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SUSTAINABLE EDUCATIONAL TRANSFORMATION: TEACHER PROFESSIONALIZATION, SCHOOL CULTURE AND LEARNING COMMUNITIES AS CENTRAL CATEGORIES OF A GROUNDED THEORY

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ABSTRACT

This study analyzes the relationship between teacher professionalization, school culture, and learning communities as central categories to understand sustainable educational transformation in school contexts. Based on semi-structured interviews with teachers from a public school in Antioquia, Colombia, and qualitative analysis using grounded theory and ATLAS.ti 25, patterns and relationships were identified to build an emergent theoretical model. The findings reveal that teacher professionalization is the initial driver of change, as it integrates technical, socio-emotional, and ethical competences; school culture operates as a mediator and institutionalizer of the process through participatory and collegial practices; and learning communities emerge as a strategic outcome that transforms individual capacities into collective knowledge. Visual analysis through semantic networks, Sankey diagrams, and sociograms illustrated the directionality of flows (TP → SC → LC), confirming that teacher professionalization first impacts school culture and subsequently the consolidation of professional communities. These conclusions align with previous research emphasizing the need to integrate professional development with collaborative institutional structures to achieve sustainable change (Darling-Hammond et al., 2017; Bolívar, 2020; Stoll et al., 2006; Vescio et al., 2008). The study recommends designing integrated ecosystems of teacher development that articulate professional training with participatory school cultures and sustainable learning communities, in accordance with international frameworks such as UNESCO's 2030 Agenda. This approach conceptualizes educational transformation as a relational process in which teacher professionalization drives, school culture institutionalizes, and learning communities sustain change.

KEYWORDS: Teacher Professionalization, School Culture, Learning Communities, Grounded Theory, Sustainable Educational Transformation.

1. INTRODUCTION

From ancient times to the present day, education has been recognized as a fundamental pillar in the development of communities, not only in terms of the transmission of knowledge, but also as a cultural and social process that shapes the ways of life of societies (UNESCO, 2015). In this sense, the school stands as a privileged setting where pedagogical practices, interpersonal relationships, and institutional dynamics converge that, as a whole, constitute the school culture (Elías, 2015).

In the context of contemporary educational challenges—globalization, technological acceleration, and demands for comprehensive training—the need to strengthen teacher professionalization as a continuous process that transcends mere technical training and is oriented towards the development of socio-emotional, ethical, and collaborative competencies is becoming increasingly evident (Day & Gu, 2014; Darling-Hammond et al., 2017). This process contributes to the construction of a new profile of teacher capable of facing the challenges of increasingly diverse classrooms, promoting reflective and transformative practices (Fullan, 2021).

At the same time, the concept of the learning community emerges, understood as a network of interaction between educational actors who share practices, knowledge, and reflections with the purpose of generating pedagogical innovation and institutional transformation (Beltrán et al., 2015; Wenger, 1998). These communities, by articulating teacher training and school culture, favor processes of participation, collective decision-making, and resignification of learning as a social experience.

From the interpretative paradigm of the social sciences (Weber, 2004/1922; Kuhn, 2000), investigating these phenomena requires a qualitative approach that accounts for the beliefs, values, and practices of the actors involved. Grounded theory is presented, as well as an ideal methodological strategy, since it allows the construction of emergent explanations from the data collected in the interaction with the participants (Strauss & Corbin, 1990; Corbin, 2016). The use of digital tools such as ATLAS.ti enhances this process, enabling the codification and analysis of conceptual relationships that lead to the generation of theory based on the reality experienced by teachers (Flick, 2004).

This article explores the interactions between teacher professionalization, school culture, and learning communities in an official educational institution in Antioquia, Colombia, based on semi-structured interviews with primary and secondary

school teachers. The analysis seeks to generate a theoretical construct that contributes to the understanding of sustainable educational transformation, in line with the purposes of inclusive and quality education set out in the 2030 Agenda of the Sustainable Development Goals (UN, 2015).

2. METHODS

The beginning of every research process is given by the appearance of triggers that are detected in the processes in which it is immersed, these triggers generate interest generating questions which makes questions about how the observed phenomena are developed, there appear topics on which to deepen to understand the phenomenon to be studied, relying on the concepts of Paradigm which allowed us to have a focus on the idea under study, taking some premises given by Kuhn (2000), and specifically in the Naturalistic-interpretative paradigm in social sciences according to conceptualizations given by Weber (Weber, n.d., as cited in Burgardt, 2004, p.22) where he states that this paradigm analyzes the relationship existing in the processes of studies on human beings, the relationships that occur between them, the way in which each one interacts according to their beliefs, values, principles and expectations towards life, centered on the "human factor".

Once the previous concepts were clear, the design phase appeared from the methodology, which allowed from the phenomenological philosophical perspective that can also be called the Hermeneutic Phase, which allows to go from something intangible such as what was expressed verbally by the interviewees and take it to a hermeneutical process such as the text, it also allows access to the underlying meaning of the participants' experience in order to understand the processes studied as proposed (Husserl, 1962, p. 103) allows us to apprehend from each perspective of the informant actors, in addition to the experiences, feelings or emotions, knowledge or knowledge and analyzed from the philosophical hermeneutics proposed by Gadamer (1994) who indicates that not only the answers given by the informant should be taken into account, but also the answers given by the informant. but also the way in which these responses are given, the gestures, expressions, etc. as cited in (Aguilar, 2004, p 61).

When arriving at the bibliographic tracing processes, it relied on the logic of the PRISMA method to define which documents were used in the thesis as defined by (Singer & Alexander, 2017), all the archive of the information present in the literature allowed to define 3 a priori categories,

which were TEACHER PROFESSIONALIZATION, SCHOOL CULTURE AND LEARNING COMMUNITIES which framed in their definitions the aspects observed in the initial triggers raised in the research, within the entire process of bibliographic search, based on the information obtained supported by the Grounded Theory according to Corbin (2016), triangulated with each of the categories present in the research, it was possible to generate concepts that led to have a basis for a theoretical construct supported by the findings of the study because the grounded theory feeds precisely on those judgments derived from the social actors, mediated by the circular process of the research

process, of the observation of the attitudes taken by the interviewees, together with the documentary findings produced by the literature review.

Once the literature review process is completed, the fieldwork is carried out based on the key informants defined for the study, being clear that in the Grounded Theory the number or quantity of people involved in the study is not relevant since each of them and the information they give, it is of great importance, but the saturation of each of the categories with a correct number of interviews must be guaranteed, in addition to being continuously validated by the constant comparison method (MCC) as proposed (Flick, 2004).

