RESEARCH ARTICLE

FROM DATA TO THEORY: METHODOLOGICAL DIALOGUE BETWEEN PEDAGOGICAL ACTION RESEARCH AND GROUNDED THEORY

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Manuscript Info	*Abstract*
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	This study articulates Pedagogical Action Research (PAR) and Grounded Theory (GT), recognizing that both require methodological rigor, albeit of distinct natures. Although GT can be employed from a positivist perspective, this work adopts a critical and reflective approach, focused on situated interpretation and social transformation. The central question guiding the investigation is: from a critical perspective, how can GT contribute to ensuring that the data constructed during Action Research approaches the construction of a theory without losing its connection to the transformative praxis that gives rise to it? To answer this, the epistemological bases of both methodologies are discussed, explaining the organization of data in order to maximize the use of collective results and highlight their theoretical potential. The stages of open and axial coding are particularly mobilized, understood not as mechanical technical procedures, but as analytical movements capable of challenging empirical data, making emergent categories explicit, and revealing theories implicit in the educational practice of participating teachers. Based on Franco (2005, 2016, 2019), Strauss and Corbin (2008), and Quaranta (2024), the study argues that, when critically reinterpreted, GT not only reorganizes data but also contributes to making explicit theoretical categories emerging from practice, bringing PAR closer to theoretical construction and reaffirming it as a field that produces knowledge and social transformation.

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Introduction:-

Choosing a research method is not a simple task, especially when considering qualitative research, since "in addition to allowing for the understanding of social processes that are still poorly understood in relation to particular groups, it fosters the construction of new approaches, revision, and creation of new concepts and categories during an investigation."[1:57], this makes the choice of methodology an opportunity to broaden the scope, so that ultimately the knowledge resulting from the research can contribute to the advancement of the field.

And this can be considered a victory for qualitative researchers, since, according to Bogdan and Biklen[2], although the first qualitative research in the United States dates back to the nineteenth century, until the mid-1950s, work

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carried out using qualitative methodologies was considered marginal, although serious and well-regarded work was being carried out from a qualitative perspective during that period.

This scenario began to change from 1954 onwards, when the American Congress approved the first legislation granting scholarships to qualitative researchers. This did not immediately impact research in the educational field, whose development was only verified at the end of the 1960s, when federal programs, driven by political interests, began to subsidize qualitative research based on exploratory work (interviews, autobiographical accounts, participant observation) in schools, "recognizing that little was known about the schooling process of different groups of children"[2:37], groups consisting of minorities, black children, poor children and schools in ghettos, indicating the possibility of announcement and denunciation that qualitative research can have in favor of the less fortunate, giving them a voice.

In the following decades, qualitative research underwent a process of recognition with the expansion of investigations to other fields of education (school management, teachers, innovations, school transportation, the role of women as managers, among others), research methods, publications, and the profile of researchers, reflecting the evolution of the approach[2].

Regarding the researcher, when opting for qualitative research, they need to keep in mind that the paths of qualitative research require observation, since

The goal of qualitative researchers is to better understand human behavior and experience. They attempt to understand the process by which people construct meaning and to describe what this meaning consists of. They resort to empirical observation because they believe that it is through concrete instances of human behavior that one can reflect more clearly and deeply on the human condition[2:70].

This reflection leads qualitative researchers, in their pursuit, to need to have the sense and sensitivity to grasp the complexity of information presented by the data, a complexity that presents a movement that is "between the back and forth of the path traveled towards the sedimentation of knowledge in the area, taking steps forward and backward. However, nothing guarantees definitive achievements"[3:8]. This is because they need to keep up with the interplay of social dynamics that permeate the meaning of each response or action observed during the research, which makes the journey, the search, a moment of great importance for the successful development of the research.

And in the search for qualitative research methodologies that could bring to light this interplay of advances and setbacks permeated by intersubjectivity, linked by the complexity of the data, in this article, we will analyze two qualitative research methods: Pedagogical Action Research (PAR) [4], a primarily formative research methodology; and Grounded Theory (GT) [5], a method that makes it possible to generate a theory based on data, from an investigation carried out in a systematic way.

These two methods, which emerged in the 20th century from studies in the fields of psychology and sociology, respectively, were brought together in Quaranta's research[6]. Such a study, due to the amount of data generated by PAR and the possibility of understanding the meaning of the research data that GT provides in its analysis process, offers strong support for a better understanding of a theory that has been confirmed in the sense of understanding that the change in teaching practice only occurs after teachers understand and discuss among themselves the circumstances and reasons for their practice, and that these understandings are discussed among the teachers for the transformation of their practice.

This possibility of understanding the research led to the research question that guides this article: from a critical perspective, how can GT contribute to ensuring that the data constructed during PAR leads to the development of a theory without losing its grounding in the transformative praxis that gives rise to it?To answer this question, our objective was to present the two theories and explain the possibility of a PAR having its data analysis based on the precepts of GT, which we believe can be integrated during the data analysis process, enabling field research and data analysis to be developed in a way that generates highly reliable data within qualitative research.

