabus design during the program preparation, organization, and construction stages.

- Project coordinator: Methodology in learning assessment strategies and systems.
- Coordinator of strategy and logistical design of the consultancy.
- Coordinator of the materials development process and use of technologies.

To develop the construction process, a series of actions were carried out:

- A documentary research process that, in addition to theoretical aspects, delved into motivational aspects, competencies, scholarships, and information of particular interest.
- The project was designed, outlining the justification, objectives, and curriculum content.
- The training areas, materials design, simulators identification, assessment methods, and program resources were defined.

Within the methodology proposed from a pedagogical perspective, the following elements were identified to support the curriculum design:

- Project-based learning [PBL] proposal for the development of applied projects in each module.
- Design of strategies for collaborative work through group dynamics to strengthen teamwork.
- Identification of specialists and recordings of inspiring talks. Inviting STEAM experts to share experiences.
- Design of practical activities for applying concepts through workshops and exercises.
- Proposal for a formative assessment system to provide ongoing feedback through assignments and participation.

- Proposal and selection of digital tools, including the integration of the Moodle platform, to reinforce learning.

Results

Among the products generated from the process developed in the consultancy were:

1. The development of the work plan for the consultancy's execution and its schedule of activities.
2. An instructional program designed/adapted to STEM areas in a blended learning format, including sections on the development, implementation, monitoring, and evaluation strategy.
3. An analysis of the Natural Sciences, Mathematics, and Computer Science curricula for the General and Vocational Technical Baccalaureate to identify the students' level of study.
4. The STEM instructional program designed/adapted for an in-person phase, consisting of 40 hours, and with a 10-hour virtual component for practical training; a profile of the staff involved and program resources per module.
5. The Virtual Classroom in Moodle.
6. The Virtual Classroom Training Scripts.
7. The e-book with course materials.
8. The Workshop Scripts.
9. Academic articles on the pedagogical proposal and syllabus development; implementation plan: analysis of the secondary education curriculum in El Salvador; and lessons learned from the pedagogical proposal and the implementation of the PIF-STEAM.

Conclusions

In a global context where science, technology, engineering, art, and mathematics [STEAM] are consolidated as strategic pillars for development, it is essential to create educational programs that promote the participation of young women in these areas.

The initiative presented here, which in its first phase has benefited 8,000 high school students, represents not only an opportunity for technical learning, but also a transformative effort toward building a more equitable and just society.

It is no secret that historically, women have faced structural barriers that limit their access to STEAM careers, perpetuating gender gaps that impact both education and employment. Creating programs designed specifically for Salvadoran students not only seeks to equip them with technical knowledge, but also with critical tools that allow them to face the challenges of their country, challenging stereotypes, overcoming the fear of failure, and projecting themselves as future leaders in fields traditionally dominated by men.

The strategic combination of information, inspiration, and skills development has been conceived as a comprehensive approach that can trigger significant social transformations. Informing young women about the opportunities offered by higher education in STEAM is the first step toward breaking paradigms and broadening their professional horizons. Inspiring them through the stories of women who have excelled in these areas creates positive role models that reinforce their self-esteem and determination. Finally, developing technical and critical skills allows them to face the challenges of the 21st century, positioning them as agents of change with the ability to provide innovative solutions to global problems.

This initiative not only seeks to close the gender gap in STEAM fields but also promotes a culture of peace and social justice. By empowering thousands of young women to take on active roles in science and technology, it contributes to building a more inclusive, diverse, and conscious society, where talent and creativity are not conditioned by gender, but rather are enhanced by ability and perseverance.

It's clear that investing in STEAM education for young women in high school contributes to a future where equity, justice, and access to quality opportunities are the foundation for collective progress. This first stage is just the beginning of a path toward more inclusive education, where women's voices are elevated as a driving force for social transformation.

Declarations

The project leader is the Salvadoran University Alberto Masferrer, responsible for the general organization, both academic and logistical, responding to the express request of the Ministry of Education [MINEDUCYT] and supporting institutions stated in the recognition section, in compliance with its mission, which is to train professionals with academic excellence and human quality, providing them with a comprehensive education that prepares them to learn and share cutting-edge knowledge, contributing to the evolution of society, science, technology and culture, to new areas of development.

Conflict of Interest

The products resulting from the execution of this contract will be confidential and the exclusive property of MINEDUCYT.

Therefore, under no circumstances will the products constructed under this contract be delivered to unauthorized persons or used for purposes other than those described herein. In any case, the successful bidder will be liable for any damages arising from the breach of this obligation.

Furthermore, all products originating directly or indirectly within the framework of this consultancy and that may give rise to the creation of intellectual or industrial property rights will be the property of MINEDUCYT and may not be used without its express authorization.

Authors' Contribution

Juárez-Salomo, Norma Angélica: Syllabus Design in the Preparation, Organization, and Construction Stages of the Instructional Training Program in STEAM Areas for Female High School Students.

Esperanza Amaya, José Miguel: Methodology in Learning Assessment Strategies and Systems.

Silveyra-Rosales, Mariana Teresa: Contribution to the Syllabus Design in the Preparation Stages, Theoretical Foundations.

Article

Cuevas-Olascoaga, Miguel Ángel: Contribution to the Syllabus Design in the Preparation and Methodological Conception Stages.

Availability of materials and data

The project and resources have been delivered to MINEDUCYT and their use must have the express authorization of the indicated agency. Official Information: <https://www.transparencia.gob.sv/institutions/capres>

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Consultancy: Design and Implementation of an Instructional Training Program in STEM Areas for Female High School Students

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Higher School of Innovation and Technology [ESIT]

Andrés Bello University [UNAB]

Technological University of El Salvador [UTEC]

Don Bosco University [UDB]

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Francisco Gavidia University [UFG]

Specialized Institute of Higher Education [EMCGGB]

Specialized Institute of Higher Education [IEPROES]

Pedagogical University of El Salvador [UPED]

Key Institute El Salvador

Abbreviations

PBL. Project-Based Learning.

MINEDUCYT. Ministry of Education, Science, and Technology.

OEI. Organization of Ibero-American States.

PIF. Instructional Training Program.

STEAM. Science, Technology, Engineering, Arts, and Mathematics [STEAM]

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Building collective narratives from a culture of peace: A tool for dialogue and participation**Construcción de narrativas colectivas desde la cultura de paz: Una herramienta desde el diálogo y la participación**Barcenas-Reyes, Gonzalo ^a, Juvera-Avalos, Janett * ^b and Meza-De-Luna, María Elena ^c^a  Autonomous University of Querétaro • 420416^b  Autonomous University of Querétaro • 408470^c  Autonomous University of Querétaro • 177877**Classification:**

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Subdiscipline: Social Research Design

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✉ [\[janett.juvera@uaq.edu.mx\]](mailto:janett.juvera@uaq.edu.mx)**Abstract**

The construction of collective narratives based on a culture of peace is a methodological approach that seeks to strengthen identity and coexistence through dialogue and participation. This study implemented a qualitative approach, based on narrative inquiry and critical pedagogy, working with a group of rural women in Querétaro, Mexico. Exercises with empowering images and a narrative weaving matrix were used to facilitate collective expression of the community's past, present, and future. The results showed significant empowerment and recognition of shared values, ideas, and feelings, demonstrating the capacity of dialogue to promote positive peace and social justice. Participation is highlighted as an exercise of freedom, action, and rights. The discussion emphasizes the effectiveness of the methodology in making experiences visible from a pluralistic perspective, overcoming hegemonic relationships, and promoting cultures of peace from the community level.

Resumen

La construcción de narrativas colectivas desde la cultura de paz es una propuesta metodológica que busca fortalecer la identidad y la convivencia mediante el diálogo y la participación. Este estudio implementó un enfoque cualitativo, basado en la indagación narrativa y la pedagogía crítica, trabajando con un grupo de mujeres rurales en Querétaro, México. Se aplicaron ejercicios con imágenes habilitadoras y una matriz de tejido narrativo para facilitar la expresión colectiva del pasado, presente y futuro comunitario. Los resultados mostraron un empoderamiento significativo y reconocimiento de valores, ideas y sentimientos compartidos, evidenciando la capacidad del diálogo para promover paz positiva y reconocimiento de valores, ideas y sentimientos compartidos, evidenciando la capacidad del diálogo para promover paz positiva y reconocimiento de valores, ideas y sentimientos compartidos, evidenciando la capacidad del diálogo para promover paz positiva y reconocimiento de valores, ideas y sentimientos compartidos. Se destaca la participación como ejercicio de libertad, acción y derecho. La discusión resalta la efectividad de la metodología para visibilizar experiencias desde una perspectiva plural, superar relaciones hegemónicas y potenciar culturas de paz desde la base comunitaria.

Building collective narratives from a culture of peace: A tool for dialogue and participation**Building collective narratives from a culture of peace: A tool for dialogue and participation****Culture of peace, participation, dialogue, collective narratives, community.****Culture of peace, Participation, Dialogue, Collective narratives, Community****Area:** Promotion of frontier research and basic science in all fields of knowledge**Citation:** Barcenas-Reyes, Gonzalo, Juvera-Avalos, Janett and Meza-De-Luna, María Elena. [2025]. Building collective narratives from a culture of peace: A tool for dialogue and participation. Journal of Social Researches. 11[27]1-13: e41127113.

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Peer review under the responsibility of the Scientific Committee MARVID® - in the contribution to the scientific, technological and innovation Peer Review Process through the training of Human Resources for continuity in the Critical Analysis of International Research.



Introduction

This research seeks to contribute to the frontier of knowledge on the creation of collective narratives that seek to adopt tools characteristic of the culture of peace, such as participation and dialogue, built on democratic values. The construction of collective narratives from the culture of peace is, in principle, a methodological proposal whose main tools are dialogue and participation. The culture of peace has elements that are vital in the process of recognizing the experiences that allow us to speak to the world and, above all, to have a pedagogical approach that presupposes starting points for intervention far removed from hierarchical and asymmetrical forms of community engagement.

The starting point is Freire's [2005] view that liberation processes are above all exercises in communion and not imposition. This element guides the urgency of breaking with pedagogical and intervention schemes associated with the banking or traditional model of teaching. This pillar supports the present methodological proposal, which is also compatible with the culture of peace by privileging learning situated in the particular experiences of the subjects themselves, especially from everyday and community knowledge [Trujillo Castillo et al., 2024], characteristic of education for peace.

In qualitative research, narrative as a method incorporates a series of fundamental elements and technicals for exploring new methodological strategies that take it as their articulating axis. The purpose of the proposal presented here is not to work with raw narrative or in isolation, but with narratives that are part of a culture of peace and that, therefore, place dialogue and participation as essential components of their collective construction. From this perspective, the starting point is narratives—in the plural—and this implies, from the outset, a renunciation of recounting, understanding, and interpreting the collective human experience from a hegemonic perspective.

An essential characteristic of narrative is that it functions as a vehicle for understanding and interpreting human experiences. It can be said that human experience is a central axis of narrative research, whose purpose is to generate understanding and make sense of that experience [Blanco, 2011, 2012].

With regard to the paradigm on which narrative research is based, it is important to identify its model of complexity, in which the proposal is based on the ability to describe subjective realities that have their starting point in everyday life, in the individual and in the shared. For this reason, its fundamental element is the analysis of the narrative.

The construction of collective narratives suggests deepening dialogue as a human phenomenon, as an encounter and as a path in which the word implies, in Freire's terms [2005], the pronunciation of the world and does not end with the I-you relationship. Dialogue as an encounter has a strong relationship with the culture of peace, as its objective is the search for the construction of truth, never its imposition.

This proposal for the construction of collective narratives from the culture of peace generates a methodological approach that aims to share experiences in the community with the tools of dialogue and participation.