Table 1. Information Processing in ATLAS. IT.
Note. Own Elaboration (2025)

Stages	Grounded Theory	Process with ATLAS.ti	Process	Description
I	Research Design		Formulation of the research problem	Formulation of the study problem, constant review by the researcher, as well as literature.
			Selection of interviewees	Applied defined selection criteria
II	Data collection		Interview Application	20 teachers from the institution that served as the context of the object-study were interviewed
III	Data Classification	Initiate the use of ATLAS.ti as a qualitative data analysis tool	Transcript of the 20 interviews	Transcription of each of the interviews was made, thus coding key elements that emerged from each of them
			The Hermeneutical Unit will be created	The primary elements were included for subsequent analysis, the theoretical saturation was validated, the hermeneutic unit included (20) primary elements
IV	Data Analysis	Textual level	Appointment Segmentation	We worked with the twenty (20) primary elements, pointing out the most significant text elements and relevant quotes
			Open Coding	The concepts and ideas that emerge from the aforementioned quotations were pointed out
			Writing memos	They were written throughout the data analysis, both textually and conceptually
		Conceptual Level	Axial Coding	The codes were linked inductively and deductively for subsequent grouping
			Selective Coding	Each category was selected to be the central one and the others were related to it, to create a map of relationships between elements to formulate a narrative line
			Review	All the work done with the twenty (20) primary elements was reviewed
			Conceptual Network Development	The code families of both primary and secondary nodes and their respective links were created
Preliminary construction of the theory	The first conclusions were drafted, reviewing and integrating the memoranda			
V	Confrontation of literature and the construction of theory	ATLAS.ti process completed	Review of emerging theory, conclusions, discussions	All conclusions have been written and will relate to the literature reviewed. The emerging theory will be reviewed again to highlight nuances

Within the process of defining the scenario and the key informants, an Official Educational

Institution was taken that offers Preschool, Basic and Secondary Academic care and training, attached to the Ministry of Education of Antioquia, has a total of 114 teachers who are part of the Institution's teaching staff, a differentiating filter was applied between primary and secondary teachers and the number of considerable teachers for the study, which provide their academic services at different times (morning or afternoon) taking into account ten teachers for each day, bringing the number of participants to 20 to apply the instrument of Semi-Structured Interview, recording in audio files each of these interviews, tabulating them and assigning them codes according to the role played and the selection criteria fulfilled by said interviewee, before presenting the interview, he filled out and signed the informed consent generated by the Tecnológico de Antioquia for this purpose, upon completing the 20 interviews and having the encoded audio file of each one, the Transkriptor software was used, which allowed these audio files to be converted to text to be later used in the ATLAS.ti 25 Software for the entire analysis process.

To be clear about the sequence of processes carried out in the analysis and processing of information, the preceding table can be observed

3. RESULTS

The main goal of this study is focused on generating theoretical constructs based on the present implications of teacher professionalization in the transformation of school culture from the learning community, this was carried out using ATLAS.ti to carry out the entire process of coding and analysis, starting from the premises of the theory founded by (Strauss & Corbin, 1990) and from the more general coding or Open coding, through a more detailed one called Axial coding and ending with a much more specific one called Selective coding, making it clear that the codes allow the identification of relevant patterns or concepts within the analyzed material, all of the above supported by a process of binary operations carried out by the software, and from which other concepts emerge as explained by (Jaimes, 2022) we have the Density (D) which is the number of links that a code has with other codes, it is sought that this number of Density is greater than 1 ($D > 1$), together with the above to another concept that is rooting that indicates the number of times that a code is mentioned in the text of the transcriptions of the recordings of the interviews, it is also expected that this number will be greater than 1.

From a qualitative perspective and under the grounded theory approach, the phenomenon of

teacher professionalization was analyzed in its articulation with the processes of transformation of school culture, taking as an empirical basis a system of categories codified in ATLAS.ti. The information analyzed was constructed from interviews applied to educational actors and categorized into three fundamental dimensions: teacher professionalization, school culture and learning community.

3.1. Open Coding Phase (Identification of Categories)

Within the process of using ATLAS.ti, it must be clear as indicated (ATLAS.ti, 2024) that open coding is the first step in the analysis of qualitative data, where relevant concepts and categories are identified in the data. It involves reading the data carefully, creating codes that capture the relevant aspects and meanings of the data

In this phase, based on the code system provided, the following are identified: Three main main categories a priori with high conceptual roots, being Teaching Professionalization the most robust with a total of 140 citations, distributed in subcategories such as Teacher framework and teacher training, Soft skills in the classroom, Teaching career y Teacher Profile. This finding suggests that teachers recognize their role beyond the technical, highlighting ethical, attitudinal, and social elements that configure a new professional profile with a humanistic and transformative approach.

In the dimension of School Culture, which reached 123 citations, fundamental aspects such as the Social and cultural transformation of the school, the Promotion of participatory processes and the Collegial decision-making, which reveals that the school is not only a space for the transmission of knowledge, but also a scenario of social interaction where the relationships between institutional actors are resignified. Forms of communication, collaborative practices and the use of technologies emerge as challenges and opportunities in the redefinition of school culture.

For its part, the category Learning Community, with 69 citations, although it is less rooted, acquires strategic importance as an emerging expression of the two previous categories. Through codes such as Interaction between networks of educational actors y Pedagogical practice, it is evident how collaboration between peers, shared reflection and situated learning are effective strategies to face the challenges of the contemporary school context.

The above can be seen more clearly from the ATLAS.ti work environment:

Table 2: Rooting and Density in Categories and Subcategories.
 Note. Data Generated with ATLAS.ti- In original Spanish language

Main Category	Subcategories	Rooting	Density																					
Learning Community	School context, Interaction networks actors, Pedagogical practice, Everyday processes, Social representation	69	>1 Σ All Codes (SC) = 13																					
<table border="1"> <thead> <tr> <th>Nombre</th> <th>Enraizamiento</th> <th>Densidad</th> </tr> </thead> <tbody> <tr> <td>COMUNIDAD DE APRENDIZAJE</td> <td>69</td> <td>6</td> </tr> <tr> <td>Contexto de la escuela</td> <td>5</td> <td>2</td> </tr> <tr> <td>Interacción Redes actores educativos</td> <td>43</td> <td>2</td> </tr> <tr> <td>Práctica Pedagógica</td> <td>21</td> <td>5</td> </tr> <tr> <td>Procesos Cotidianos dentro de la escuela</td> <td>3</td> <td>2</td> </tr> <tr> <td>Representación social del rol del maestro</td> <td>2</td> <td>2</td> </tr> </tbody> </table>				Nombre	Enraizamiento	Densidad	COMUNIDAD DE APRENDIZAJE	69	6	Contexto de la escuela	5	2	Interacción Redes actores educativos	43	2	Práctica Pedagógica	21	5	Procesos Cotidianos dentro de la escuela	3	2	Representación social del rol del maestro	2	2
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Práctica Pedagógica	21	5																						
Procesos Cotidianos dentro de la escuela	3	2																						
Representación social del rol del maestro	2	2																						
School Culture	Stereotypes, Participatory processes, Learning networks, Collegial decision-making, Social transformation	123	>1 Σ All Codes =10																					
<table border="1"> <thead> <tr> <th>Nombre</th> <th>Enraizamiento</th> <th>Densidad</th> </tr> </thead> <tbody> <tr> <td>CULTURA ESCOLAR</td> <td>123</td> <td>5</td> </tr> <tr> <td>Promoción de procesos participativos</td> <td>25</td> <td>2</td> </tr> <tr> <td>Redes de aprendizaje para mejorar prácticas pedagógicas</td> <td>3</td> <td>2</td> </tr> <tr> <td>Toma de decisiones colegiada</td> <td>39</td> <td>2</td> </tr> <tr> <td>Transformación social y cultural de la escuela</td> <td>62</td> <td>4</td> </tr> </tbody> </table>				Nombre	Enraizamiento	Densidad	CULTURA ESCOLAR	123	5	Promoción de procesos participativos	25	2	Redes de aprendizaje para mejorar prácticas pedagógicas	3	2	Toma de decisiones colegiada	39	2	Transformación social y cultural de la escuela	62	4			
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Toma de decisiones colegiada	39	2																						
Transformación social y cultural de la escuela	62	4																						
Teaching Professionalization	Soft Skills, Teacher Framework, Teacher Profile, Teaching Career	140	>1 Σ All Codes = 6																					
<table border="1"> <thead> <tr> <th>Nombre</th> <th>Enraizamiento</th> <th>Densidad</th> </tr> </thead> <tbody> <tr> <td>PROFESIONALIZACIÓN DOCENTE</td> <td>140</td> <td>1</td> </tr> <tr> <td>Habilidades blandas dentro del aula</td> <td>20</td> <td>1</td> </tr> <tr> <td>Marco Profesional y formación docente</td> <td>78</td> <td>1</td> </tr> <tr> <td>Perfil del maestro</td> <td>22</td> <td>3</td> </tr> </tbody> </table>				Nombre	Enraizamiento	Densidad	PROFESIONALIZACIÓN DOCENTE	140	1	Habilidades blandas dentro del aula	20	1	Marco Profesional y formación docente	78	1	Perfil del maestro	22	3						
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Marco Profesional y formación docente	78	1																						
Perfil del maestro	22	3																						