Before discussing the possibility of research conducted thru PAR and data analysis constructed through GT, an introduction to the two methodologies will be presented[1]briefly.

Pedagogical Action Research (PAR) and Grounded Theory (GT): what are these methodologies?
Pedagogical Action Research:
The origins of action research are controversial. In a period marked by the end of World War II and the challenges of sociopolitical reconstruction in the post-war period, Kurt Lewin (1890 – 1946), a German-born social psychologist, formulated action research in the mid-1940s from an innovative perspective, by combining rigorous scientific investigation with practical intervention aimed at transforming adverse social contexts. His central idea was not only to study reality but to modify it through collective action, putting research at the service of change.

However, Guns[7] states that the first theory of action research stems from the researcher Moreno[2], due to his work aimed at reducing tensions and promoting group socializations, with the goal of developing healthy interactional environments, by means of his research with groups for social changes and his belief that the researcher should be a "social investigator" participating in the research and being influenced by it. Although they did not know each other during their time in Europe, they developed work that began in the 1930s, and in many ways, they approached the study of small groups that led Lewin to create Group Dynamics and Moreno to create Psychodrama.

Lewin and Moreno met at Columbia University in the United States of America (USA) and had moments of closeness where they shared ideas, stories (both were Jewish refugees in the USA), and issues about theories and concepts to which they were dedicated. With Lewin's untimely death, Moreno expressed his admiration for his colleague but began to have difficulties with his collaborators and declared that they appropriated the research shared with Lewin and did not give him due credit[8].

Although there is this doubt, Lewin, before his death, directly addressed prejudice against minorities in his famous 1946 article, Action Research and Minority Problems, where he systematized the spiral cycle method (plan → act → observe → reflect). For this reason, we believe Lewin to be the creator of action research.

In the 1946 article, when discussing the fight against ethnic and racial discrimination, Lewin indicates that, from its beginnings, action research was applied to critical issues of the historical context of his time. His work resulted in an experimental methodology focused on democratic social transformation, which became an instrument to promote collective decisions and deepen the critical understanding of shared reality. A theory in the complex field requires evidence from many data points that are elaborated and subjectivized by the research participants.

In the educational field, the studies by Franco and Betti[9] point out different historical perspectives of action research, starting in the mid-1970s to 1980s, with British researchers such as John Elliot and Clenn Aldeman, who promoted the use of action research aimed at improving teaching practice, develonping its cycles in the classroom with a focus on collective growth and critical reflection.

Lawrence Stenhouse strengthened research as an essential foundation of teaching by laying the groundwork for the curriculum as investigation, where he argued that teachers were researchers of their own contexts, bridging theory and practice.

From the 1980s onward, action research incorporated Jürgen Habermas's critical theory, which proposed the distinction between instrumental (technical) and communicative (dialogical) action, legitimizing action research as not only transformative but also dialogical, emancipatory, and intersubjective.

John Wilfred Carr, influenced by Habermas, emphasized critical reflexivity: pedagogical practice should be informed by communicative reasoning, legitimizing teaching action as a deliberative process.

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[1] For a deeper understanding of the methodologies, we recommend the supplementary reading of the texts that make up the theoretical framework of this article.
[2] Jacob Levy Moreno (1889-1974) was born in Bucharest, Romania, in 1889, and passed away in New York, USA, in 1974. Psychiatrist, he developed work that challenged the cultural conservatives of his time by working on the streets with children and prostitutes in Vienna and at Sing Sing prison (USA). From his work, he developed the concept of sociodrama, sociometry, and group therapy, and created psychodrama[10].

Paulo Freire and Orlando Falls Borda brought Action Research (AR) to a South American reality, with a focus on popular education, where AR develops in favor of the popular classes, allowing their participation and voice, favouring interpretive understanding as a source of knowledge.This modality became known as Participatory action research.

Maria Amelia do Rosario Franco[4,11,12]brings us a form of action research with its roots directly in Kurt Lewin (1890-1946). Called Pedagogical Action Research (PAR), this perspective of PA is aimed at the continuous training of protagonist teachers, critical-reflective, autonomous, capable of transforming themselves and their circumstances.The author believes that all action research has a formative character. However, in the case of PAR, the pedagogical training of the subjects of practice becomes the primary objective. It is a participatory, collaborative, pedagogical work between researchers and teachers, with the perspective of critical-reflective training, which, by assumption, will result in the improvement of teaching.

An important characteristic present in all perspectives is that conducting action research is not simply allowing the other to speak, conducting an interview, asking a question and obtaining an answer, or waiting for the participant to perform a task. To develop action-research, it is necessary for the member to find space and time to speak, where their knowledge is recognized and generates data constructed with their participation as a subject of the practice. This highlights the need for the research to be conducted in a way that enables full participation, giving voice to everyone as researchers or co-researchers.