The winged word

We are part of stories, and it is those stories that we hold that shape what we represent. The power of storytelling lies in its ability to convey the experiences narrated. Oral transmission preceded written language, and the writer Irene Vallejo [2019] gave the term winged word to this form of sharing culture, history, values, traditions, and knowledge.

The *winged word* has a strong influence on the way stories are transmitted in family and community groups, and is crucial for recognizing the identities that are constructed collectively at the group level [Correa, 2002].

It can be said that "people shape their daily lives through stories about who they and others are as they interpret their past based on those stories" [Clandinin et al., 2007, p. 22], an act that contributes not only to the construction of identity, but also to what groups and their themes represent [Bigilia & Bonet-Martí, 2009].

The human experience is, therefore, the core of the narrative. In the context of social research, its methodological approach is limited to the qualitative approach, as it studies the narrative and is constructed from the problematization of experience.

This narrative, which requires the use of the spoken word to be and exist, resembles the stories we tell ourselves in order to generate identity processes.

Building shared stories

The methodological approach provided by narrative research contains certain elements that are described below in order to recognize how they collectively form part of the innovative proposal of this methodology. The first is that narrative involves putting experience into words, that is, having the ability to generate a story that connects the past, present, and future in a relational way and that makes sense in its context [Burbano et al., 2022]. The second would be the centrality of the story as a fundamental element for inquiring into experience, and the third is the transmission and effects of the stories.

With these three elements identified, we can consider that collective narratives are those experiences in words that are constructed as a group through storytelling to build our shared history. They are a way of telling ourselves a story that includes us, but is also capable of naming the meaning and the reasons for the associations we generate to fulfill goals and objectives.

We could summarize this construction as the creation of a coherent story, the importance of dialogue and participation in putting the experience into words, and the way we pronounce the world.

a) The development of a coherent story

Connecting the past, present, and future of experiences in a relational way is part of constructing the narrative to identify the elements that generate identity around a collective narrative. In the past, we can distinguish the elements that have shaped the community's interests, motivations, and values.

Delving into the collective narrative of the past is a primary process that gives meaning to the story and delves into the dialogic events that will constitute the narrative.

Exploring the present of the collective narrative specifically situates the current moment in which the stories are transformed into dialogical events that shape the constitution of experiencing the now.

Here, the dialogical events take on greater vitality because they are supported by the stories to continue building the collective. This will be the way in which dialogue and participation take place; it is situational, and its exploration can generate important lessons about development from an "us" perspective [see Figure 1].

The future of collective narrative consists of the ability to visualize the future; that is, the dialogical process based on the story allows us to identify new scenarios, goals, objectives, and desirable destinations. This step completes the logical cycle of crafting a coherent story, which begins with exploring the past to strengthen identity, is grounded in the present through dialogic events, and finally projects the future through an exercise in visualization with the intention of transmitting it.

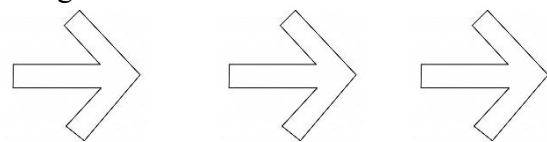
Box 1

Figure 1

Construction of collective narrative

Temporality

Congruence and coherence



Past	Present	Future
Origin and identity	Situate the present	Projection of objectives, goals

Own elaboration

b) Experience in words

Without a doubt, one characteristic of putting experience into words is the discovery of themes, causes, inspirations, and objectives that are expressed in the act of collective narratives. This creates a space to identify two key moments in the collective process: the first is the way in which the collective narrative is constructed, and the second is putting the exercise of developing a coherent story into perspective and analysis.

The construction of collective narratives is a discovery because it involves the act of sharing in words the experiences that the collective provokes.

This discovery is supported by dialogue and the participation of those who are part of the community experience and contribute perspectives that, when crafting a coherent story, have the capacity to include both what is named and who names it. It is, in any case, a representative and identifying action that constitutes the collective.

c) We pronounce the world

Generally, when the world is pronounced, it is done from a space of asymmetrical and hegemonic relationship. It is difficult to insert one's own experiences and stories into the unfolding of the great events, paradigms, and agendas that simplistically shape the world. However, the opportunity offered by the construction of collective narratives is precisely to also pronounce ourselves in that pronunciation of the world, to tell our own story and for the experience supported by dialogical events to be a bridge to experience and transform reality [Correa, 2002; Velasco, 2010].

We speak to the world with us when we have a coherent elaboration of our collective histories with the ability to put experience into words. It is then that speaking to the world is a way of naming the collective through the exercise of critical thinking about our environment [Velasco, 2010].

Collective narratives from the culture of peace

It is useful to identify what we mean by collective narratives. They can be described as discursive constructions shared by a group which, through the creation of a coherent narrative of their own, link knowledge and learning to people's life experiences through dialogue and participation, allowing them to pronounce the world. that is, to interpret the world around us, assuming it is not static but something that is happening [Blanco, 2012; Correa, 2002; Palumbo, 2024].

Collective narratives necessarily generate a crossover between recounting and telling stories, and doing so in a group. According to Freire [2005], the collective is the social and community dimension for relating, dialoguing, and building knowledge together.

We cannot understand the idea of community as an aggregate of individuals, so it is valuable for the construction of collective narratives to locate the personality of the community, that is, what generates the collective. This implies discovering together and sharing what makes the community unique [Rawls, 2010].

The proposal is that this personality, which constitutes the identity of the community, be named, signified, and identified by the people who make up the community. This is, in every sense, a discovery, and it contributes to the search for the construction of a social and critical awareness of the position of subjects in the world, allowing people to act as collective subjects in the exercise of naming themselves. Collective narratives from the culture of peace suggest starting from the discovery of what makes the community experience unique, using the tools of dialogue and participation. An essential characteristic of this discovery is the relational dimension from which this construction is made, and it implies an understanding of personal relationships, positioning the notion of I-you as an active form for both parties [Rawls, 2010].

These two ideas, naming the collective based on the community experience and the active form of the I-you notion on both sides, are fundamental contributions of the culture of peace to the construction of collective narratives because they imply, first, the way in which we participate in naming what we have in common, and second, the expectation we have of generating a dialogue that is capable of overcoming asymmetries.

Participation

The way in which participation for the construction of collective narratives from the culture of peace takes place is constituted by the notion of freedom, by its distinction from the human condition and by being a right [López Martínez, 2023].

Participation and freedom are related in discerning that "to participate is to intervene or intercede in processes in which we are interested" [López Martínez, 2023, p. 870]. However, it is worth emphasizing that "participation is taking an active, voluntary, and personal part" [Sartori, 2009, p. 35] in such a way that participation is getting started, as Sartori warns, "by oneself."

Barcenas-Reyes, Gonzalo, Juvera-Avalos, Janett and Meza-De-Luna, María Elena. [2025]. Building collective narratives from a culture of peace: A tool for dialogue and participation. Journal of Social Researches. 11[27]1-13: e41127113. <https://doi.org/10.35429/JSR.2025.11.27.4.1.13>

The idea of participation is aligned with the culture of peace, understanding that collaboration is chosen voluntarily and freely. It is grassroots participation, because it is the person themselves who decides to get involved. On the other hand, if intervention is imposed by an authority or from above, it is a mobilization and, therefore, the condition of freedom is not met.

Distinguishing participation as a human condition is to refer to the essence and *raison d'être* of human beings, considering their complex and never static nature. For Hanna Arendt, the three activities proper to the human condition are: labor, work, and action. Labor corresponds to biological processes, work is what creates the artificial world or the material environment that surrounds human beings, and it is the activity of action that, for Arendt, identifies us as human [Comesaña Santalices & Cure de Montiel, 2006].

Action is a defining characteristic of human beings, as it involves interaction with others in public spaces, plurality, and politics. Action allows us to express our freedom and uniqueness to others; it is irreversible and unpredictable [Comesaña Santalices & Cure de Montiel, 2006]. In these terms, action is a defining characteristic of human beings. This is inherent to the human condition, as an exercise of freedom, equality, and plurality; participation is part of the human condition insofar as it is action. Dueñas [2012] notes:

Participation can be understood as... a way of understanding the human condition, social relations, a way of facing reality, a way of thinking and feeling, of perceiving, raising, and solving problems. Thus, the term should mean getting involved voluntarily, not demanding without proposing, nor violating or subjugating, much less controlling, not protesting or mobilizing, even though these actions seem to be implicit in the process [p.7].

Participation understood as a right is a process through which people take an active part in decisions and in the development of actions that impact their environment. It requires will, commitment, learning, and organization, as well as active and responsible intervention [Dueñas Salmán & García López, 2012].

It can also be pointed out that participation is a right because it enables the power to take an active part in decision-making and processes that affect life and the community. Participation is recognized as a fundamental human right, thus acknowledging its universality and inherent nature for human dignity.

With these elements, it can be identified that participation in the construction of collective narratives from the culture of peace is freedom to intervene in processes, is a human condition in terms of action, and is a right because it empowers [Comesaña Santalices & Cure de Montiel, 2006; Dueñas Salmán & García López, 2012].

Dialogue

Communicative power is precisely the power of nonviolence.

Hannah Arendt

The role of dialogue in the construction of collective narratives based on a culture of peace is more than a methodological and structured process. It involves rescuing the value of dialogue to design, seek, and build spaces that are areas of encounter between equals, in which the plurality of the whole is highlighted, not its uniqueness. This suggests that they can be safe spaces, where respect is transversal to the free expression of ideas, arguments, emotions, and any other element that constitutes the challenge of putting experience into words.

It is necessary to highlight the widespread recognition that dialogue has in the culture of peace as a formidable tool for conflict resolution, transformation and management. Dialogue also offers the possibility of broadening cultural horizons and is 'something that two or more people do together, through words, through the reasons we give each other, through discourse, and, we might add, through communicative silences' [López Martínez, 2023, p. 302].

From a positive vision of peace, dialogue is transformed from an encounter of human connection between people who hold different positions and ideas to the cultural construction of justice and equality, characterized by the intertwining of life based on shared experiences.

This means that an encounter is not enough to address the reasons we give each other. The notion of intertwining is necessary to distinguish the willingness to generate a common history and recover the significance of the collective personality [Galtung, 2003; Guzmán, 2021].

Negative peace is understood as the absence of direct violence. In this form of peace, the role of dialogue is situated in a framework where the encounter between people, their presence, and their willingness to maintain it are sufficient, as long as the condition of absence of violence is met.

In positive peace, dialogue suggests the active presence of people, not just their encounter, but also cooperation beyond the desire to simply be there. Dialogue in positive peace is the promotion of empathy and understanding to contribute to the full development of people's potential; this is what is meant by the capacity of dialogue to intertwine life [Jiménez Bautista, 2020].

Intertwining life through dialogue to build collective narratives is an incorporation that, from the culture of peace and its notion of positive peace, makes use of creativity to find new initiatives to weave the fabric of life. The aim is to manifest the cultural power of peace, which is expressed in the contexts closest to people in order to enhance life, unfold it, and narrate it collectively, making that narrative an inclusion of one's own history.

Dialogue and participation to discover, through the construction of collective narratives, the experience of what makes a particular community unique, that is, its personality, is a process rooted in plurality that places us on an equal footing to share. Recognizing the singularities that make us have different elements to express [Guzmán, 2021; Rawls, 2010].

From the culture of peace, the tools of *enabling imagery* and the *narrative fabric matrix* are incorporated into this proposal for the construction of collective narratives, supported by dialogue and participation to promote methodologies that drive and encourage the realization of positive peace in the community.