Having clear the subcategories that emerged in open coding, they are tabulated so that they can be better identified:

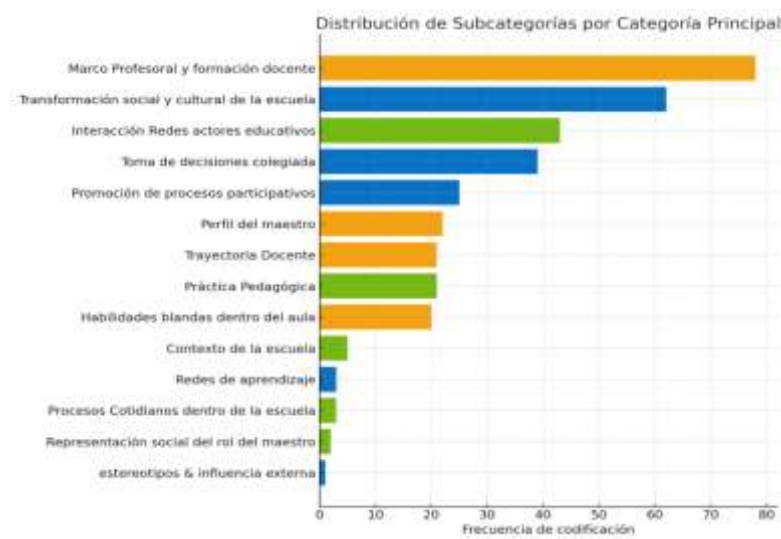


Figure 1: Distribution Subcategories.

Note. Data Generated with ATLAS.ti. In original Spanish language

Initial Perception By means of the concept cloud visualization tool, which are focused on the

repetitions that occur of each of them, this generates that as a repetition appears, the size of that concept is maximized in the graph, increasing the proportion of said letter significantly, this allows to have an initial perception of the most relevant categories and subcategories for the study, applying a technique of generation of inscribed rings (inside) where the most

relevant and significant concepts are grouped, which are interpreted following the orientation of the hands of the clock joining them to other concepts, which by giving it a coherent grammatical and writing sequence allows to generate initial or a priori ideas about the results generated in the interviews.



Figure 2: Concept Cloud Visualization

Note. Own elaboration (2025). In original Spanish language.

The following a priori premises can be extracted from the figure:

- The way in which learning processes are developed in educational institutions creates a culture applied by the communities.
- Teacher training allows them to have tools to deal with classroom situations.
- The processes carried out by the community allow them to be used as a framework for learning in future situations.

This shows initially that the categories presented a priori are not far from what is generated by the information collected by the key informants.

Axial Coding Phase As indicated by (ATLAS.ti, 2024) among the different methodologies used by qualitative researchers, grounded theory can be adapted to generate new theories about the phenomenon studied, within qualitative research that embraces the grounded theory method, axial coding is the second part of the coding process and seeks to organize the initial codes into categories so that a theory can be developed through empirical analysis.

During this phase, causal relationships were established between the dimensions analyzed. The Teacher professionalization as the factor that energizes cultural transformations, while the School Culture it represents the context in which these transformations are expressed, adapted and consolidated. In turn, the Learning Community it is configured as an active consequence, capable of sustaining, reproducing and enriching institutional change.

Consequently, with the variables used to identify each of the codes used in the analysis, it is shown with the accompaniment of semantic networks where the support of ATLAS.ti allows to relate each main concept representing in these networks the objectives set by the author and thus be able to build a conceptual matrix which leads to be able to interpret the phenomenon studied inductively. To generate it, two-dimensional designs of nodes and labeled links were used throughout the development of the heuristic process, relying on the researcher's field diary, also with the transcriptions of the recordings of the interviews.

All of the above emerged from the following reports generated by ATLAS.ti where the categories

and the subcategories that are related to them were grouped:

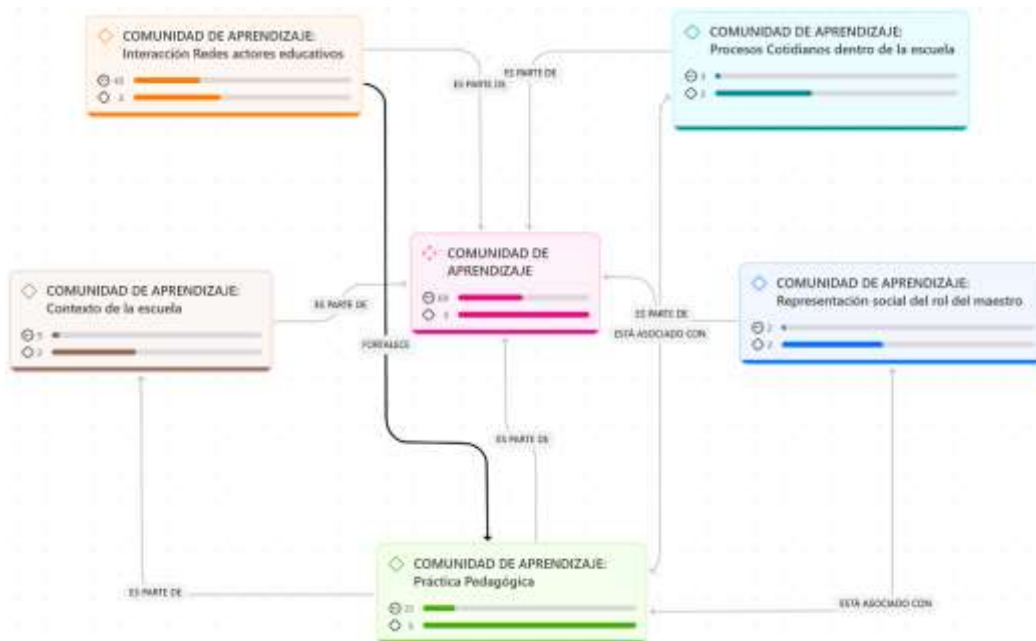


Figure 3: Emerging Category: Learning Community.
 Note: Semantic Network Built with ATLAS.ti- In original Spanish language.

This input allows us to clearly identify subcategories associated with the main emerging category "Learning Community" generating the following: interaction in networks of educational actors, daily processes within the school, school context, social representation of the teacher's role and pedagogical practice, making clear these relevant aspects that support the concept of learning community, validating what was found in the

literature review as components that are part of the learning communities.