Giving a voice to those involved in the research can be, in practice, one of the most difficult tasks in the investigative process carried out thru action-research, since not everyone always wishes to speak, to express themselves, and this must be respected during the research. This difficulty can only be mitigated through extensive dialogue and by fostering a sense of comfort and trust between the participant and the researcher

By giving voice to the participants, collective participation is enabled, which generates a collective need to look, perceive, and work together in solving the problem. In action research, the research problem is everyone's problem. And, for this reason, it is necessary that during action research it is recognized that, despite the differences between the researcher and the participants, there is a common cause, which is the research problem or something to be transformed. How each person understands this problem is another matter, since each one sees themselves differently in relation to the research problem. Therefore, there will be different ways to address the research problem, what is desired to be changed, where, how, and what the other's needs are.

And this process of understanding the other and speaking does not happen hastily; conducting action research requires more time for execution than is normally observed in other research methods. A period of adaptation for the participants to the training sessions is necessary, where the researcher will bring inquiries about the topic to be studied and will carry with them reflections, thoughts, and doubts, questions from the participants to be studied, initiating a data analysis that will generate provisional syntheses, which will serve as guides for the development of the next sessions and will assist in the development of the cyclical spirals, characteristic of the method.

Through provisional syntheses – briefanalyses of the data – the researcher summarizes and organizes data from logbooks and the content recorded during previous PAR training sessions. This processhelps the researcher to develop new propositions to be shared with participating teachers, ensuring they

recognize the need for the pedagogical intervention of the researcher in order to direct reflections, synthesize and objectify subjectively perceived situations, organize and provide theoretical foundations to broaden the critical view of everyday life, coordinate the processes of intersubjectivity to be constructed by the group. This situation of qualified pedagogical intervention raises a serious issue for the action research process, namely: the prominence [or protagonism] of the researcher, which hinders the establishment of egalitarian relationships between the researcher and the subjects of practice. The latter, with rare exceptions, are learning to be researchers; thus, it is almost impossible to avoid the principal researcher's influence on the direction of understandings [13:203].

The fact that there is a small analysis of data during the development of the research, carried out thru provisional syntheses, can lead to the belief that in conducting action research, there is no need for a more in-depth data analysis, that a collective perspective would suffice, which is not a true premise. The PAR, being academic, aims to educate those who participate in it, whether they are researchers or research participants, and for this reason, it requires a rigorous process of analyzing comprehensive characteristics.

Due to the allowance for speech and listening and the formative meetings, the data obtained are of great volume and complexity, which requires the researcher, during the development of the formative meetings, to have different strategies for data collection, using recordings, filming, notes, and logbooks, in order to obtain a broad and detailed source to review the events that occurred and the discussions held during the reflective meetings. This requires greater effort and attention during the interpretation and analysis of the data, which can be carried out thru different approaches, both from a positivist perspective and thru critical analysis.

The issue of complexity in organizing data in pedagogical action research carried out by the authors was the impetus for us to undertake a more careful examination of the issues of articulation between PA and GT, but first, it is necessary to present Grounded Theory (GT) or Data Grounded Theory (DGT).

The Grounded Theory (GT):
The issue of the low reliability of data in qualitative research in the field of sociology was the instigating motive for Barney Galland Glaser (1930-2022) and Anselm Leonard Strauss (1916-1996) to develop, based on a study about dying in hospital contexts in California (in which the book The Discovery of Grounded Theory, from 1967, is a theoretical landmark), a research method known as "Grounded Theory".

The book was released at a time when qualitative research was discredited and misunderstood due to the observation of an orientation, by many qualitative researchers, "a bit anarchic, unsystematic, and resistant to the formalization of procedures" and "due to the criticism that the dominant positivist paradigm presented regarding the scientific nature of qualitative methods"[14:42-43], which placed qualitative research in a severe crisis.

Glaser and Strauss, in their initial proposal, highlight three methodological characteristics as the main ones: "a grounded theory must adhere to the data (fit), be relevant, and must 'work'"[14:29]. Glaser, in 1978, added another characteristic which would be the capacity to modify itself (modifiability) [14]. These characteristics brought GT a possibility of scientific rigor and reliability for qualitative research based on carefully produced data, systematically recorded and rigorously analyzed thru techniques with the potential for theory construction.

In the 1990s, due to differences in their thinking about research processes, the authors parted ways, and Strauss, along with his assistant Juliet M. Corbin, began to develop a new approach to the method, more flexible. From there emerged "an integrative approach that values this highly structured research methodology"[15:490], which allowed for the development of the method and the expansion of its possibilities.

The main differences between the research of Glaser and Strauss[5] and Strauss and Corbin[16] can be observed in the table below:

Table 1 - Main differences between the research of Glaser and Strauss[5] and Strauss and Corbin[16]

STAGE	GLASER E STRAUSS (1967)	STRAUSS E CORBIN (1990)
Researchproblem	Go into the field without a predefined research question, without theoretical reflection.	Go into the field without a predefined research question, after theoretical reflection.
Formality in the structure of coding data	General analytical method without theoretical structuring.	Analytical method with structured steps.
Operationalization	With a more subjective nature, it can be difficult to operationalize.	Of a more objective nature, it can be easy to operationalize.
Verification and testing	It generates concepts for theoretical formulation or a set of conceptual hypotheses. The test is left for the development by other researchers in future research.	It generates a theory derived inductively, taking on constant checks and tests to validate the concepts
Adapted from Parker and Roffey (1997) and Bianchi and Ikeda (2008).		