Images and narratives are powerful tools for addressing collective memory and social realities in contexts of violence and oblivion. Combined, these tools enrich our understanding of these realities, enhancing oral transmission and strengthening the narrative through images that reveal specific contexts. In fact, for the psychosocial approach to the suffering caused by violence, images and narratives are understood as forms of expression that make it possible to represent the inexpressible, reframe trauma, and strengthen social bonds. In this way, they contribute to psychosocial transformation by raising awareness and mobilizing solutions [Aguilar Mosquera et al., 2025].

The approach is that dialoguing and participating in the construction of collective narratives is not only an act of communication, but also an act that, from the culture of peace, promotes positive peace from the community level. It is built with creativity and recognition of diversity as essential elements for weaving a shared and just life.

Methodology

The research question posed was: How can collective narratives be constructed from a culture of peace using the tools of dialogue and participation? The research was conducted with a group of women who are part of an organization located in a rural area. They produce and market plant-based products located in the Buenavista micro-basin in the state of Querétaro, Mexico.

The method used in this research study could be classified as *narrative inquiry*, which is based on a qualitative perspective and, since its inception, has adopted a feminist approach capable of highlighting gender inequalities and power relations. This research tradition is recognized as having been established by the Anglo-Saxon group known as *The Personal Narratives Group*, which began publishing works that demonstrate the narrative methodology in order to consolidate it in scientific publications, such as their work entitled *Interpreting Women's Lives: Feminist Theory and Personal Narratives* [Hogan et al., 1990].

Research that adopts this narrative inquiry methodology places special emphasis on studying the stories or narratives of a group or an individual [Blanco, 2011]; telling a story reflects the human experience itself, capable of incorporating knowledge of the environment and revealing cultural and environmental patterns [Francis, 2018; Kean et al., 2018].

The relevance of this type of research has led researchers to add elements that allow for its replicability. For research purposes, justification has been incorporated as part of the use of narrative inquiry from three angles: personal, practical, and social [Clandinin et al., 2007].

From the participation-action that comes from the tradition of qualitative instruments, we highlight the relationship between the subjects who tell their stories and narrate their own lives. They are not viewed as subjects outside their context, but as subjects with agency.

The active participation of community members is actively considered in all stages of the process, from the identification of problems to the implementation of solutions. For research purposes, an intervention was carried out to test the methodology for the construction of collective narratives from the culture of peace.

As part of the efforts made by the women with whom the methodology was worked on, the need to assertively communicate their products and services without the need for third parties was portrayed, since they often collaborate with young people positioned in socio-digital networks, but rarely are they the spokespersons for the message.

The need to recognize new ways of telling their own story as women concerned and engaged with the land, water, and soil was the mandate for testing the narrative inquiry proposal with tools from the culture of peace.

From a practical point of view, the research proposes rethinking the practices of researchers, whereby we do not assume ourselves to be outside the context, but rather take on a role of recognizing the community and cooperating in the process so that they themselves can guide and write their own narrative.

For the purposes of this research, the authors position themselves from a feminist perspective that seeks to echo the voices of communities where women play a leading role in their lives and in their communities.

Inputs for collective inquiry

A four-hour working session was held in which material was presented to begin the dialogue. The content of the material was developed based on the key concepts of Paulo Freire [2005] in his work *Pedagogy of the Oppressed*, in which he uses the concepts of "generating word" and "generating image" [Ovares Fernández et al., 2023] to show how words are formed from syllables or common roots and how new words are built into our vocabulary.

The exercise was designed pedagogically to recognize the syllabic elements of words. In some schools in Mexico, children were taught to separate syllables by clapping: sym-bo-lic; one clap for each syllable, which helps to establish a relationship between sound and separation. The generative word is a concept that, in addition to recognizing its roots and origins, approaches the symbolic. It is the ability of a word to signify or construct meaning. For its part, the generating image in Freire has the potential to contextualize dialogue, problematizing the relationship between concrete images of the closest spaces and the stories and experiences that the community can generate from them.

It is from the generative word and the *enabling image* that the material for beginning the narrative inquiry was formed. The innovation of the generative "word" and the enabling "image" was applied, in the age of audiovisual technology, with the use of a projector. What we will refer to as the "enabling image" is presented to the audience in two ways: on the one hand, the audience sees an image on the screen, and on the other, there is a volunteer who does not have access to the image; it is generally recommended that this person stand with their back to the image.

The enabling image

The intention of the enabling image is precisely to enhance dialogue by first recognizing that the act of expressing the experience in words in community is to act from a place of humility and human fragility.

In this sense, the enabling of dialogue indicates that there are no good or bad participations, opposing any scheme of domination that seeks to impose a hegemonic or monopolistic way of relating.

Recognizing this process of enabling dialogue helps to overcome the fears involved in trying to put experience into words, even more so when we distinguish that one of the challenges that arise when it comes to communicating or expressing a thought to another person is having the ability to express precisely what one wants to say and that the receiver or receivers can accurately complete what others want to say [Vales, 2022].

In this scenario, participants are tasked with describing the image in one word, without saying the name or literal concept. For example, if the image of a red apple is being projected, they can say characteristics that are specific, symbolic, imaginary, or representative of that fruit, such as: round, red, fruit, etc.

In the first image presented in the exercise, a lot of trash was described, and they could also mention a fish or some other sea animal [see Figure 2].

Box 2



Figure 2

Example of the generating image

[*AquaeFoundation*]

Various examples were given of the enabling image, which showed an apple, a cup of coffee with whole beans on the side, a couple greeting each other, a plant receiving rain, etc.

This preliminary exercise allows people to recognize that, collectively, they are naming and constructing complex ideas, complementing what others are saying so that the person who does not have access to the image can guess what is being projected.

The enabling image shows that with the projection of images that are close to the community, few words are needed for the person tasked with deciphering what is being projected to guess correctly. This reinforces the group's participation and cooperation in achieving a verbal goal, deducing that it is easier to describe and position those elements that are closer to familiar realities and contexts.

The projection of images that are more complex in their composition, such as the one shown in Figure 2, also reinforces the community's dialogic skills, showing that it is possible for the person to get closer to guessing what is being projected with a greater number of words. In the case of this image, the answer was: *Contaminated water*. Here we can see how topics and images that are a little further removed from our immediate contexts become slightly more difficult to describe accurately. The enabling image is therefore an exercise that promotes participation, starting from the recognition of actively listening and describing as a community, overcoming fears of expressing our ideas collectively, and demonstrating in a practical way the relationship between thought and verbalization. In addition to enhancing the aforementioned characteristics, this dynamic is the prelude to introducing the narrative fabric matrix.

Narrative weaving matrix

This matrix is designed with the intention of coherently relating the past, present, and future of community experiences in order to develop a common history based on the different voices that participate collectively. For this reason, our proposal involves visualizing the values, ideas, and feelings of the past in order to express the collective memory and historical identity of the community. We believe that values, ideas, and feelings can help identify the roots, experiences, and lessons that the community has experienced in its process of becoming.

In the present, we propose that arguments, reasons, and feelings be the elements to highlight, since this is the current moment of the community's experience. The present is the privileged moment to promote a dialogue that intertwines lives, where active participation is manifested. It is a strength to build the present based on the evidence of arguments, the problematization of reasons, and the discovery of feelings.

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<https://doi.org/10.35429/JSR.2025.11.27.4.1.13>

Finally, we place needs and feelings in the future, understanding that verbalizing the future in community commits us, at the very least, to the visualization of a common project that requires inputs to be achieved. This is what we mean by needs, a commitment so that, with a common direction, the aspirations of the community become tangible.

Feelings deserve special mention in this temporality of the development of a coherent story, as they are present in all three variables [past, present, and future]. This is because, from the perspective of the culture of peace that we integrate into this methodological proposal, the social and affective dimension is a pillar for sustaining human relationships.

Feelings such as empathy, compassion, respect, and solidarity are key to our construction of dialogue and participation, as they facilitate mutual understanding and reconciliation and promote peaceful conflict intervention. Furthermore, recognizing and validating one's own and others' feelings helps to build trust, strengthens genuine bonds between people and communities, and becomes essential elements for harmonious coexistence and positive peace.

In short, we agree with Galtung that there are feelings deeper than rationality, such as love, and our hope is to know that "there is no limit to cooperation" [Galtung, 2003].

To facilitate dialogue with the aim of putting the experience into words in the narrative fabric matrix, a guiding question is used to construct collective narratives. This allows messages to be organized from the perspectives that are important to the collective, which in this case were: 1] the person who fulfills the leadership role, 2] the team, and 3] the organization.

The guiding question is posed for each of the variables that make up the matrix, for example: What values does the person in the leadership role represent? This process is repeated until the narrative fabric matrix is complete with its variables and aspects [see Figure 3].

Finally, we articulate the world based on the discovery of what was discussed about the narrative fabric matrix, generating complete sentences and statements that correspond to enabling a coherent story that expresses the experience in words.

Population

The women with whom the narrative was constructed are from different generations: young women, mothers, and older adults who have gone against the patriarchal standards of their territory, as it is atypical for women to generate their own income without the help of a man [husband, son, brother, father], and consequently, it is unusual for women to take on a public role in their communities. However, by carrying out processes for the extraction of herbal properties, they have participated with organizations to transmit basic knowledge for the creation of gardens and to raise awareness about the importance of water conservation.

From a theoretical perspective, the subjects participating in the research are women who could be placed within the paradigm of ecofeminism, understood as the perspective capable of linking the environment and women, who deal with dominant groups in order to establish a better relationship with water, land, and local crops [Carcaño Valencia, 2008].

Box 3

Table 1
Construction of the narrative fabric matrix

Values	Ideas	Feelings	Arguments
What are the main values it represents?	What ideas, words, and images are present?	What feelings can be recognized and perceived?	What are the main arguments?

Reasons	Needs
What are their reasons and motivations?	What needs can you identify?

The materials used were colored markers, a computer with a projector to share the presentation and project the generating image, and cardboard to collectively fill in the narrative fabric matrix.

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Results

The results are structured around the three elements proposed by the methodology for constructing collective narratives based on a culture of peace, which are presented in the following sections: a) the creation of a coherent story, b) the experience in words, and c) we speak to the world.

a) The development of a coherent story

A first result was raising awareness of the importance of participating in the construction of collective narratives. Through the enabling image exercises, the women participants related the complexity of accurately conveying their thoughts. This is an important result because it was through this dynamic that the recognition of the words they chose to describe reality, the vitality of respect for listening and being listened to, became apparent. As well as joint cooperation in naming complex issues and the validity of knowledge from their own experience. The latter is always a finding that is strongly integrated into the community, as it demonstrates the validity of group wisdom.

A second result was to distinguish the edges to be matched with the variables of the narrative weaving matrix. In this case, for the women participants, the edges were: 1) the person who fulfills the leadership role, 2) the team, and 3) the organization. This result is relevant because it reveals the interest in what the narrative wants to build. It is a moment that requires an attitude that facilitates dialogue to achieve these definitions.

b) The experience in words

Once the narrative fabric matrix was presented, the values, ideas, feelings, arguments, reasons, and needs of the three levels of the matrix began to be named: 1) the values of the leader, 2) the values of the team, and 3) the values of the organization, in this order.

This allowed each of the women to recognize aloud the coherence and consistency of the past, present, and future. At the beginning, they were told that these were not answers with negative or positive connotations, but that they could simply share from their knowledge of these three levels, which led to the construction of very powerful narrative statements, some of them even with poetic touches.

One of the older women noted that she had no professional education and that her words might be very basic. However, as the exercise progressed, Graciela [N]'s fluency, agency, and independence allowed her to regain the strength of her voice and to hear how other women recognized her as a woman with many skills, not only for the organization but also for life. This constitutes a third result, which could be summarized as the empowerment generated by telling a coherent story built in community.