Using the Sankey diagram, to identify the relationships between the emerging category Learning Community and each of its subcategories, and how this concept was touched by the key informants in the development of the interviews, it can be validated in the following graph:

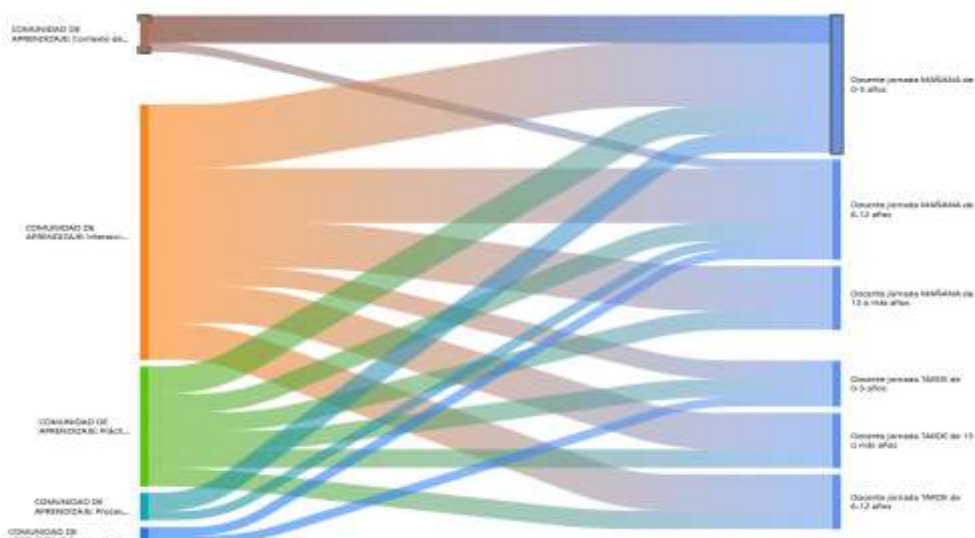


Figure 4: Relationships between Subcategories in Learning Community and Key Informant Responses.
 Note: Sankey Diagram Built with ATLAS.ti- In original Spanish language

This validates that the aforementioned concepts were addressed by a large part of the interviewees,

divided between morning and afternoon, according to the selection criteria used and also between the years of service provided to the exercise of the role of

teacher, in addition the relationships with the other categories are visualized, this can be revalidated in the sections of the interviews as the following:

Table 3: List of Key Informant Responses Regarding Learning Community Category.

Note: Own elaboration based on ATLAS.ti (2025)

ID	Contenido de cita	Códigos	Referencia
1:7	Si, todos han marcado en comunidades de aprendizaje. Creería Luis que si no, no, si no formamos comunidad. Es imposible avanzar de forma individual, no lo estamos haciendo bien. Hoy no lo estamos logrando, entonces estamos, estamos, estamos llevando a cabo comunidades de aprendizaje en torno a la reunión de maestros.	COMUNIDAD DE APRENDIZAJE: Interacción Redes actores educativos	33 - 33
2:13	hay una buena ruta y la seguimos a cabalidad para un mejoramiento continuo.	COMUNIDAD DE APRENDIZAJE: Contexto de la escuela COMUNIDAD DE APRENDIZAJE: Interacción Redes actores educativos CULTURA ESCOLAR: Promoción de procesos participativos CULTURA ESCOLAR: Transformación social y cultural de la escuela	46 - 46
2:15	El hecho de mediar, visualizar mejores maneras, de transmitir conocimientos	COMUNIDAD DE APRENDIZAJE: Interacción Redes actores educativos COMUNIDAD DE APRENDIZAJE: Práctica Pedagógica CULTURA ESCOLAR: Promoción de procesos participativos	50 - 50
2:20	la forma en que la teoría se da en el aula y que se convierten en una realidad fuera de ella por el acompañamiento constante a los jóvenes.	COMUNIDAD DE APRENDIZAJE: Procesos Cotidianos dentro de la escuela CULTURA ESCOLAR: Promoción de procesos participativos CULTURA ESCOLAR: Redes de aprendizaje para mejorar prácticas pedagógicas	60 - 60
2:24	Toda esta gama de situaciones da da como conclusión o como mejora en el proceso. Y da un enriquecimiento integral en todos los aspectos. Si hay un buen ambiente de aula, si hay un buen ambiente en un descanso,	COMUNIDAD DE APRENDIZAJE: Contexto de la escuela COMUNIDAD DE APRENDIZAJE: Práctica Pedagógica	68 - 68
12:11	Un docente siempre tiene que estar presente en su comunidad, fortalecer, generar cambios. Es decir, ustedes son capaces de realizar esto y tratar de proporcionar la mayor cantidad de herramientas posibles para esta comunidad	COMUNIDAD DE APRENDIZAJE: Representación social del rol del maestro CULTURA ESCOLAR: Transformación social y cultural de la escuela PROFESIONALIZACIÓN DOCENTE: Marco Profesoral y formación docente	58 - 58
18:6	La pandemia también hizo un antes y un después en cómo se afrontan las situaciones. A nivel familiar en ese momento nos damos cuenta que están muy solos los estudiantes, entonces necesitan que nosotros, aparte de ser maestros, también escuchemos, también orientemos, entonces nos toca en ese momento no sólo darlo académico, sino un montón de otras cosas para poder que ellos se orienten a nivel personal, académico y social. Social.	COMUNIDAD DE APRENDIZAJE: Práctica Pedagógica	32 - 32

Moving on to the second main emerging category "School Culture" in the input shown and generated by ATLAS.ti, it shows that this category is related to the emerging concepts of social and cultural transformation of the school, promotion of participatory processes, learning networks to improve pedagogical practices and collegial decision-making, reinforcing what was shown in the

open coding where it was indicated that the concept of school culture is related to the form of how the members of the educational community interact, how they generate collective and participatory learning processes in order to improve classroom dynamics, pedagogical practices and therefore generating an improvement in the social processes that surround the school.

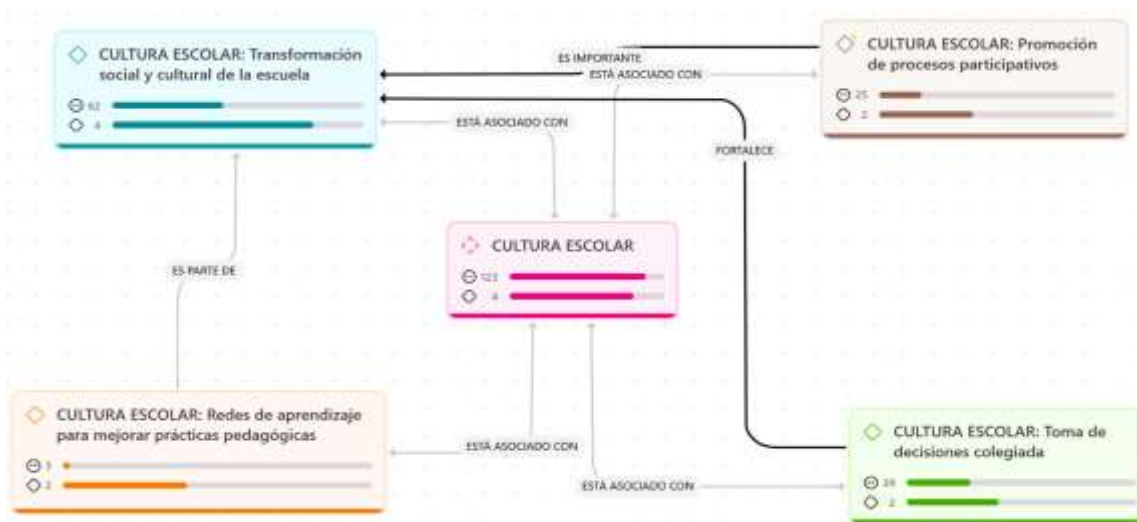


Figure 5: Emerging Category: School Culture.