Source: reproduction of Conejero and Mac Lennan[15:494].

The option of the approach advocated by Glaser to seek theory after conducting field research, according to Charmaz [16:47], is due to the fact that grounded theorists "give more weight to concepts derived from the data." This makes the researcher, "after developing their conceptual analysis of the data, go to the literature in their field and compare how and where their work fits into it" [16:47], since the search for data occurs after a long and meticulous

preparation of memos with notes, observations, analyzes, and codifications of the data that enable the breakdown of categories that must be defined with the utmost care before being subjected to theory.

We have divergences with the theory of Glaser and Strauss[5] in the aspect that refers to the absence of theoretical reflection, justified above by Charmaz[17], for considering it impossible to enter a work without theory. This stance is due to this research methodology being recommended for both novice and experienced researchers, which leads us to consider the necessity of theoretical knowledge so that the novice researcher understands what is happening in their research area and does not end up conducting their research based solely on assumptions, risking making it redundant. While for a more experienced researcher, we believe that they already bring with them a theoretical framework developed during their previous studies and, consequently, are unlikely to be unaware of theories on the subject in question.

Regarding the absence of a research question, advocated by both Glaser and Strauss[5] and Strauss and Corbin[16], we believe that all research work must begin with a research question. We believe that theoretical-practical rigor must accompany all stages of research.

Another point to be noted is brought up by Tarozzi[14] when he points out that although there are differences between the two strands of GT, both contain positivist traits, such as objective ontology, positivist epistemology, the correspondence between theory and reality, the separation between the researcher and their object, and the ability to be generalized. However, the methodology cannot be classified as positivist, since from the 1990s onward, a new generation of scholars (notably Adele Clarke and Kathy Charmaz) rethought GT under new perspectives that allowed it to be emancipated from some of its positivist characteristics, revitalizing it.

The fact that we do not agree with the perspective on the research question, the need for theoretical input to conduct field research, and recognize the positivist characteristics of the methodology does not prevent us from viewing this theory as a possibility for guiding serious research that leads to good results. This is because, unlike other qualitative methodologies, GT aims to "offer a non-speculative, carefully legitimized research methodology, in order to combat the status of devaluation that qualitative methodologies had for not ensuring an adequate verification" [18:71], which allows GT to enable research that, at the end of its interpretative analysis, gives researchers the possibility to construct/develop a new theory.

By allowing this elaboration, the method requires rigor in its development and data analysis, which implies that the researcher who follows this theory should possess the following characteristics:

1. Ability to step back and critically analyze situations; Ability to step back and critically analyze situations;
2. Ability to recognize the tendency toward biases; Ability to recognize the trend toward bias;
3. Ability to think abstractly; Ability to think abstractly;
4. Ability to be flexible and open to constructive criticism; Ability to be flexible and open to constructive criticism;
5. Sensitivity to the words and actions of informants; Sensitivity to the words and actions of the informants;
A sense of absorption and devotion to the work process[19:21].

However, the authors clarify that the development of these characteristics will only occur if the researcher does not act mechanically, as the method needs to be developed in a flexible and creative manner, with the proposal that questions arise that elevate what is seen and heard to an abstract level before returning to the data, requiring the researcher to learn to think comparatively, developing the ability to perceive what is the same and what is different and ensuring "a sense of vision, **in which the analyst wants to follow along with the research**." The techniques and procedures (methods), on the other hand, provide the means to transform this reality" [19:21], bringing a methodology that is based on systematically interpreted data.

By recognizing that not all research aims to develop a theory, Strauss and Corbin[19] open the possibility for the techniques developed in GT to be used separately to meet the needs and objectives of the research in question, as was the case in Quaranta's[6] research, which used only two techniques from GT data analysis in her study.

Strauss and Corbin observe that the data analysis stage "is not a structured, static, or rigid process"[19:65], but rather a moment of agitation, of back and forth between the different types of coding (open and axial), since the analytical procedures of the theory use techniques and analysis procedures that allow for a free and creative process, with significant movement of the data in search of answers to the proposed question.

This movement occurs thru comparisons that the researcher needs to make in their quest to understand what the data brings. To this end, it is necessary to ask questions[3] about what is observed, in search of what is not revealed, requiring the researcher to abstract what the data means, shows, or indicates, in the pursuit of both general patterns and variations in the presented data.