The matrix referring to the woman leader was constructed with enthusiasm by those who are part of the organization, showing respect and affection for her, as well as highlighting the impetus she brings to the actions she carries out, even acting as a mediator of conflicts in the community, due to the high degree of trust she has managed to consolidate. She was described as: a woman of faith in what she does, constant, strong, coherent, cheerful, kind, generous, supportive, and intelligent [see Figure 3].

Discovering the value that people bring to organizational processes is a fourth result that we find compatible with the idea of promoting the full development of people, in this vision of combining the construction of collective narratives with a culture of peace.

Box 4

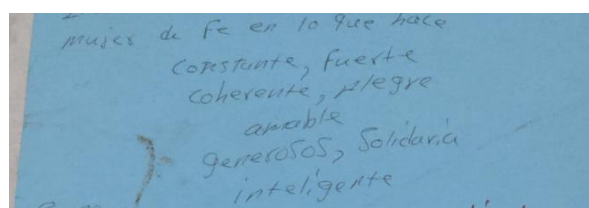


Figure 3

Drafting and placement of the leader's values

[Own elaboration]

c) We pronounce the world

In this last section, the women articulated messages with a structure that was built thanks to the matrix that allowed them to speak collectively, distinguishing that each level was necessary to construct this last part of the narrative. This is shown in the following statements: "Our values are commitment, honesty, innovation, and sensitivity, and we seek to be an example for our community, our daughters, and to help our clients."

This fifth result reflects who they are as a team, and verbalizing and writing allowed them to identify themselves as a collective with unique qualities. This helps us distinguish the personality of the collective, which makes them unique.

Another example of the result of filling in each of the categories in the matrix, in terms of their organization and purposes, was the following statement: "We have a solution for your well-being and personal care that consists of natural and handmade cosmetic products that allow you to improve your hair, skin, and health. we stand out for our use of natural products that care for you, grown agroecologically by women in rural communities" [See Table 5].

A sixth result is that by using the wording generated by this group of women, it is possible to operationalize temporality, experience, and the pronunciation of the world, which are elements of our methodology for constructing collective narratives, proposing this revision as follows:

"We have a solution for your well-being and personal care." Here, we can distinguish the temporality of recognizing that the group of women has been building solutions for well-being and personal care since the past, which in itself also reflects values and ideas about what they do as a collective.

"Which consists of natural and handmade cosmetic products that allow you to improve your hair, skin, and health;" the reference to the action being undertaken is a link to the present, providing arguments and reasons for their activity. There is also a connection to the future in terms of the expectation of what their action is capable of achieving for hair, skin, and health.

The text concludes: "We stand out for our use of natural products that care for you, grown agroecologically by women in rural communities." This final part of the text reveals the identity of those carrying out the action, as well as integrating the personality that makes their collective cooperation unique. Of particular note is the use of the word "care" and the way in which the production processes are described from the perspective of being integrated into the world. Once again, the temporality of this last text is in the present, making it implicit who they are.

Box 5

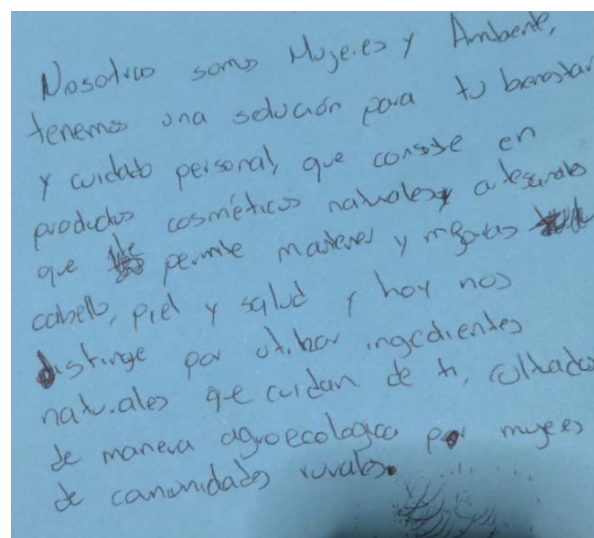


Figure 4

Draft of "enunciation of the world"

[Own elaboration]

Conclusions

The proposed methodology for constructing collective narratives based on a culture of peace is built on solid tools that have been widely used to consolidate more just, free, and democratic spaces. For this reason, dialogue and participation were necessary for the design of the methodology. Although theoretical approaches were proposed that helped in its construction, concepts inspired by Paulo Freire were also proposed, consolidating the core elements of the proposal.

Likewise, the question to be answered was: how can collective narratives be constructed from a culture of peace using the tools of dialogue and participation? Collective narratives from a culture of peace were presented, in which participation, understood as freedom, action, and right, is part of this vision.

A collective dialogue is proposed that is capable of recognizing its ability to intertwine lives with a focus on positive peacebuilding.

The methodological proposal is divided into three stages: the first is the development of a coherent story, in which relating the past, present, and future becomes central to expressing the experience in words; it is in this second stage that, with the tool of the narrative weaving matrix, contributions are made to speak to the world, which constitutes the third stage of this methodological proposal.

An intervention was carried out to test the enabling image tools and narrative fabric matrix for collective participation and naming, articulating and weaving together the narratives themselves. The proposal suggests that the personality that shapes a community's identity must be named by the people who make up that community, making this action a genuine discovery.

This process contributes to the construction of a social and critical awareness of the position of subjects in the world, allowing people to act as collective subjects by naming themselves. Thus, naming and signifying the collective personality is an act that strengthens solidarity and the community's ability to act together.

We trust that this methodology, based on collective narratives and inspired by the culture of peace, will become a foundation for the construction of more self-recognized and valued existences through the crucible of empathetic and supportive bonds, thus enhancing the possibility of a more just, pluralistic, shared, and dynamic world in the understanding of the cultural power of peace.

Declarations

Conflict of interest

The authors declare no conflict of interest. They have no known competing financial interests or personal relationships that could have appeared to influence the article reported in this article.

Author contribution

Barcenas-Reyes, Gonzalo: Contributed to the proposal of the methodology designed from the perspective of the culture of peace.

Juvera-Avalos, Janett: Contributed to the field intervention and the writing and research of the methodology.

Meza-De Luna, María Elena: Contributed to the field intervention and the construction of the situated and written research.

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Hardiness and social context in young university athletes

Personalidad resistente y contexto social en deportistas jóvenes universitarios

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Abstract

Sport and the environments where people interact help to control stress, thus improving the emotional instability of athletes. The objective of this work is to identify the relationship between Hardiness variables and those of the social context in athletes. The sample is made up of 56 athletes from different sports, 29 men [51.8%] and 27 women [48.2%] participated, the age of the athletes ranged between 18 and 28 years, with a mean of 21.38 and a standard deviation of 2.37. The design of this research is non-experimental, cross-sectional and correlational. The instruments used were the Hardiness Questionnaire in Central American and Caribbean Athletes and the Questionnaire on Perception of Factors Related to Excellence in Sport. The results found showed adequate reliability for the sample and the presence of relationships between variables, highlighting that the Hardiness variables and the coach variable are significant and positive in their trifactorial and unifactorial form. Conclusion. Hardiness or resistance to stress is strengthened thanks to the contributions of figures such as the coach, the people who support their growth process such as administrators or leaders of sports institutes or sponsors, the support of a multidisciplinary group such as a psychologist and the athlete's own beliefs about his or her abilities.

Hardiness and social context in young university athletes

Objectives

Methodology

Contribution



Commitment, Control, Challenge, Sport

Resumen

El deporte y los ambientes donde las personas interactúan ayudan a controlar el estrés, por lo tanto, mejoran la inestabilidad emocional de los deportistas. El objetivo de este trabajo es identificar la relación entre las variables de la personalidad resistente y las del contexto social en deportistas. La muestra está conformada por 56 atletas de diversos deportes, participaron 29 hombres [51.8%] y 27 mujeres [48.2%], la edad de los atletas osciló entre los 18 y 28 años, con una media de 21.38 y una desviación típica de 2.37. El diseño de esta investigación es no experimental, transversal y correlacional. Los instrumentos utilizados fueron el Cuestionario de Personalidad Resistente en Deportistas Centroamericanos y del Caribe y Cuestionario sobre Percepción de Factores Relacionados con la Excelencia en el Deporte. Los resultados encontrados mostraron una fiabilidad adecuada para la muestra y la presencia de relaciones entre variables, destacando que las variables de la personalidad resistente y la variable entrenador son significativas y positivas en su forma trifactorial y unifactorial. Conclusión. La personalidad resistente o resistencia al estrés se fortalece gracias a los aportes de figuras como el entrenador, las personas que apoyan su proceso de crecimiento como administradores o dirigentes de institutos del deporte o patrocinadores, el apoyo de un grupo multidisciplinar como un psicólogo y las creencias propias del deportista de sus habilidades.

Personalidad resistente y contexto social en deportistas jóvenes

Objectives

Methodology

Contribution



Compromiso, Control, Desafío, Deporte

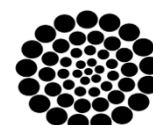
Area: Promotion of frontier research and basic science in all fields of knowledge

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Introduction

Stress today negatively affects the physical and mental health of the population [Pillajo et al., 2022; De Francisco et al., 2025], such as anxiety [González et al. 2022; Cano et al., 2024], depression, difficulty concentrating, worry, or risk of injury [Mata et al., 2023], and sleep problems. This is exacerbated if people do not engage in physical activity or sports [Cano et al., 2024], which would help regulate the community's emotional perceptions.

Even when athletes are stressed, thanks to the nature of sport and its characteristics and the various situations they face, such as competing against their opponents, they are better able to regulate the effects of stress [Galvez, 2022]. This ability to cope with stress is called hardiness [Jaenes, 2009]. This concept describes the characteristics that can push people to be more or less resilient to stress.

Scholars of Hardiness or hardiness establish that the concept arises from the curious research of a student of the authors Maddi and Kobasa [Maddi, 2002], where they observed that some subjects had chronic degenerative diseases caused by stress, but another part of the population, when faced with the stressful situation, somehow felt that they were in a learning process, believing that they had the ability to cope with and solve the situation, but with the understanding that this difficulty provided them with learning, turning the problem into an opportunity for growth and development, [Kobasa, 1979b; Kobasa, et al., 1982] which, as a result, minimizes the negative effects of stress [Godoy-Izquierdo and Godoy, 2002]. Hardiness has been studied in health contexts [Kobasa, 1979a], for example, in doctors and nurses, as well as in professions such as firefighters [Batres & Maiztegui, 2025], teachers and caregivers of sick relatives, sports referees [Ponce et al., 2024], and athletes [Jaenes et al 2009; Ponce-Carbajal et al 2020; Ponce-Carbajal, 2021; Tiscareño-Caldera, 2024].

Hardiness, is composed of three variables: control, commitment, and challenge. According to the literature, this concept can be used in a unifactorial or trifactorial manner, and when used in various studies, it normally shows adequate reliability for the sample, which facilitates its use and practicality for application [Jaenes, 2009]. This scale consists of 18 items, six for each variable.

The control variable is defined as a belief that each person has the ability to influence outcomes through their own efforts. In the case of the definition of commitment, it was found that personal involvement is when the individual actively and significantly engages with their goals even in the face of complications or adversity, and the challenge is represented by a positive attitude even in a surprising or changing environment, viewing challenges as opportunities for growth [Jaenes et al., 2008; Jaenes 2009; Jaenes et al., 2009].