Note: Semantic Network Built with ATLAS.ti- In original Spanish language

Using the Sankey diagram, to identify the relationships between the emerging category School

Culture and each of its subcategories, and how this concept was touched by the key informants in the

development of the interviews, it can be validated in the following graph:



Figure 6: Relationships between Subcategories in School Culture and Key Informant Responses. Note: Sankey Diagram Built with ATLAS.ti- In original Spanish language.

This allows us to observe the interactions given for each of the subcategories and the times it was addressed by the key informants in the interviews,

can be seen in more detail in the following sequence of excerpts from these interviews:

Table 4: List of Key Informant Responses Regarding School Culture Category.

Note: Own elaboration based on ATLAS.ti (2025)

ID	Contenido de cita	Códigos	Referencia
1:8	a cultura escolar nos está llevando a eso a formar grupos, grupos bien consolidados, con nuevas expectativas con que cada 1 lleve sus sus opciones cierto y que y que le le hagamos ver al chico que no existe una sola manera de comunicarnos, de relacionarnos.	CULTURA ESCOLAR: Promoción de procesos participativos CULTURA ESCOLAR: Redes de aprendizaje para mejorar prácticas pedagógicas CULTURA ESCOLAR: Transformación social y cultural de la escuela	33 - 33
1:9	Si. Se está sistematizando. Es algo que debemos ir mejorando porque realmente muchas cosas se han quedado en la palabra. Ciertamente falta un poquito más de de documentar y que le queden presente a los a los otros en un futuro.	CULTURA ESCOLAR: Promoción de procesos participativos	37 - 37
1:14	conocimiento es importante para transformar la comunidad, es decir, la Academia es realmente importante. Los maestros son líderes por naturaleza y son líderes políticos, son líderes sociales, son líderes ambientales y entonces solamente con el hecho de estar presentes en la comunidad ya tienen una	CULTURA ESCOLAR: Transformación social y cultural de la escuela	57 - 57
1:16	los factores de comunicación y los factores como nos relacionamos. Más si estas dos cosas no mejoran o no se fortalecen en el tiempo. Considero que la práctica pedagógica va a ser imposible si teniendo en cuenta que la cultura escolar está permeada por todos los cambios tecnológicos, cierto, todos los cambios sociales que vienen con ella.	CULTURA ESCOLAR: Redes de aprendizaje para mejorar prácticas pedagógicas CULTURA ESCOLAR: Transformación social y cultural de la escuela	65 - 65
1:17	Tratamos que que todo lo que hacemos, sobre todo en esta institución, no sólo esté ligado al rol individual del maestro y con el estudiante, sino que todo sea una conjunción de todos los ámbitos, de todas las profesiones, de todos los profesionales que existimos aquí convivimos desde la psicorientación desde. Por cierto. Buscando un fin y siempre lo he dicho, la excelencia en todos los ámbitos, no sólo el académico.	CULTURA ESCOLAR: Toma de decisiones colegiada	69 - 69
2:13	hay una buena ruta y la seguimos a cabalidad para un mejoramiento continuo.	COMUNIDAD DE APRENDIZAJE: Contexto de la escuela COMUNIDAD DE APRENDIZAJE: Interacción Redes actores educativos CULTURA ESCOLAR: Promoción de procesos participativos CULTURA ESCOLAR: Transformación social y cultural de la escuela	46 - 46
2:15	El hecho de mediar, visualizar mejores maneras, de transmitir conocimientos	COMUNIDAD DE APRENDIZAJE: Interacción Redes actores educativos COMUNIDAD DE APRENDIZAJE: Práctica Pedagógica CULTURA ESCOLAR: Promoción de procesos participativos	50 - 50
2:16	El trato con los estudiantes y los padres de familia, todo eso va enriqueciendo el proceso. Y va ayudando a que se dé una mejor calidad en la educación.	CULTURA ESCOLAR: Promoción de procesos participativos CULTURA ESCOLAR: Transformación social y cultural de la escuela	50 - 50
2:19	Lo primero por el testimonio, yo creo que la coherencia entre lo que se enseña en el aula y la vida del docente prima a manera de ejemplo.	CULTURA ESCOLAR: Transformación social y cultural de la escuela	60 - 60
2:20	la forma en que la teoría se da en el aula y que se convierten en una realidad fuera de ella por el acompañamiento constante a los jóvenes.	COMUNIDAD DE APRENDIZAJE: Procesos Cotidianos dentro de la escuela CULTURA ESCOLAR: Promoción de procesos participativos CULTURA ESCOLAR: Redes de aprendizaje para mejorar prácticas pedagógicas	60 - 60
12:11	Un docente siempre tiene que estar presente en su comunidad, fortalecer, generar cambios. Es decir, ustedes son capaces de realizar esto y tratar de proporcionar la mayor cantidad de herramientas posibles para esta comunidad	COMUNIDAD DE APRENDIZAJE: Representación social del rol del maestro CULTURA ESCOLAR: Transformación social y cultural de la escuela PROFESIONALIZACIÓN DOCENTE: Marco Profesional y formación docente	58 - 58

Moving on to the third and last main emerging

category "Teacher Professionalization" in the input

shown and generated by ATLAS.ti, it shows that this category is related to the concepts of Teaching Career, Soft Skills in the Classroom, Teacher Framework and Teacher Training, Teacher Profile, reaffirming what was observed in the bibliographic review regarding the socialization processes within the classroom and the way they are approached is an

important factor when it comes to In addition, these soft skills must be present in all teacher training processes, together with the teaching career, which incorporates not only elements of formal studies, but also all the experience gathered by the teacher from the time he was a novice to becoming an expert.

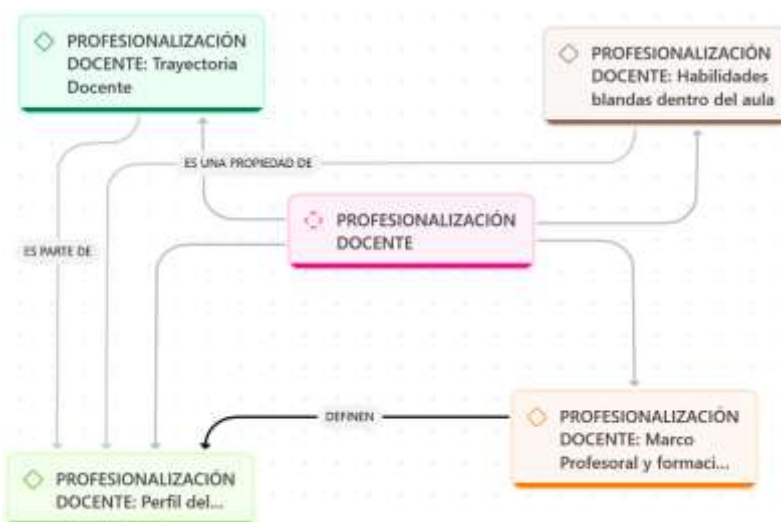


Figure 7: Emerging Category: Teacher Professionalization. Note: Semantic Network Built with ATLAS.ti- In original Spanish language.