A PAR analyzed in the light of GT:
Research conducted thru action-research results in a large amount of data generated thru recordings, interviews, field diaries, observation notes of the meetings, and preliminary analyzes (which generate provisional syntheses). Ghedin and Franco[3] advise that the records need to include:
• References to the agreements established for the functioning of the group;
• Data related to understandings, interpretations, and syntheses of theoretical foundation readings;
• Description of group activities and practices;
• Summaries of group reflections and decisions;
• Characterization of the ongoing institutional and administrative changes;
• Description of the participation of the group members[3:244].

And all this material requires a critical analysis that allows for the reliability of the obtained results. We emphasize the word "all", as the material to be analyzed is not limited to those prepared during the meetings; the logbooks, the notes taken during the training sessions, and the thoughts that arise at random moments[4] are also materials that should be part of the analyzes and that provide information to aid in the development of the research.

Data analysis is the moment of data triangulation, where the researcher stands before the research, comparing what the data brings us, the researcher's perspective on the phenomenon, and the theory that underpins the research, and, in light of these three vertices, we engage in dialog in search of understanding and answers.

In the case of PA, this triangulation begins with partial syntheses, which can be considered mini triangulations that occur after each meeting, where the interpretations of the data are constructed by the research participants, taking into account the new conceptions and the subjective conditions of the work.

With the completion of the field research stage, the analysis of the obtained data begins. This moment will be carried out exclusively by the researcher responsible for the study, who will be in charge of transforming the generated data into knowledge to be shared. This process of transforming the data constructed during the research into shared knowledge does not have a predetermined guideline on the analysis method; for this reason, the researcher may choose the one that seems most appropriate to their research objective, and it was at this juncture that GT was identified a viable analytical possibility – one that could enhance data credibility due to the depth of analysis it demands."

Discovering the GT was a pivotal moment of revealing the potential for *a more critical and in-depth analysis of the*

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[3]The questions can have different objectives, Strauss and Corbin[19] suggest four ways to think about the questions when looking at the data: 1. Sensitive questions: look at what the data indicates. Example: "What's going on here? [...] How do they define the situation? What does it mean to them? [...]"[19:82]; 2. Theoretical questions: they assist in making connectionsand comparisons with the theory. Ex.: "What is the relationship between one concept and another (that is, how do they compare and relate in terms of properties and dimensions)? [...] What would happen if...? How do facts and actions change over time?" [19:82]; 3. Questions of a more practical and structural nature that guide sampling and assist in the "development of the resulting theory structure" [19:83]. Ex.: "Which concepts are well-developed and which are not? [...] Is my evolutionary theory logical? What are the logical breaks?" [19:83]; 4. Guiding questions: these are questions that "guide the interviews, observations, and analyzes of these and other documents"[19:83], the authors do not provide examples of this type of question, as they are specific to each research and each researcher. Even the questions suggested by the authors can be modified according to the researcher's needs/interests.

[4]Often, in moments of idleness, leisure, or even at nite, research comes to our mind with thoughts that can bring answers to the concerns we couldn't bring to the surface while we were focused on the research. For this reason, we recommend that every researcher carry a pen and a piece of paper with them, so they can jot down that thot which, often, will be extremely useful in the research.

data together with the group. Reading about the methodology and its analytical possibilities that would bring greater reliability to the data made the researcher's need to be curious and explore new analytical possibilities greater than the anxiety to quickly finish the doctoral thesis[6] that used PAR as the research methodology and was at the beginning of the data analysis stage.

Although Tarozzi argues that "in the absence of *all* characteristics that follow, even if declined differently, one cannot speak of GT" [14:22], Strauss and Corbin[19] open the possibility of using only some techniques of the method[5].

This flexibility that GT offers, of using only some stages of its methodology in research, brings a great possibility of utilization within the field of educational research, due to its methodological breadth. However, what is observed is its limited use in educational research[6], which is likely due to the difficulty of using the methodology[20], which has a series of requirements to be considered GT and demands a rigorous and careful data analysis. Nevertheless,

education is a complex space, inhabited by diverse agents, free and predisposed to act so that their needs and dreams are met […], which means that even if we can know the people, we can hardly anticipate the outcome of their interactions […]. Therefore, if much is systematically new, we need research methodologies that deal with this novelty and embrace the serendipity that may result from it. In that case, GT can be a privileged instrument.[20:3].

Given this possibility, from the perspective of Critical Pedagogy, analyzing the data according to its guidelines seemed like an intriguing and challenging path that could yield differentiated results for the material developed during the research, organizing it in a rational and meticulous manner.

The data analysis stage guided by GT consists of three main moments: open coding, axial coding, and selective coding.

Open coding is the first stage of data analysis. According to Strauss and Corbin, it is called that "because to reveal, name, and develop concepts, we must open the text and expose the thoughts, ideas, and meanings it contains" [19:104]. Thus, this stage consists of identifying the concepts, their properties, and dimensions, through a separation of the data into distinct parts that will be rigorously examined and compared in their similarities and differences.

This breakdown of the data aims to divide and classify them into concepts[7], which are abstracted from the participants' speeches and then named with a term that represents them in the search for what is less apparent in relation to an object. This division of data that occurs in open coding can be done through different analysis strategies: "line by line", "sentence or paragraph", or "carefully reading the entire document" [19], which allows for different modes of coding.