Currently, hardiness has been used in research on athletes from various disciplines such as marathon running [Jaenes et al., 2009], long-distance running [De la Vega et al., 2010] in athletics, but also in sports such as judo [Ponce-Carbajal et al 2021a], swimming, taekwondo, diving [Ponce-Carbajal et al., 2023], field hockey, soccer [López-López, 2011], triathlon, gymnastics [Ponce-Carbajal, 2022], weightlifting [Ponce-Carbajal et al., 2023], high diving [Villareal -Aranda et al., 2022] and other sports [Ponce-Carbajal et al., 2017; Ponce, 2017; Ponce-Carbajal, et al., 2020; Ponce-Carbajal, et al., 2021a; Ponce-Carbajal, et al., 2021b].

On the other hand, the environments where people live together are accompanied by many significant learning experiences, since living in diverse social groups offers growth and diverse experiences that give them the possibility of making decisions that seem appropriate or familiar.

The first environment is the family, which has a great influence on learning processes [Mejía & Arrollo, 2022]. What they see and hear and they use it to advance their development as individuals, eager to achieve their goals. In the case of athletes, there are some differences, because those who do not play sports have fewer social interactions than those who do [Henriksen et al., 2010; Henriksen et al., 2010a; Henriksen et al., 2010a].

The daily life of athletes is perfectly connected to their basic nuclei where they have developed and where they have had the opportunity to learn not only manners but also more complex processes of behavior, personality, and character. Their social context is the environment in which they live and share their lives, which may include family, friends, classmates, training partners, opponents, the school principal, etc.

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The social context is the core of the information that athletes learn through meaningful experience, as Bronfenbrenner argues in his book “The Ecology of Human Development: Experiments by Nature and Design” [Bronfenbrenner, 1979].

In the model of ecological human development, this author comments that all individuals are in constant motion and interact every day in various roles. For example, when they wake up in the morning, they are children, and if they have siblings, they also take on the role of brother or sister. When they arrive at school, they are students, classmates, and friends, and if they go to training after school, they now have the role of being an athlete and at the same time are a training partner and also interact as a participant or member of a sports club, which in turn is an opponent of someone else in a competition, and so on. Bronfenbrenner summarizes this approach in concentric circles on four levels.

The first of which he described as the microsystem, the central level that summarizes the individual's interpersonal relationships, with their activities described as a pattern with personal characteristics that remains in dynamic communication with the environment, such as their family or school.

The second is the mesosystem, which refers to the individual's interactions with various microsystems, such as work or their social life.

The third, the exosystem, refers to one or more environments that do not actively include the developing subject but have an impact on them; for example, their parents' workplace; and the fourth, described as the macrosystem, is the most distant level, where the subject communicates or interacts with their culture, with entire societies, such as religion, various ideologies, or the politics of their country.

Henriksen [2010] carried out a study in which he proposed an adaptation of Bronfenbrenner's model, which he defined as the model of the athletic talent development environment [Krebs, 2009].

In terms of social context, Simón [2009] argues in his research that the proper development of an athlete is multifactorial [Lorenzo et al., 2015], establishing variables such as the coach, environment and available resources, family, athlete skills, nature of training, and training characteristics. The coach is of vital importance for the proper development of an athlete. They are the ones who apply the training dose, are the leader, the technician, who plans the tactics or strategy for each athlete and, in turn, helps the athlete to stay focused and committed so that they can achieve their goals [Foresto, 2022].

The environment and resources refer to all those who support athletes both financially and administratively, such as institute leaders, sponsors, and multidisciplinary team personnel such as a physiatrist or psychologist [García-Naveira, 2018].

The family is the closest nucleus to the athlete, guiding them in the development of bonds of collaboration and communication, as well as teaching values and ethics that moderate behavior [Carrillo et al., 2025].

Athlete skills are the abilities or talents that an athlete possesses, whether physical or psychological. The nature of training refers to the tasks that are designed to ensure the proper development of the athlete's potential, including the duration of rest, the number of repetitions, and sets. All of the above factors make up the questionnaire on Perception of Factors Related to Excellence in Sport [PFED; Simón, 2009] with 54 items and six factors that the athlete considers contribute to their sporting success.

Hardiness and social context are constructs that still need to be explored, as they offer the possibility of guiding family members, coaches, and resource managers on the support needs of young athletes for training or for the application of resources for physical activity and sport for the masses, and there is little material on this subject. The objective of this document is to identify the existence of relationships between the variables of hardiness and social context.

Methodology

The design of this research is quantitative, non-experimental, cross-sectional, descriptive, and correlational [Hernández, et al., 2006].

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Participants

The population for this study consisted of 56 athletes from various sports in the sports organization faculty. This sample was made up of 29 men [51.8%] and 27 women [42.8%]. The young athletes' ages ranged from 18 to 28, with a mean of 21.38 and a standard deviation of 2.37. The inclusion criteria were that participants were currently participating in a team representing the sports organization faculty, were over 17 years of age, and were currently studying. The exclusion criteria were those who did not complete the instruments properly, those who were currently not training due to injury, and finally those who decided to withdraw their participation for personal reasons.

Instruments

The first questionnaire is the Hardiness Questionnaire for Central American and Caribbean Athletes [PRDCC; Ponce-Carbajal et al. 2015], which measures hardiness or resistance to stress.

This questionnaire consists of 18 items, with three factors: commitment [6 items], control [6 items], and challenge [6 items]. This instrument has been used in its three-factor and single-factor forms, and the response scale is a Likert scale from 0 to 3, where 0 is "strongly disagree" and 3 is "strongly agree." Internal consistency properties are commonly adequate above .70.

The second is the questionnaire on Perception of Factors Related to Excellence in Sport [PFED; Simón, 2009], which measures the athlete's perception of the support received in their long process of preparation for a competition. This questionnaire includes variables such as the coach, the environment and resources, the family, the athlete, and the nature and characteristics of the training.

This instrument consists of 54 items and a Likert scale from 1 to 10, where 1 is the lowest contribution and 10 is the highest contribution to their current training as an excellent athlete. The reliability of this instrument is also normally adequate for samples above .70 on Cronbach's alpha.

Procedure

A Google Forms link was generated to have it ready for application once permission was granted.

The Universidad Autónoma de Nuevo León has always offered accessibility for sample collection among its sports teams, with the understanding that it contributes to the development of sports science and to society.

Therefore, data collection is always available.

The process followed was to request permission from the competent authority to contact the coaches. They were subsequently informed of the purposes of these instruments and the benefits of helping us distribute them to their athletes electronically via WhatsApp or any social media platform. This way, the athletes were sent the link with the coach's support, encouraging them to participate and raising awareness about the importance of their responses.

Once the athletes were informed, a remote meeting was held to inform them that all their responses were completely anonymous and that, if they wished, they could withdraw at any time, as their participation was completely voluntary and would take no more than 20 minutes.

Data analysis

Data analysis was performed using the statistical package SPSS version 25. Descriptive statistics such as frequencies, mean, and standard deviation were calculated, as well as reliability using Cronbach's alpha for the questionnaires, and Spearman's correlation analysis was performed.

Results

The results found in the descriptive analysis section are presented in Table 1, which shows the frequencies of the various sports, with 16 sports participating, both individual and team sports.

Box 1**Table 1**

Frequencies of sports participating in this research

	Deporte	Frecuencia
1	Cheerleading	9
2	Athletics	2
3	Basketball	2
4	Baseball	1
5	Bowling	3
6	Box	3
7	Diving	5
8	Fencing	4
9	Aerobic Gymnastics	1
10	Karate	2
11	kickboxing	2
12	Rugby	3
13	Taekwondo	4
14	Tochito	7
15	Triathlon	1
16	Volleyball	7
	Total	56

NOTE: self-authored table

Table 2 shows the mean Cronbach's alpha reliability values for the hardiness and social context variables, which are adequate for the sample.

Box 2**Table 2**

Cronbach's alpha reliability of the variables in the Hardiness in Central American and Caribbean Athletes questionnaire from the Perception of Factors Related to Excellence in Sport questionnaire.

	Variables	Cronbach's alpha
1	Control	0.85
2	Commitment	0.85
3	Challenge	0.85
4	Total Hardiness	0.94
5	Coach	0.94
6	Environment and resources	0.86
7	Athlete	0.91
8	Family	0.84
9	Nature of training	0.85
10	Training features	0.7

NOTE: self-authored table

The table 3 [See Annexe 1] shows the results of Spearman's correlations, confirming that the variables are related between total Hardiness and five of the six social context variables. It should be noted that family does not correlate with any of them; there is no relationship with any Hardiness variable, either unifactorial or trifactorial.

The Hardiness variables that correlated with the social context are: the coach and the three Hardiness variables, as well as total Hardiness; the environment and resources, the athlete, and the characteristics of the training; Internment; the nature of the training correlates with the variable of commitment, challenge, and total Hardiness. The only variable that had no relationship was family.

Conclusions

The importance of their performance, as it helps them reinforce their commitment to the proposed objectives or goals, as well as increasing their resistance to stress, teaching them to maintain control in the most difficult moments so that they are able to face the challenges that arise.

In terms of the environment, resources, and characteristics of the training, the athlete feels calm because they have the support of federation administrators or sponsors, and in this way, the athlete is able to flow better in their preparation for the next competitions.

Another aspect that gives them peace of mind is that they have a multidisciplinary group that helps increase their chances of success. This multidisciplinary group refers to a psychologist, a physiatrist, or a mechanic who helps them recover from strenuous training. In this study, it is noteworthy that family does not figure as a very important factor in the athlete's development. It is presumed that this is because they are young adults and most of them are already independent.

Declarations**Conflict of interest**

The authors declare no interest conflict. They have no known competing financial interests or personal relationships that could have appeared to influence the article reported in this article.

Author contribution

Ponce-Carbajal, Nancy. Supervision: general leadership of the research group

Ramírez-Nava, Rubén. Conceptualization: Formulation of the objectives and general goals of the research.

Morquecho, Raquel: Review and critique, comments and editing of the manuscript. Analysis and confirmation of results, methods and analysis of conclusions.

Availability of data and materials

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Annexes

Annexe 1

Box 1

Table 3

Spearman correlations of the variables in the Hardiness questionnaires for Central American and Caribbean athletes from the questionnaire on Perception of Factors Related to Excellence in Sport




Instrument	Variable	1	2	3	4	5	6	7	8	9
1	Hardiness in Control									
2	Central American-Caribbean Athletes	.699**								
3	Challenge	.654**	.594**							
4	Total Hardiness	.897**	.842**	.852**						
5	Coach Environment	.357**	.268*	.307*	.330*					
6	Perception of and Factors resources	.359**	0.156	.539**	.405**	.495**				
7	Related to Athlete	.304*	0.256	.439**	.434**	.413**	.555**			
8	Excellence in Family	0.242	0.084	0.136	0.179	.531**	.352**	.287*		
9	Sport questionnaire. Nature of training	0.258	.321*	.343**	.349**	.464**	.435**	.620**	.326*	
10	Training features	.369**	0.219	.300*	.361**	.408**	.414**	.547**	.270*	.551**




Nota: $p < .01^{**}$; $p < .05^{*}$; Total Hardiness [HT].