Using the Sankey diagram, to identify the relationships between the emerging category Teacher Professionalization and each of its subcategories, and how this concept was touched

upon by the key informants in the development of the interviews, it can be validated in the following graph:

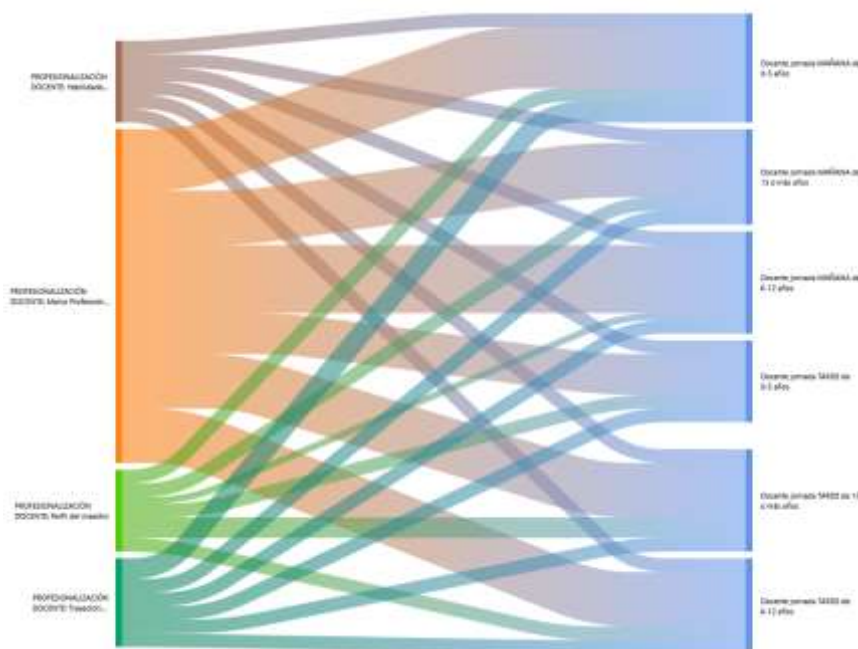


Figure 8: Relationships between Subcategories in School Culture and Key Informant Responses. Note: Sankey Diagram Built with ATLAS.ti- In original Spanish language.

In order to observe the interactions given for each of the subcategories and the times it was addressed

by the key informants in the interviews, it can be seen from these interviews: in more detail in the following sequence of excerpts

Table 5: List of Key Informant Responses Regarding Category Teacher Professionalization.

Note: Own elaboration based on ATLAS.ti (2025)

ID	Contenido de cita	Códigos	Referencia
1:4	Trascendiendo lo que en la Universidad se ha tratado de hacer la Universidad es muy buena en esta formación disciplinar. Y ya nosotros somos los encargados conociendo contexto de no solamente enseñar el área en particular, sino de de ver cómo demostrar a los chicos como el área como una opción de vida, cierto, como como algo aplicado en contexto	PROFESIONALIZACIÓN DOCENTE: Trayectoria Docente	21 - 21
1:12	El maestro se forma desde muchos ámbitos, cierto no solamente desde a nivel disciplinar, entonces creería que las universidades, a pesar de desconocer muchas veces el contexto educativo en los colegios, intentan que el maestro sea. Competente en muchos sentidos. Desde lo social, cierto, desde lo comunitario, desde lo académico, entonces considero que que es el maestro de esa formación que debe llevar entonces esa teoría a la práctica	PROFESIONALIZACIÓN DOCENTE: Marco Profesional y formación docente	49 - 49
2:18	Yo creo que en esta institución hay una gran riqueza en torno a la formación de los docentes, porque 1 los ve que se capacitan constantemente, que se preocupan por el conocimiento	PROFESIONALIZACIÓN DOCENTE: Marco Profesional y formación docente PROFESIONALIZACIÓN DOCENTE: Trayectoria Docente	54 - 54
3:2	si bien muchos docentes han recibido formación en pedagogía y contenido curricular, la capacitación en habilidades blandas como la comunicación efectiva, la resolución de conflictos, la inteligencia emocional y la empatía pueden variar según el contexto	PROFESIONALIZACIÓN DOCENTE: Habilidades blandas dentro del aula	14 - 14
12:11	Un docente siempre tiene que estar presente en su comunidad, fortalecer, generar cambios. Es decir, ustedes son capaces de realizar esto y tratar de proporcionar la mayor cantidad de herramientas posibles para esta comunidad	COMUNIDAD DE APRENDIZAJE: Representación social del rol del maestro CULTURA ESCOLAR: Transformación social y cultural de la escuela PROFESIONALIZACIÓN DOCENTE: Marco Profesional y formación docente	58 - 58
18:12	la responsabilidad está que todos somos profesionales, está el trabajo con la diversidad, en este caso o en esta institución, digamos, es una institución de puertas abiertas, entonces, siendo de puertas abiertas recibimos a todo tipo de de estudiantes y eso no genera unas habilidades particulares donde nos prepara. Enfrentamos a múltiples situaciones de manera continua.	PROFESIONALIZACIÓN DOCENTE: Perfil del maestro	60 - 60

Once the 3 categories found are correctly addressed, using the software the Final Networks are generated where they converge together with the

times they were mentioned by the key informants, as can be seen in the following images:

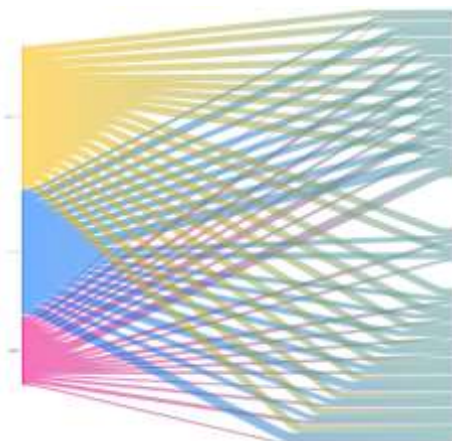


Figure 9: Final Networks Between Emerging Categories and Key Informant Responses.

Note: Sankey Diagram Built with ATLAS.ti- In original Spanish language

Having clear all the existing relationships in the 3 emerging categories found (School Culture, Learning Community and Teacher Professionalization) and how these emerge from the relationships found in each of the answers given by the key informants, it is evident that the bibliographic search developed a priori effectively pointed to the concepts that each category addresses, both theoretically and practically, validated by the fieldwork carried out.

Selective Coding Phase As indicated by (ATLAS.ti, 2024) this phase is the determining step of

the codification and analysis of grounded theory, a central category is chosen to guide the development of the theory in the subsequent phases of coding and analysis since it allows researchers to point out the key ideas that arise from its study, It makes it easier to choose a general category that can serve as a central variable or concept to guide the analysis of the other categories, as well as the consideration of new data.