Line-by-line coding is the most time-consuming stage; it involves a technique that entails a detailed examination of the data, sentence by sentence, or even word by word, allowing for the search for their properties and dimensions through comparisons and relationships between the participants' statements, seeking attributes that enable the data to be grouped according to observed patterns. This method of "line-by-line coding helps you see what is familiar in a new light. It also helps you gain sufficient distance from the assumptions made by you and the participants about the

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[5]There is a discussion about whether GT is a methodology or a method. Tarozzi states that "for its founders, GT is 'a general method'(it was also defined as 'strategic' [...] and, contemporaneously, 'a set of procedures.'" It is a methodology, that is, a global rational discourse, an orientation on the method and its theoretical analysis, a way of thinking (or constructing) social reality and, at the same time, a method; that is, a procedure, a set of instruments, a techne to work with empirical research data […]. Methodological reflection should account for the integrative work process, while the method is functional to productive work. From that initial definition, different opinions have alternately emerged over time regarding how GT should be understood and its placement between methods and methodologies. "For Glaser (1978) and others, it is essentially a methodology; for Juliet Corbin (Saturuss and Corbin, 1990), it is a method; for Kathy Charmaz (2006), a constellation of methods" [14:18]. In this work, we understand GT as a methodology for the critical analysis of the data constructed during a PAR.

[6] Only 1% of theses, between 2018 and 2020, used this methodology in Portugal[20].

[7] The ability to conceptualize is seen, by Strauss and Corbin[18], as an art that can be learned and that involves a dose of creativity.

material so that they can be seen in a new light" [17:38], which enables the perception of the need for new clarifications about the data and the emergence of the initial properties of the categories.

When analyzing thru the "word", different meanings are sought within it that can broaden the perspective on what is being expressed. What is the meaning of that word within the context of the sentence? What does it make explicit or not explicit? This word-by-word analysis is called microanalysis of data[19].

The coding by "sentence or paragraph" is a technique more commonly used when the categories are already established and a relationship between them is sought. This technique requires the researcher to look at the sentence or paragraph and ask themselves about the main idea revealed there and name it.

The last open coding technique proposed by Strauss and Corbin[19] is to "read the entire document carefully", observe what is presented in the text, and seek to establish relationships of similarity and difference between it and other analyzed texts, aiming to code similarities and differences between them.Here is an example of line-by-line analysis. In the first column is the participant's name; in the second, the question that generated the theme discussed during the meeting; the third column contains the question asked by the researcher about the meaning of the phrase; and in the fourth column, the location code used to identify the event is observed. In the location code, the first number indicates the observed event, the second the meeting[8], and the letters are the participant's initials[9]. This code will be important at the time of locating and organizing the data for the analyzes that will be carried out at other times, since data with the same context can appear in different meetings.

Table 2: Line-by-Line Analysis Model

Codenameteacher	How do you perceive playing today?	What is this? What does this represent? What do these data mean?	Locationcode
Pimentinha (Little Pepper)	They like to**run**.	The child's need to move during play.	13;02;PI
	Teacher J. (of Physical Education) is **my favorite teacher, she takes me outside to play** (repeating a student's words).	The student likes the teacher who takes him to play.	09;02;PI
Valentina	I think those **who have siblings** play more easily.	Playing as a family encourages play.	11;02;VA
Borboleta (Butterfly)	**If they even play**, right? **The cell phone doesn't allow it.**	The changes in play: traditional play is being replaced by technological play: cell phones.	01;02;BO
Valentina	I played other games**. Not that one**, the spinning top caught my attention more.	Notliking a game.	30;02;VA
Sorriso (Smile)	The whine, whine, whine.	The way families are treating children in today's world.	22;02;SO

Codenameteacher	How do you perceive play at school?	What is this? What does this represent? What do these data mean?	Locationcode
Pimentinha (Little Pepper)	Here at school, **you can't shout, it disrupts**.	The noise from the children disrupts the school.	17;02;PI
	The child must take **pleasure in returning to school.**	The school has to be an attractive place.	18;02;PI
	The school playground **is a smooth place, the surface is not good** for playing.	Play areas: the lack of adequate spaces in the school.	06;02;PI

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[8] In the research that originated this article, 13 training sessions were held.

[9] This code was the one that best adapted to the data organization done by the researcher, but it can be done in other ways, according to the researcher's needs or even not done at all.