Appearance of destructive pleasure through play in preschool education

Surgimiento del placer destructivo mediante juego en la educación preescolar

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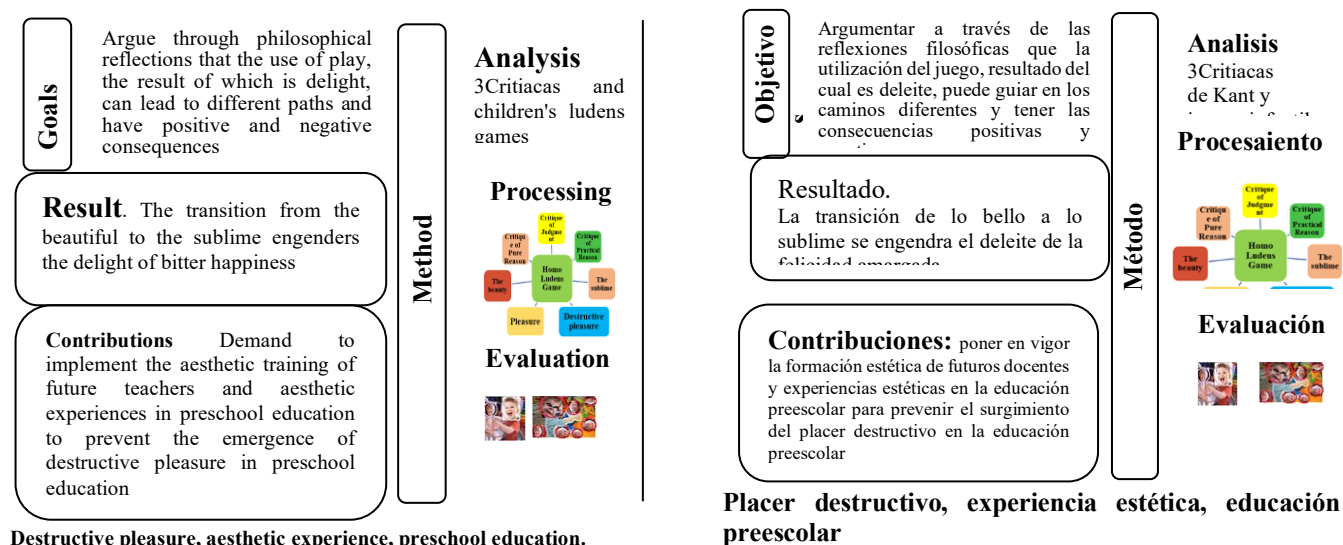


Abstract

This paper is dedicated to the need to implement the aesthetic training of future teachers and aesthetic experiences in preschool education in order to transform education. Through philosophical reflections, Kant's three Critiques are analyzed, especially "Critique of the Faculty of Judging", and the use of play in preschool education from destructive pleasure, which comes from the aesthetic faculty of judgment, first as the beautiful and then as the sublime, making a path towards delight. The analysis of children's games leads to an expression of destructive pleasure, it is a set of pleasure and displeasure, its emergence is made in children's play. Through the transition from the beautiful to the sublime, the delight of bitter happiness is engendered. A marking is made that, probably, the beautiful is made a transition to the sublime. The need for pedagogical intervention in the implementation of play to prevent the emergence of destructive pleasure in preschool education is underlined.

Resumen

El presente escrito está dedicado a la necesidad de poner en vigor la formación estética de futuros docentes y experiencias estéticas en la educación preescolar para transformar la educación. A través de las reflexiones filosóficas se analiza las tres Críticas de Kant, especialmente "Crítica de la facultad de juzgar", y la utilización del juego en educación preescolar desde el placer destructivo, que proviene de la facultad estética del juicio, primero como lo bello y después como lo sublime, haciendo una senda hacia al deleite. El análisis de los juegos infantiles conduce a una expresión de placer destructivo, es un conjunto de placer y displacer, su surgimiento se hace en el juego infantil. A través de la transición de lo bello a lo sublime se engendra el deleite de la felicidad amargada. Se hace una marcación que, probablemente, lo bello se hace una transición a lo sublime. Se subraya la necesidad de la intervención pedagógica en la implementación del juego para prevenir el surgimiento del placer destructivo en la educación preescolar.



Destructive pleasure, aesthetic experience, preschool education.

Area: Promotion of frontier research and basic science in all fields of knowledge

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Introduction

The modern trend of the transformation of education, called the New Mexican School, arouses serious scientific interest among researchers. The scientific community has paid special attention to this phenomenon, which is related to the Basic Education Plan [SEP, Plan de Estudios de Educación Básica, 2022] and the Bachelor's Degree Plan in Preschool Education [SEP, Plan de Estudios de Educación Básica, 2022]. In particular, affectionate consideration is to put into effect the aesthetic training of future teachers and aesthetic experiences in preschool education.

This article arises from the research, which, in its next phase of composing a "Chrestomathy", presents creations of academic writings and analysis of original texts on aesthetics. At this stage, Kant's three Critiques were analyzed, which in the field of research expands to encompass aspects of Nature — the beautiful and the sublime — that imply particularly complex orders of aesthetic reflection.

Kant analyzed the aesthetic faculty of judgment and its role in the process of knowledge, paying attention to play in the appearance of pleasure and displeasure, like and displeasure. The first object of the investigation is play in preschool education and the second object is the emergence of destructive pleasure. He comes from the aesthetic faculty of judgment, first as beautiful and then as sublime, making a path to supreme pleasure, to delight.

Problem

Play in preschool education can generate negative effects, which appear as pleasure in a destructive way and affect not only learning, but also the subjects of the classroom. Part of the problem is a clear definition of the concept of destructive pleasure.

Coal

Argue through philosophical reflections that the use of play, the result of which is delight, can lead to different paths and have positive and negative consequences. The negative is characterized by destructive pleasure, following the effect of bitter happiness in the process of play.

Development

Play, which is being seen as a strategy in education, is recognized by all theorists. It is difficult to describe the role of play and to imagine the formation of the human being without receiving the potential of the energy that play offers in the development of the human being. Play is presented as the only source of the emergence of physical faculties, including intellectual ones. Among the numerous theories on gambling, we are interested in the following authors: Kant, Piaget and Huizinga.

Piaget (Piaget, 1994), describing the periodization of the child's development, marked the age of 2 to 7 years as a period of "Preoperational Representations", where the transition from sensory-motor functions to internal, symbolic ones occurs, that is, to actions with mental representations of external objects, acquiring preconceptions through acquisition mechanisms, construction, accommodation and assimilation, which are connected to each other by means of transductive reasoning.

What is learned is externalized by the mere "functional pleasure" that means a pleasure to achieve simple happiness.

Huizinga [Huizinga, 2000] attributed play to the environment of culture, posing play as a type of activity and behavior of the Man who plays.

Kant [Kant I. , 2001-2006] considered play as a free game, on the one hand, of sensations and, on the other, of cognitive abilities. The former appears through excitatory action and the latter through the search for balance in imagination, understanding and the faculty of judging. The state of this game has a universal communicability, which can only be a state of mind. The game presented by Kant is pure convenience without any end.

Any game has as its goal to obtain the result. Not only the formation of knowledge, but also the development of the interest in learning depends on the final result. Interest in preschool education stimulates desire, which is in the sphere of sensitivity. Desire is transformed into a sensation, sensation gives it pleasure, pleasure sows' satisfaction, the child feels happy as the poet Julia de Burgos expresses in her "Poem lost in a few verses"

"My pupils have returned, tied to the sun of their dawn love.

Oh, love entertained in stars and doves, how happy dew crosses my soul!
Happy! Happy! Happy!
Gigantic in agile cosmic gravitations,
without reflection or anything..."

Pleasure is a feeling, positive feeling, whose range ranges from well-being to experiences of euphoria, individual fulfillment or joy. According to Kant [Kant E. , 1992], pleasure is "a state of mind, in which the representation agrees with itself, as a foundation, either simply to preserve that state, or to produce its object. If it is the former, then the judgment on the given representation is an aesthetic judgment of reflection.

If it is the latter, then it is an aesthetic-pathological or aesthetic-practical judgment. It is easy to see that pleasure or displeasure, not being modes of knowledge, cannot be defined by themselves in any way, and require to be felt, which, consequently, can only be precariously defined by the influence that a representation exerts by means of this feeling on the activity of the forces of the mind."

Now, pleasure has its opposite concept, it is called displeasure, together they are aesthetic concepts, which were investigated by aesthetic physiology [Fechner, Helmholtz and Allen]. In modern times they are objects of analysis of aesthetic neurobiology [Renschler].

Paying homage to the startling results of scientific efforts, it is implied that studies of the relationship of pleasure and displeasure with childhood play and destruction, defined as human capacity, are still on the way to being ascertained. The concept of destruction comes from the Latin term "destructio" [destruction], which means crumbling and destruction of the structure.

Destructiveness is an action of the subject aimed at any destruction, which affects either external objects, or oriented inwards, towards oneself.

The phenomenon was studied by such famous scientists as Jung, Freud and Fromm. The destructive principle is considered to be an inseparable property of the nature of Homo sapiens and is recognized as an attitude to have a conscious desire to harm for pleasure.

In determination as a concept destructive pleasure, an activity or behavior of the subject is mentioned that can provide satisfaction, remuneration or happiness and a horn of plenty of negative consequences.

According to positive psychology [Peterson, 2006], happiness and pleasure are two concepts intrinsically linked in the human experience and are two fundamental aspects in people's lives and their psychological well-being, where happiness is a permanent state of emotional and mental well-being and a broader and deeper perception of life; and pleasure is an immediate and fleeting sensation of satisfaction.

Playful activity occupies a special place in a child's life, and at preschool age it is of great importance. Play, like a mirror, reflects a small person's course of thought, the traits of their imagination, emotional sphere, manifests their versatile inner needs for communication, activity, and growth. Children are always ready to play, and the educator's task is to make sure that fun is not only entertainment, but also contributes to the solution of pedagogical problems.

Direct contact with a teacher in preschool education in the execution of the game helps the child to learn better about the subject from different fields of training. A playful game can become a negative factor in the development of the human being.

Negative development plays its role in society not only to the detriment of man, but as individuals with deviant behavior and can be seen as a statement, unless it does not point out some concrete factors, which influence the child's abilities in the learning processes.

It would not be entirely correct to lose sight of the educational processes themselves and their negative aspects in terms of the use of pedagogical means and didactic strategies, such as play in preschool education. To concretize the emergence of destructive pleasure through play in preschool education, Kant's methodology is used, schematizing the processes of perception and cognition, and two children's games are used: "The doll" and "My city".

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Epistemic processes are organized on the basis of the formation of knowledge. To form knowledge, according to Kant, our mind has three faculties: "We can reduce all the faculties of the human mind, without exception, to these three: the faculty of knowledge, the feeling of pleasure and displeasure, and the faculty of desire" [Kant E. , 1992].

These powers are linked to each other, and the division of functions, which depends on their particularities and principles, is revealed in the power to judge. The faculty of knowledge according to concepts "has its a priori principles in the pure intellect, the faculty of desire in pure reason, so that among the properties of the mind in general, there remains an intermediate faculty or receptivity, that is, the feeling of pleasure and displeasure, just as among the higher faculties of knowledge there remains an intermediate one, the faculty of judging" [Huizinga, 2000].

The faculty of judging is considered in two respects: in the first, as the faculty of reflection, in the second, as a faculty of determining, by a given empirical representation, a concept that serves as a foundation. In the first case it is the faculty of judging by reflecting, in the second, the faculty of judging determinately. To reflect [deliberate] means to compare and keep together given representations, either with others or with their faculty of knowledge, in reference to a concept possible through it.

The principle of reflection on given objects of nature is, that empirically determined concepts can be found for all natural things. Another necessary observation about the powers of judgment before starting to describe the processes. The first is an aesthetic judgment of reflection, it is considered merely as subjective, for this no definite conception of the object is required at all, and the judgment itself is not a judgment of knowledge. The second, the judgment on the conformity to the objective end of nature, is called teleological. It is a judgment of knowledge, but it belongs only to the faculty of judging by reflection.

Following Kant [Kant E. , 1992], "if empirical concepts and laws of the same kind are given, and the faculty of judging compares such a concept of the understanding with reason and its principle of the possibility of a system, then, if this form is found in the object, conformity to the end is judged objectively and the thing is called a natural end."