To see the Selective Coding process more clearly, the following graphics will be used:



Figure 10: Educational Transformation from Teacher Professionalization to Learning Communities.
 Note: Semantic Network Built with ATLAS.ti- In original Spanish language

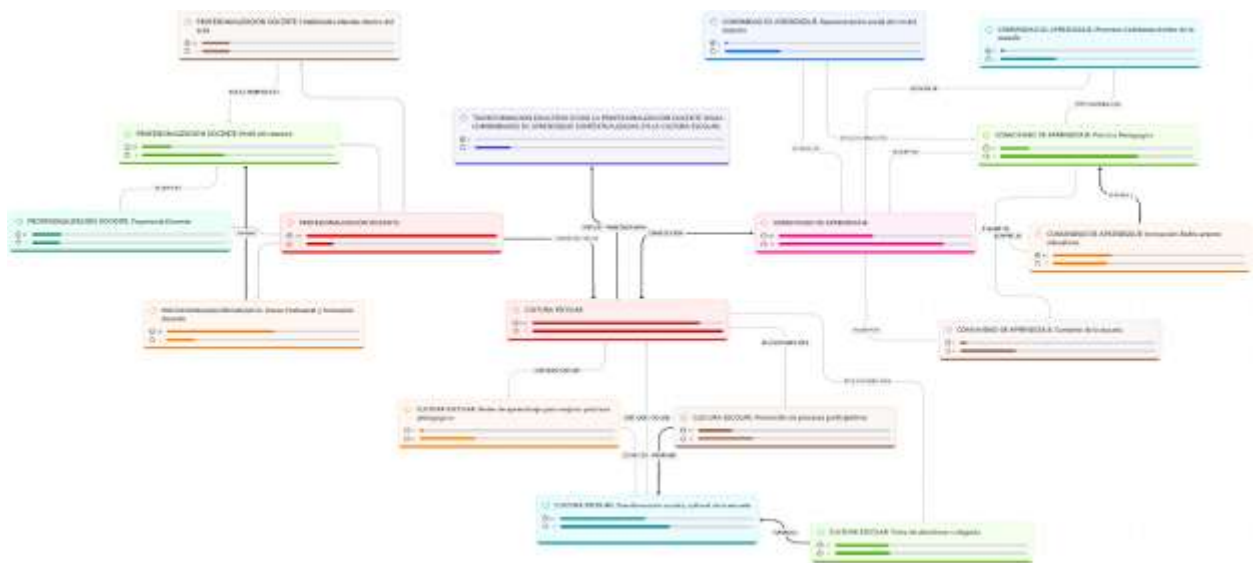


Figure 11: Educational Transformation from Teacher Professionalization to Learning Communities Contextualized in School Culture.
 Note: Semantic Network Built with ATLAS.ti- In original Spanish language

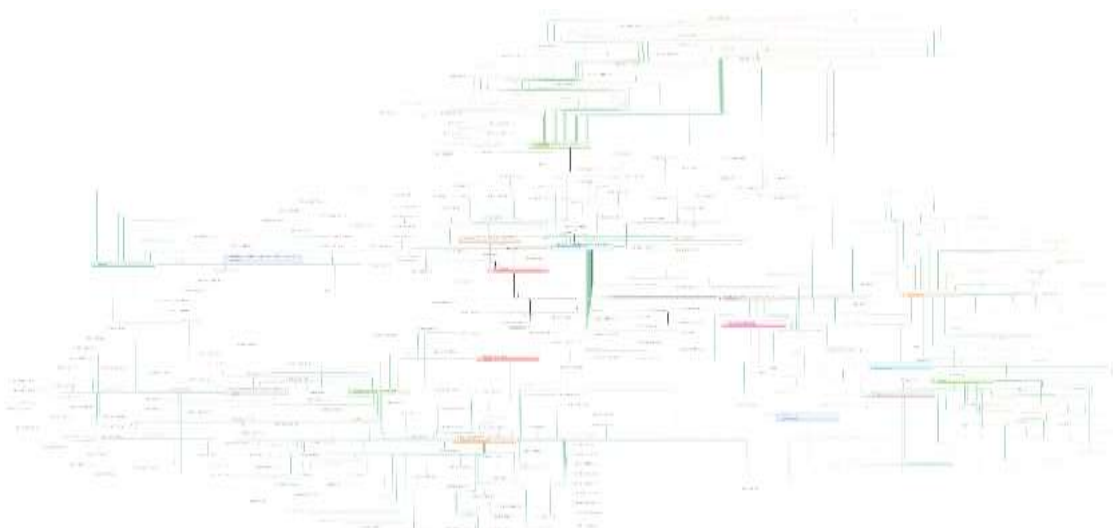


Figure 12. Educational Transformation from Teacher Professionalization to Learning Communities Contextualized in School Culture - Expanded Approach.
 Note: Semantic Network Built with ATLAS.ti- In original Spanish language.

Finally, in this selective coding, a central category is constructed that articulates the observed

phenomenon:

Sustainable educational transformation occurs when teacher professionalization, anchored in comprehensive training and reflective action, finds favorable contextual conditions in the school culture to develop learning communities committed to change.

This emerging theory underscores the need to strengthen teacher training processes with a socio-emotional and collaborative approach, as well as to promote participatory school cultures that allow the emergence of learning communities as the articulating axis of educational improvement.

4. DISCUSSION

The findings allow us to understand that teacher professionalization is the articulating axis of sustainable educational transformation, since it presents the greatest rootedness and density in the analysis. This result is consistent with previous research that highlights the centrality of training and continuing professional development for school improvement and pedagogical leadership (Darling-Hammond, Hyler, & Gardner, 2017; Avalos, 2011). In this study, professionalization is not reduced to technical competencies, but incorporates socio-emotional, ethical and attitudinal skills, confirming that the new teaching profile is oriented towards a humanistic and transformative approach.

School culture, the second most frequent category, shows how the school is a social space where meanings are negotiated, participatory practices are consolidated, and collegial dynamics are generated. This finding dialogues with what Bolívar (2020) proposes, who argues that school culture determines the capacity of institutions to sustain changes and project a shared identity. Likewise, the literature shows that cultures open to collaboration and networking favor pedagogical innovation and

community engagement (Day & Gu, 2014).

On the other hand, the learning community emerges as an emerging result of the interaction between professionalization and school culture. Although its level of rootedness was lower, its relevance lies in the fact that it enables the sustainability of change, generating a space for collective reflection and situated learning. This is in line with Wenger (1998), who conceives of communities of practice as structures of interaction that transform individual experience into collective knowledge. Recent research corroborates that professional learning communities are an effective means of improving teaching and learning in diverse contexts (Vescio, Ross, & Adams, 2008; Stoll et al., 2020).

From the methodological perspective, the use of ATLAS.ti and the open, axial and selective coding process strengthened the validity of the results, by allowing the identification of patterns and relationships between categories. Visual analysis using semantic networks and Sankey diagrams confirms the PD→CE→CA sequence, showing how teacher education drives cultural transformations that are consolidated in collaborative communities. This linkage reinforces what Strauss and Corbin (1990) have argued about the relevance of grounded theory to construct process theories based on data.

On a practical level, these results suggest that educational policies must transcend isolated models of training and promote ecosystems of teacher professional development articulated with participatory school practices and the promotion of learning communities. This integrative approach allows for the generation of sustainable transformations by linking individual capacities, institutional culture, and collective networks, in accordance with studies on systemic improvement in education (Fullan, 2021; Harris & Jones, 2019).



Figure 13: Sociogram. Teacher Professionalization Flow → School Culture → Learning Community- In Original Spanish language.

The sociogram shows the dynamics of Teacher Professionalization → School Culture → Learning

Community, showing how the flows of influence are organized in the process of sustainable educational transformation. The strongest link is observed between Teacher Professionalization and School Culture, which confirms that the processes of training, trajectory and development of socio-emotional competencies of teachers constitute the basis of institutional changes. In line with this, Darling-Hammond, Hyler, and Gardner (2017) argue that teacher professionalization is one of the most determining factors for the quality of education systems, as it generates human capital capable of transforming school practices. Likewise, Avalos (2011) points out that continuous teacher training contributes to consolidating organizational cultures that are more collaborative and open to change.