Codenameteacher	How do you perceive play at school?	What is this? What does this represent? What do these data mean?	Locationcode
	The school **doesn't have a place** to play.	The play spaces: the school doesn't have space to play.	06;02;PI
Dori	**In our time, it was completely different** from what it is today. Today it's different, you play, it's not just an activity. In our time, it **was just sitting down, looking straight ahead, at the back of a friend's head, you couldn't make a peep, make a noise**.	The changes that time brings: the school was different, there was no playground, there was no talk of playing at school (children used to enter school at 7 years old in elementary school, now they enter at 4). Hasthatreallychanged??	15;02;DO
Dori	In my house, there was a wall covered with round stones, **we would take them off** (she said, whispering, as if she were doing something wrong at that moment. It caused laughter)[10]. She was really smooth, great for playing.	The emotions of play: - Playing encourages daring; - Playing encourages problem-solving; - Playing promotes creativity (looking at the wall and seeing something to play with).	27;02;DO
Sorriso (Smile)	My son studied at this school, the playground was made of wood, with dirt and grass. He was sad when they put down cement. (I remembered the time when I worked at the school daycare, in 1995).	The play spaces: - In the past, there was space; - The changes in the spaces at school.	06;02;SO
	The **system confines** the child.	The organization of the school hinders play, the system does not want play.	21;02;SO
	The child **has to have a story** to tell.	The child: playing creates memories. What memories are being provided to the children?	31;02;SO

Codenameteacher	After the game of Five Stones	What is this? What does this represent? What do these data mean?	Locationcode
Pimentinha	**I used to make** it with construction sand or something like that. Youcanalso use kitchen rice..	Memories of play: play creates memories.	25;02;PI
		Learning thru play.	28;02;PI
Serelepe	This is the Nutella version, because **the real one** has little stones.	Memories of playing: playing creates memories.	25;02;SE
		Ways of playing: the same game can happen in different ways.	08;02;SE

Source: adapted from Quaranta[6].

The moment of open coding is very dynamic and requires many back-and-forths. For this reason, various groupings of the observed phenomena were carried out, as can be seen in the following tables, where some examples of central themes or properties of the categories are presented, which do not yet express the research categories, but served as initial bases to look at the data and seek the categories or subcategories, in their properties and dimensions, to then be related "through hypotheses or statements of relationships" [19;121]and, thus, enable the definition of the central category or core category.

The process of open coding "line by line" began after each meeting, where the teachers' speeches were categorized and organized according to the meaning of the sentence (table 3). For this reason, one can observe in the table the

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[10]Making notes about how the participant expressed themselves during the recordings is important at the time of data analysis for understanding how the speech occurred.

repetition of the same code several times, which meant that that perception emerged not only at one moment but in different statements by the teacher during the meeting or even in different meetings.

Table 3 - Model of organization of open coding after line-by-line analysis

Observedproperty	Locationcode		
The child	13;02;PI	31;02;SO	
Playing: difficulties	17;02;PI	30;02;VA	
Playing: ways	08;02;SE	01;02;BO	
Playing: thetoy[11]			
Playing: possibilities	28;02;PI	27;02;DO	
Space	06;02;PI	06;02;PI	06;02;SO
Family and Society	11;02;VA	22;02;SO	
The teacher: education			
The teacher: memories	25;02;PI	25;02;SE	
System	18;02;PI	21;02;SO	
Technology			
Time	15;02;DO		

Source: own elaboration, based on Quaranta's research[6].

After the classification process by encounter, the data began to be organized by central themes, which emerged according to the perceptions of the researcher and the participants. At this moment, it is not possible to know which themes will emerge as categories and which will be subcategories; this will only occur with the development of the analysis process, after successive organizations and comparisons are made with the data.

In the research, in addition to the property of the child, briefly presented in Table 4, the following also emerged from the analyzes based on line-by-line analysis as properties for observation and analysis: space, time, technology, family and society, the system, the teacher (training and memories), and play (possibilities, difficulties, modes, and toys), which were compared and observed exhaustively to identify points of convergence and divergence among them.

In the table, two levels of explanation of the observed phenomena can also be observed: "(a) the actual words used by our informants and (b) our conceptualization of these words" [19:126], since when data analysis is conducted, the interpretation of the data is carried out by the researcher

Table 4 - Examples of grouping by sentence based on the property child

The Child		
Time		
Phrase from theteacher	**Locationcode**	**What's happening?** **What did the teacher mean?**
Most are **only children** or have **much older siblings**, around eighteen years old, or **only interact with adults**.	14;05;GI	Changes in contemporary society that affect the way children play, both at home and at school. The new times.
They play with things very quickly, they get bored very quickly.	39;06;SO	The child's time, what is their limit of concentration? The child's lack of concentration, things catch their attention for a short time. Playtime.

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[11] In the second meeting (meeting used for the preparation of table 2), no data related to this property were presented, nor to the properties of teacher: training and technology. For this reason, there are no codes that represent them in relation to the meeting used as an example. The time property only presented a code in the second meeting.
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Space		
Phrase from theteacher	**Locationcode**	**What's happening?** **What did the teacher mean?**
He spent two years hitting, fighting at home, without space. We even say hallway, **hallway is not for running**, but they see this here.	40;06;VR	The lack of adequate spaces: Covid-19 made children stay at home, and many didn't have space to run, so now they see the school corridor as a racetrack. The child sees other possibilities for using the space, different from the adult.
It's strengthening the work within the school, which we promote the **frustration**, but **at home, we don't**. It'scomplicated.	18;11;SE	The school: a space for learning: not doing everything the child wants can also be educational. When playing, not all of the child's wishes are met, and this can be educational and can happen within the school.