The aesthetic judgment of reflection can be made when there is a representation of the aesthetic [of sensation or sensibility].

The expression "aesthetic mode of representation" is entirely unequivocal if by it is meant the reference of the representation to an object, as a phenomenon, with a view to its knowledge, for then the expression "aesthetic" means that the form of sensibility [how the subject is affected] is necessarily attached to such a representation and that this is transferred. therefore, inevitably to the object [but only as a phenomenon].

As can be seen, knowledge is formed through the processes of perception and cognition [epistemic], having as objects the a priori and posteriori representations. Schema demonstrates the movements of analysis from perception as a translation of affectation from the object to the subject, and then from the cognition of the affectation of the subject to the object. Movements are based on the faculties of judging. Representations of an aesthetic mode have specific sources.

The process of perception begins with a priori representation and is presented through "contemplation" [intuitive sensitivity] as a singular representation that immediately refers to an object that affects the subject and that has its source in sensibility.

Then follows the formation of the notion [term] as "representation that refers to an object of experience in a mediate way, through other representations, and that has its source in the understanding" [Deleuze, 2008].

Later in the process of cognition as a representation of the "Idea", "a concept that goes beyond the possibility of experience and that has its source in reason" [Deleuze, 2008].

According to Deleuze [Deleuze, 2008], it is necessary to "distinguish, on the one hand, intuitive sensibility as a faculty of reception [perception], and, on the other hand, active faculties as sources of true representations".

On this it may be said that contemplation is a skill of the faculty of sensibility that can cause a sensation. After the theoretical observations, we will begin to outline the epistemic processes.

To form knowledge, it needs the object to contact the subject. The relationship between object and subject begins through the object's affectation of the subject's sense organs. The contemplation of the object appears. Contemplation presents a sensation, the relationship between them begins to be felt [the sensation of contemplation].

The union of contemplation, sensation, and the sensation of contemplation at this stage we will call Union A, which corresponds to the acquisition of the object by means of a sense. Then a representation of the sensation of contemplation is formed, and then a sensation of the representation of the sensation of contemplation.

The reciprocal union of contemplation, representation and their sensations we will call Union B, which refers to the construction of the representation of the object through the play of feelings.

At the epistemic level of perception there is a mode of the faculty of the feeling of pleasure and displeasure, its sensation and a representation of the sensation of pleasure and displeasure, which is specified the formalization of the sentimental representation. To the mutual union of pleasure and displeasure, their sensation and a representation of the sensation of pleasure and displeasure, we will assign Union C.

Formalization determines a synthesis of the sentimental representation of the object that is given to the subject and appears not as a real object, but as a phenomenon. The function of the understanding is to lead the synthesis of representations towards the formation of the notion.

Since the notion is born from meaning and has moved from the object-subject relationship, it can be described as a sensual notion [Verstandesbegriffe], formally belonging to the subjective sphere of the subject, to the phenomenon.

We carefully examine this process of play in the relationship of the child playing with the doll, which is organized into two phases of the spheres: sensory and cognitive [images 1 and 1a].

Sensory sphere:

- 1) Acquisition. Stage is Union A. The relationship between object and subject begins through the object's affectation of the subject's sense organs. Image 1.
- 2) Construction. Union Stage B. The representation of the object through the play of feelings. Impact through touch. Beautiful in the feeling of touch. Image 1a.
- 3) Formalization. Union Stage C. Sentimental representation. Formalization determines a synthesis of the sentimental representation of the object that is given to the subject Image 1st.

The child may feel pleasure. According to Burk [Burke, 1979], "the body of the doll is pleasant to the touch and this impression is given by the weakness of the resistance they offer, either to movement along the surface or to the pressure of the parts on each other". If the resistance of the first kind is negligible, such a body is called smooth, if of the second, smooth.

The main pleasure that is obtained through touch is the first or the second of these qualities, and if there is a combination of both, then our pleasure increases enormously. The child finds the doll's body to be incomparably the most pleasing or beautiful. The aesthetic faculty of judging is shown and the child has an instrument of judgment: taste. Image 1.

Box 1



Figure 1

Source: Own elaboration

Now, the object appears as a phenomenon in the subject-object relation. [Deleuze, 2008], interpreting Kant, writes: "the categories, as concepts of the understanding, are the object of a transcendental deduction, which poses and resolves the particular problem of the submission of phenomena".

Phenomena are not subjected to the synthesis of the imagination, but through this synthesis they are submitted to the legislator's understanding. According to Deleuze [Deleuze, 2008], "the understanding constitutes the laws to which all phenomena are subjected from the point of view of their form, in such a way that they "form" a sensible nature in general".

The cognitive sphere is presented with the stages of categorization, standardization, and conceptualization.

Kant writes [Kant I. , 2001-2006], "to discern whether something is beautiful or not, we refer to representation by means of the understanding to the object, for purposes of knowledge, but by means of the imagination, perhaps united to the understanding of the subject and the feeling of pleasure or displeasure of the subject".

The judgment of pleasure is, therefore, aesthetic.

That is to say, the judgment of pleasure is understood by that whose basis of determination cannot be otherwise, but subjective and beautiful. "When we say 'this is beautiful' we do not simply mean 'this is pleasant', but we aspire to a certain objectivity, to a certain necessity, to a certain universality" [Kant I. , 2001-2006].

Every relation of representations, even of sensations, may, however, be objective, and then signifies the real of an empirical representation; only is the relation to the feeling of pleasure and displeasure, by means of which nothing is designated in the object, but in which the subject feels himself as he is affected by the representation.

With the relation of the subject-object, a regular edifice is clarified by the faculty of knowledge, either in a clear mode of representation or in a confused one.

It is something completely different from becoming aware of this representation with the feeling of complacency. Here the representation is referred entirely to the subject and, by the way, to the vital feeling of this under the name of the feeling of pleasure or displeasure. These given representations, if they were rational, more referred in the judgment only to the subject and his feeling, are always aesthetic in this regard.

This stage is considered as First and corresponds to Categorization, where the phenomenon represents a synthesis of understanding and imagination. The notion-phenomenon is categorized into a "Beautiful" notion.

The other stage is an appearance of desire and the faculty of desire. So be it that the impact through touch is always recognizing the surface pleasure of the object.

In the subject-object process the synthesis of sensations and representations and the sensation of pleasure should be the same. If the pleasant surface of an object constantly changes direction, it never changes it abruptly.

The sudden use of something is unpleasant, even if the impression itself has nothing to do with violence or very little to do with it.

According to [Burke, 1979], any sudden change of this type is a kind of rise or fall in human mood. Therefore, the phenomenon of the beautiful should be the same and not be changed.

This allows the subject to have taste, from which the subject can communicate with other subjects. This process corresponds to a standardization of mental representation where aesthetic pleasure is universally obtained, speaking in the words of Deleuze: "the universality of aesthetic pleasure or the communicability of superior feeling passes through the free concordance of the faculties" [Deleuze, 2008].

It would be incomplete to end standardization with the category "beautiful", because the nature of pleasure presents itself with its opposite, unpleasure. That ambiguity is reflected in the beautiful and is called the sublime.

The transition from the faculty of judging the beautiful to the faculty of judging the sublime shows the very nature of its appearance. Kant is given the floor: "The beautiful and the sublime coincide in that both please by themselves, in that both do not presuppose a judgment of the senses or a logical-determining one, but a judgment of reflection.

Both judgments are singular and, nevertheless, judgments that are pronounced as universally valid in view of each subject, although they only appeal to the feeling of pleasure [and displeasure] and not to a knowledge of the object" [Kant I. , 2001-2006].

The differences between the judgments are: the beautiful seems to be taken for the presentation of an indeterminate concept of the intellect, and the sublime, on the other hand, of a similar concept of reason. Complacency in the sublime contains less a positive pleasure than an admiration or respect, that is, something that deserves to be called negative pleasure [pleasure and displeasure].

The sublime cannot be contained in any sensible form, but concerns only ideas of reason, which are excited and summoned to the mind precisely by this nonconformity which allows itself to be sensibly presented.

Another divergence between the judgments is at its basis: a foundation for the beauty of nature is outside us, a foundation for the sublime, on the other hand, is found only in us and in the mode of thinking, which introduces sublimity into the representation of nature and much-needed preliminary observation.

According to Kant [Kant I. , 2001-2006], "we call sublime that which is absolutely great."

The inadequacy of the greatest sensible faculty with ideas of reason is based on the following: "the feeling of the sublime is a feeling of displeasure, due to the inadequacy of the imagination in the aesthetic estimation of magnitudes with respect to the estimation by reason" [Kant I. , 2001-2006].

We call that stage Second and corresponds to the Standardization process.

Kant, following Aristotle's example, introduces the notions of synthesis and calls it categories, because only through them can something be understood. This stage refers to the process of Conceptualization.

The formation of knowledge has a part such as "logical representation", which ends with a notion. To have the understanding of something, the notion has to pass the transition and be transformed into a Concept. For example, beautiful and sublime and the transition beautiful-to-sublime. The sublime leads to the delight of happiness.

Outline of cognitive processes [1st Categorization, 2nd Standardization and 2nd Conceptualization]: 1. PrimCat, where the phenomenon represents a synthesis of understanding and imagination. The notion-phenomenon is categorized into a "Beautiful" notion. 2. SegEst that corresponds to the standardization process. 3. TerConc and corresponds to the cognitive process Conceptualization.

Box 2



Figure 2

Source: Own elaboration

Box 3



Figure 3

Source: Own elaboration

To demonstrate that pleasure is destructive, these two phases of sensory and cognitive processes are repeated. In the second case it is "Decapitation of the doll".

Happiness probably comes from the feeling of separating one object from several and obtaining the quantity that is much larger. On the one hand, happiness, on the other, is anguish and fear. These are important characteristics of the Sublime.

Image 2^aImage 3^a

The sublime leads to the delight of bitter happiness

Box 4



Figure 4

Source: Own elaboration

Image 4^a

In the second game, the same scheme of epistemic, sensory and cognitive processes is shown in two phases: construction and destruction with the use of the hammer. The second game is "My city" [Professional Practice activity], Objective: to know the geometric figures. Build the city with geometric figures. Image 5, 5th. Destructive pleasure 5 b. The separation of objects from several and obtaining the quantity that is "much greater" 5 c. The sublime leads to the delight of bitter happiness 5 d. From the Sublime to the Beautiful 6

Box 5



Image 5a



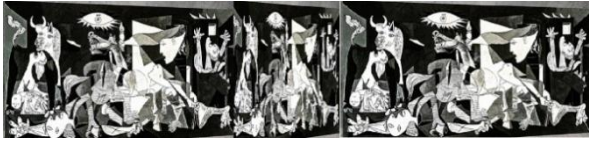
Image 5b



Image 5c

Image 5 d
Figure 5

Source: Own elaboration

Box 6**Figure 6**

Guernica is a painting by Pablo Picasso

[Picasso, 1992]

Conclusions

Through philosophical reflections, the following was argued: the use of play, an aesthetic result of which should be delight and happiness, can guide us on different paths and have positive and negative consequences.

The negative is characterized by destructive pleasure, following the effect of bitter happiness in the process of play. There is a vital need for pedagogical intervention in the implementation of play and to put into effect the aesthetic training of future teachers and aesthetic experiences in preschool education to prevent the emergence of destructive pleasure in preschool education.

Declarations**Conflict of interest**

The authors declare no interest conflict. They have no known competing financial interests or personal relationships that could have appeared to influence the article reported in this article.

Authors' Contribution

Konstantinovich-Fokin, Sergei-: Contributed to the project idea and research method. He supported the design of the field of the analysis. He carried out the data analysis and systematization of results, as well as writing the article. He supported the design of the images of the article. He carried out the data analysis and the systematization of results, in addition to writing the article. He participated in the search and translation of the works of theorists.