The relationship of medium intensity between School Culture and Learning Community reflects that participatory practices and collegial decisions are enabling conditions for the emergence of collaborative communities. According to Bolívar (2020), school culture acts as a key mediation between the individual capacities of teachers and the collective construction of knowledge. Similarly, Stoll, Bolam, McMahon, Wallace, and Thomas (2006) show

that schools with participatory cultures generate stronger and more sustainable professional learning communities.

The weaker link between Teacher Professionalization and Learning Community suggests that teacher training, although necessary, is not sufficient on its own to consolidate professional communities. Wenger (1998) argues that these communities emerge from processes of sustained and contextualized social interaction, not only from individual competencies. Consequently, school culture is revealed as a necessary bridge that translates teacher professionalization into collective dynamics.

In an integral way, the sociogram validates the emerging theory that teacher professionalization functions as an initial engine, school culture as a mediator and institutionalizer, and the learning community as a sustainable result of the process. These findings are in dialogue with recent research that underscores the importance of articulating teacher professional development with institutional collaboration strategies to achieve lasting transformations in education (Harris & Jones, 2019; Vescio, Ross, & Adams, 2008).

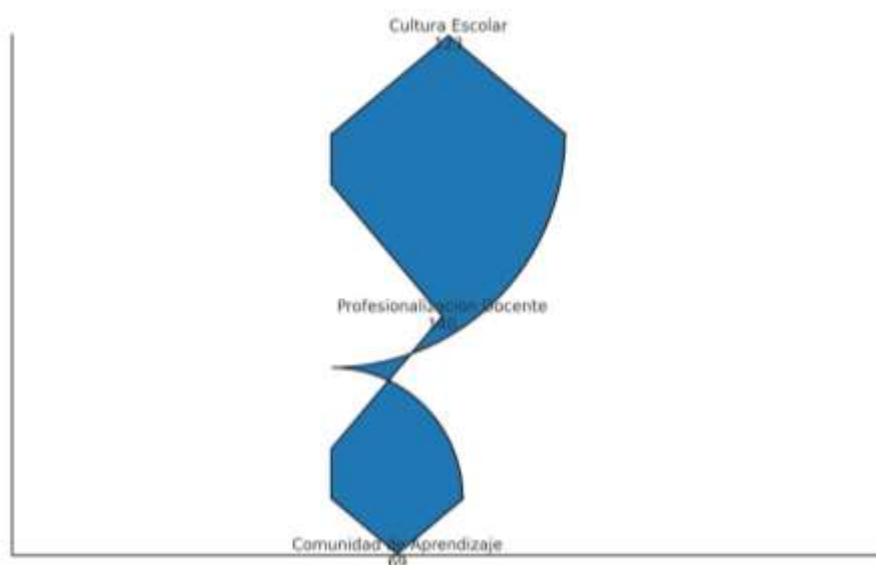


Figure 14: Butterfly Chart diagram. Relationship between Teacher Professionalization, School Culture and Learning Community- In original Spanish language.

The figure visualizes the relative "strength" of the categories based on the thickness of the flows: Teacher Professionalization (140) feeds School Culture (123) and, to a lesser extent, Learning Community (69) with greater intensity. This asymmetry suggests that the teacher's professional agency is the trigger for change and that school culture functions as a space for institutionalizing

change before translating into sustained collaborative practices (Darling-Hammond, Hyler, & Gardner, 2017; Fullan, 2021).

The PD→CE branch wider than PD→CA indicates that transformation first settles into norms and routines (communication, collegiality, decision-making), which coincides with evidence about schools learning when they align structures and

culture with professional development (Stoll, Bolam, McMahon, Wallace, & Thomas, 2006). The branch to CA reflects the conversion of individual capabilities into social capital and situated learning, consistent with the theory of communities of practice (Wenger, 1998) and with meta-analyses that associate professional communities with improvements in teaching and student achievement (Vescio, Ross, & Adams, 2008).

Methodologically, Sankey synthesizes results of open-axial-selective coding: width represents rooting (contextualized frequency) and directionality expresses causal relationships hypothesized by grounded theory (Strauss & Corbin, 1990; Corbin, 2016). Its value lies in converting textual patterns into process flows, facilitating a macroscopic reading of the emerging model.

Interpretive limitations: the figure does not represent feedback (e.g., how ACs feed back into PD) or explicit EC→CA mediation. For indexed publications, a multilevel version is recommended that includes (i) a CE→CA link with proportional thickness, (ii) sub-branches by subcategories (e.g., socio-emotional skills, collegial decisions, pedagogical practice), and (iii) co-occurrence density annotations, increasing the explanatory validity of the diagram (Stoll et al., 2006; Vescio et al., 2008).

5. CONCLUSION

The study allowed the construction of a grounded theory that explains how teacher professionalization, school culture, and learning communities are articulated as central categories of sustainable educational transformation. The findings show that teacher professionalization emerges as the initial engine, not only in technical terms, but also in ethical and socio-emotional terms, configuring a new teacher profile oriented to social and educational change. This conclusion is consistent with the literature that highlights the need for continuing professional development programs that strengthen pedagogical and social-emotional competencies (Darling-Hammond, Hyler, & Gardner, 2017; Avalos, 2011).

School culture is recognized as the mediating and institutionalizing space of change, where participatory practices, collegial decisions and processes of social transformation are consolidated. These findings dialogue with research that underlines the role of school culture in the construction of environments of trust and collaboration that favor pedagogical innovation (Bolívar, 2020; Stoll et al., 2006). In this sense, it is reaffirmed that school culture is not only a passive

context, but an active factor that conditions and enhances the sustainability of changes.

Learning communities emerge as the strategic result of the interaction between teacher professionalization and school culture. Although their rootedness is less, their importance lies in the fact that they allow individual capacities to be transformed into collective knowledge through shared reflection, situated pedagogical practice and network interaction. These conclusions coincide with the theory of communities of practice (Wenger, 1998) and with studies that show their positive impact on improving teaching and student learning (Vescio, Ross, & Adams, 2008).

Methodologically, the use of grounded theory and digital tools such as ATLAS.ti allowed to give rigor to the coding process, ensuring the validity of the emerging patterns. This methodological approach confirms the potential of qualitative approaches to generate solid theoretical constructs in education (Corbin, 2016; Strauss & Corbin, 1990).

In practical terms, the results suggest that education policies must overcome the fragmentation between teacher training, school culture and professional collaboration, promoting integrated teacher development ecosystems in which professionalization is the starting point, school culture an enabling space and learning communities the sustainable outcome. This approach coincides with proposals for systemic improvement in education that propose integrating professional development with institutional collaboration strategies (Harris & Jones, 2019; Fullan, 2021).

Based on the findings, it is recommended that educational policies in Colombia and Latin America strengthen the articulation between teacher professional development, school culture, and learning communities, overcoming the fragmented approaches that have predominated. At the level of public policy, this implies designing continuing education programs that are not limited to technical training, but integrate socio-emotional and collaborative dimensions (Darling-Hammond et al., 2017). At the institutional level, it is suggested to promote participatory school cultures through collegiate structures and protected times for collective reflection, a key condition for the sustainability of pedagogical innovations (Stoll et al., 2006; Bolívar, 2020). On the practical level, management teams must promote professional learning communities that transform individual knowledge into collective capital, ensuring the constant improvement of teaching practices and student learning (Vescio et al., 2008; Harris & Jones,

2019). These recommendations are aligned with the perspective of systemic improvement proposed by Fullan (2021), in which the professionalized teacher, a collaborative school culture, and learning communities act as integrated engines for sustainable educational change.

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