Robles-Cardoso, Claudia Elena: Carrying out the systematization of the background for the analytical work. He supported the design of the instrument on the right of the human being to live in beauty. It also contributed to the foundation of the need for the aesthetic training of future teachers.

Aguilar-Romero, Martha Patricia: It supported the achievement of the results of the professional practice of teachers in Initial Training, as well as the realization of the systematization of the same. He supported the design of the analysis instrument. He also contributed to the writing of the article.

Availability of information and materials of the Professional Practice

Plans of the activities of the teachers in Initial Training, the educator's diary, in magazines with the directors and parents.

Results

The transition from the beautiful to the sublime engenders the delight of bitter happiness.

Contributions

Demand to implement the aesthetic training of future teachers and aesthetic experiences in preschool education to prevent the emergence of destructive pleasure in preschool education.

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Relationship between impulse control and addiction, emotional intelligence, and academic performance in university students

Relación entre control de impulsos y adicciones, inteligencia emocional y desempeño académico en universitarios

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Abstract

The main purpose of this study was to examine the relationship between impulse control and addictions, emotional intelligence, and academic performance among university students from various public universities in the state of Sonora. This is a quantitative, non-experimental, cross-sectional, and correlational study, using a non-probability convenience sampling method. The instruments used were the MULTICAGE-CAD4 test, the TMMS-24, and a questionnaire to collect academic information. The results showed that lower impulse control is associated with decreased academic performance and emotional clarity. It was concluded that there is a significant relationship among impulse control, addictions, emotional intelligence, and academic performance. These three variables are correlated with the first two having a direct effect on the latter. Poor impulse management negatively impacts students' academic achievement.

Resumen

El siguiente estudio tuvo como propósito principal conocer la relación que existe entre el control de impulsos y adicciones, la inteligencia emocional y el desempeño académico en estudiantes universitarios de diferentes universidades públicas del estado de Sonora. Éste es un estudio cuantitativo con diseño no experimental de corte transversal y correlacional, utilizando un muestreo no probabilístico por conveniencia. Los instrumentos utilizados fueron el test MULTICAGE-CAD4, el TMMS-24 y un cuestionario para recolectar la información académica. Los resultados mostraron que ante un menor control de impulsos, tanto el promedio como la claridad emocional se ven disminuidas, concluyendo que la relación entre el control de impulsos, las adicciones, la inteligencia emocional y el desempeño académico es existente, habiendo correlación entre estas tres variables, y las primeras dos teniendo efecto en la última. Al no manejarse óptimamente los impulsos, el promedio académico se ve afectado negativamente.

Relationship between impulse control and addiction, emotional intelligence, and academic performance in university students		
Objectives	Methodology	Contribution
To identify the relationship between impulse control and addictions, emotional intelligence, and academic performance in university students through measurement instruments, in order to establish associations among these variables within this population.	This study was conducted using a quantitative approach, with a non-experimental and correlational design. The sample consisted of 70 university students. The instruments used were the MULTICAGE-CAD4 test, the TMMS-24, and a questionnaire designed to collect academic information.	The study concluded that there is a significant relationship among impulse control, addictions, emotional intelligence, and academic performance

Relación entre control de impulsos y adicciones, inteligencia emocional y desempeño académico en universitarios		
Objetivo	Metodología	Resultados
Conocer la relación entre el control de impulsos y adicciones, la inteligencia emocional y el desempeño académico en estudiantes de universidad a través de instrumentos de medición con el fin de asociar estas variables en esta población.	El presente estudio se desarrolló bajo un enfoque cuantitativo, con un diseño no experimental y de tipo correlacional. La muestra fue de 70 estudiantes universitarios. Los instrumentos usados fueron: el test MULTICAGE-CAD4, el TMMS-24 y un cuestionario para obtener información académica.	Se concluyó que que la relación entre el control de impulsos, las adicciones, la inteligencia emocional y el desempeño académico es existente

Impulse control, Emotional intelligence, Academic performance

Control de impulsos, Inteligencia emocional, Desempeño académico

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Introducción

The aim of this study is to analyse the relationship between impulse control and addiction, emotional intelligence and academic performance in university students. The goal is to determine whether there is a significant association between these three variables taken together. To address this purpose, the article is structured as follows: first, a general introduction that includes some background information and reflection on the problem; second, the methodology used; and third and last, the results obtained, accompanied by conclusions based on the findings.

Addictions have accompanied human beings throughout history. According to Rivadeneira et al. [2020], some of the substances historically used by people include alcohol, coca leaves, psychoactive preparations, potions, marijuana, opium for pain relief, and tobacco, among others.

In Cuba, a study defined addictions as the inability to control an activity, leading to compulsive behaviours that negatively affect a person's life. These addictions are not limited to substance use, but can also manifest as compulsive behaviour related to the activity itself [Mendoza et al. 2015].

Impulse control and addictions in university students are factors that can predispose them to falling into some type of addiction. Parra and Góngora [2020] define impulse control disorders [ICD] as 'behaviours performed in an impulsive-compulsive manner that can interfere with the main areas of a person's life, to the point of causing physical, psychological, social, legal or financial problems' [p. 1].

Studies affirm that there is a correlation between student grades and emotional intelligence. They point out that students who perceive, assimilate, understand, and regulate their emotions better tend to achieve higher academic performance [López and Gutiérrez, 2019; Gutiérrez, 2025].

The Pan American Health Organisation [PAHO, 2023] reports that, in the Americas, the treatment gap for affective, anxiety and substance use disorders is 73.5%.

This percentage breaks down into 47.2% in North America and 77.9% in Latin America and the Caribbean [LAC]. In these regions, it is estimated that approximately 100,000 deaths by suicide occur each year, some of them self-inflicted. In Mexico, for example, suicide cases increased from 7,896 in 2021 to 8,432 in 2022. In addition, the National Institute of Statistics and Geography [INEGI, 2023] reports that 66.9% of people over the age of 12 have experienced depression at some point, and a similar percentage have experienced depressive episodes several times a year.

PAHO [2023] also estimates that 5.6 million people in Latin America suffer from some type of drug-related disorder, whether it be dependence or another condition that affects their health over time. By linking these data, it is possible to estimate the number of people at risk of health problems resulting from substance use [NOH-MOO, 2025].

The University of Guadalajara indicates that one of the warning signs in young drug users is poor academic performance. This coincides with the findings of [Valverde and Farias, 2009], who reported that more than 65% of the students surveyed had consumed alcohol and 42.3% had consumed cannabis. They concluded that the use of drugs and psychostimulants negatively influences academic performance.

To address the social problem of substance use and addictive behaviours in university students, it is essential to promote values and strengths both within the university and in other settings, including expectations, beliefs, advertising, and family and social customs [Pedrero et al. 2007].

The modern world presents university students with a more complex challenge than it seems. Global development and its components put pressure on this population, pushing them to their physical and psychological limits and affecting their emotional stability.

Emotional intelligence, at a moderate to high level, helps to manage these situations and increases the likelihood of quality professional development [Barrera et al., 2019]. Another study conducted in Spain supports this idea, concluding that it is necessary to promote emotional intelligence education among university students to improve personal well-being [Cejudo et al., 2016].

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Based on the literature review, it was found that existing research addresses one or two of these variables, but none integrates all three into a single analysis. This study seeks to fill that gap, contributing to scientific knowledge and supporting the continuous development of strategies that promote both educational quality and the overall well-being of university students. If the results are appropriate, they could help to better understand the context and develop more effective strategies.

Methodology

Design

This study was conducted using a quantitative approach, as numerical data are used for statistical analysis and pattern identification. It presents a non-experimental, correlational design, as it describes the variables at a single point in time.

Participants

A non-probabilistic convenience sampling was used, with a population of 70 active university students from universities in Ciudad Obregón, Sonora. The participants belonged to programmes in the areas of health sciences and humanities.

Instruments

The MULTICAGE CAD-4 questionnaire was used to assess impulse control and addictions [32 items, dichotomous Yes/No scale, reliability > 0.7]. The TMMS-24 measured emotional intelligence through three subscales [24 items, Cronbach's alpha > 0.85]. Finally, a questionnaire designed by the authors collected academic averages from primary school to university.

Procedure

After reviewing the literature, the title of the study was assigned, the problem was defined, and both the variables and the measurement instruments were determined. The instruments were digitised using the Google Forms platform. Once the materials were ready, permissions were requested from the educational institutions and the application schedule was coordinated.

Data collection was carried out by visiting classrooms and providing printed and digital QR codes so that students could access and complete the questionnaires from their electronic devices. The purpose of the study was explained verbally, and a written informed consent form was presented, emphasising the confidentiality of the data and voluntary participation. Participants could choose not to respond if they wished.

Once the data was collected, descriptive and correlational analyses were performed using SPSS 28.

Results

This study focuses on exploring the relationship between impulse control, emotional intelligence, and academic performance in higher education students. Understanding how these variables interact is essential for the development of effective teaching and learning strategies. This chapter presents the results obtained from the instruments applied and their analysis within the study population.

On the compulsive spending scale, 62.86% of students do not present the problem, while 1.4% show a confirmed presence of it, as shown in Table 1.

Box 1

Table 1

Impulse control on the compulsive spending scale

Level of presence	n= 70
In the present	80,0% [56]
Possible presence	11,4% [8]
Highly probable presence	5,7% [4]
Confirmed attendance	2,8% [2]

With regard to the compulsive spending scale, the findings indicate that 62.86% of participants fall into the non-present category, suggesting that there are no significant indicators of problematic behaviour in this area. In contrast, a small proportion of students [1.4%] show a confirmed presence of compulsive spending behaviour, as detailed in Table 2.

Conclusion

The relationship between impulse control, addictions, emotional intelligence, and academic performance is evident, as these variables are interlinked and significantly influence school performance.

Inadequate management of emotions, especially in terms of how clearly they are identified and regulated, can negatively affect academic performance, while lack of impulse control is also associated with a decrease in grade point average. Furthermore, these variables not only affect academic performance, but are also interrelated, so that poor emotional management can lead to a reduced ability to control impulses.

On the other hand, the results of the compulsive spending scale show that the greater the presence of this problem, the lower the academic average. This finding coincides with that of Mendoza et al. [2015], who point out that excessive use and abuse of mobile devices can become a latent addiction, significantly affecting school performance.

Declarations

Conflict of interest

The authors declare no conflict of interest. They have no known competing financial interests or personal relationships that could have appeared to influence the article reported in this article.

Author contribution

Bojórquez-Díaz, Cecilia Ivonne: Methodology and work supervision.

Peralta-Zapien, Alejandro: Contributed to the idea and execution of the project.

Quintana-López, Victor Alexander: Supported the results.

Sotelo-Castillo, Mirsha Alicia: Reinforced the methodology.

Availability of data and materials

The data from this research are available.

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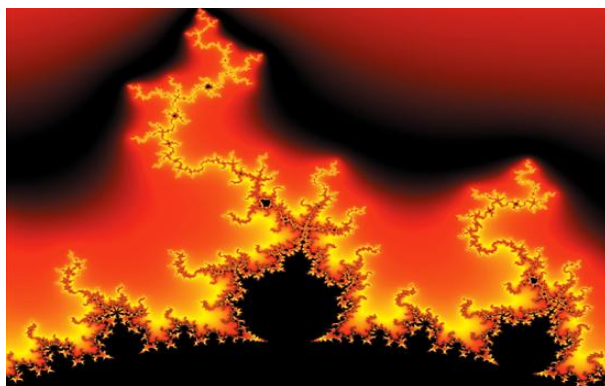


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