Possibilities		
Phrase from theteacher	**Locationcode**	**What's happening?** **What did the teacher mean?**
The child **has to have a story to tell**.	31;02;SO	The memories of playing will be recollections, and while playing, the child creates memories that, when an adult, will be remembered with joy.
It's really cool (to watch the child), they come up with such gems. **We watch their reasoning**, it's very interesting, the discussion, the speech.	01;03;CD	The need to understand the child's reasoning. When playing, the child exposes their reasoning and creates, but to understand the child's reasoning, the teacher needs to be observing, paying attention.
They never want **to play with their own toys**. The boys like movement, they make balls of playdough to throw at each other, they bump their cars into each other. They only know how to play with violence. The girls are all about the little food, they like to be housewives, the mother. They imitatethefamily. We are social beings	24;04;VR	The different ways boys and girls play. Is the boys' violence real? Do they perceive what they are doing as violence or as a game? The difference in perception between the adult and the child regarding the same phenomenon. The curiosity about what belongs to others. The possibility of exchanging toys during play allows the child to develop negotiation, interaction, and socialization skills that do not occur in other situations.
Children **set the rules** of the game.	01;05;BO	The child knows how to organize themselves. She is capable of organizing the game and is very strict about the rules of play. If a rule is not respected, the child stops playing, ending the game or removing the peer who broke the rule. This enables the learning of rules, the emergence of leadership, socialization, encouragement of speech, and the child's autonomy.

Dissonances		
Phrase from theteacher	**Locationcode**	**What's happening?** **What did the teacher mean?**
Their change in pedagogy is noticeable**; they are understanding** well that playtime is for playing and activity time is for activities.	06;04;BO	Play vs. activity. Depending on the teacher's positioning, even if they think they are playing a game, the child perceives it as an activity. The child knows how to differentiate between playtime and activity time. Playing requires certain characteristics, and if these are not met, the child will not perceive it as play, and the moment will not be considered playtime.
Last week I asked them to come up with a game, and it was even cool because the week is going to be the week of dreams, and it ended up coinciding with what they did.	23;04;SO	The child is creative, but the adult does not notice. There is a need for adults to understand the characteristics of children, to pay attention to their speech, their creativity. The research allowed the teacher to look at the children and

Dissonances		
Phrase from theteacher	**Locationcode**	**What's happening?** **What did the teacher mean?**
I told the **boys**, let's create something different? [...] With the **girls**, I have the rolls that I get from the market for them to play with playdough. But I said, let's create something with them? [...] **I thought**, wow, how creative **they are!**		notice their characteristics that often get hidden amidst the daily tasks. The teacher's encouragement of separating boys and girls while playing. Class of Preschool I, four yearsold.
We went to play a game and there was a student who said, **but do adults play?** I said, adults play too. And I started playing with them. She **was amazed** because I was going to play with them.	02;05;CD	Playing vs. being an adult. The adult positions themselves in such a distant manner from the child that they cannot perceive that the adult also has the capacity to play. There is a need to break the paradigm: An adult plays and can play with the child without ceasing to be an "adult." This can also be an influence of a society that devalues play by children, seeing it as something lesser.

Resistances		
Phrase from theteacher	**Locationcode**	**What's** **happening?** **What did the teacher mean?**
We can be the best teacher in the world, I can stand in front of my class and turn upside down for the child to hear me**. If she doesn't want to**, if she **isn't ready for it, she won't learn.**	02;03;DO	The conditions for learning (time to learn/wanting to learn): for the student to learn, it doesn't only depend on the teacher, it also depends on them. I remembered bell hooks (2017, p. 19): "this class, more than any other, made me abandon once and for all the idea that the teacher, by the simple force of their will and desire, is capable of making the classroom a learning Community".
That's when you saw the photos that are in the group, but before we got to the little house, **I played** tightrope clown, jump the pirate. She looked and said, "**will you play jump the pirate with me**?" I played a little bit there.	12;05;EP	Can adults play? Although there is resistance for adults to play, when this situation occurs, they get closer to the child and create bonds. The teacher plays with the child, despite the pressures he feels, he manages to play with them. The child likes and expectshimto play.
On those rainy days, **not playing**, wow, **how much we missed it.** Wow, how **restless** they were.	24;05;SE	Playing resides within the child, it is an urgent need for them, and its absence brings negative consequences for the child's behavior.

Source: own elaboration, based on Quaranta's research[6].

Axial coding is a moment that occurs concurrently with open coding, in a natural sequence of continuity in analysis. Its objective is to "begin the process of regrouping the data that was divided during open coding"[19:124]and occurs from the moment the data have already been exhaustively analyzed and categories begin to emerge, being seen as "the act of relating categories with subcategories along their lines, properties, and dimensions"[19:124]. It is a moment when the main categories of the research begin to emerge.
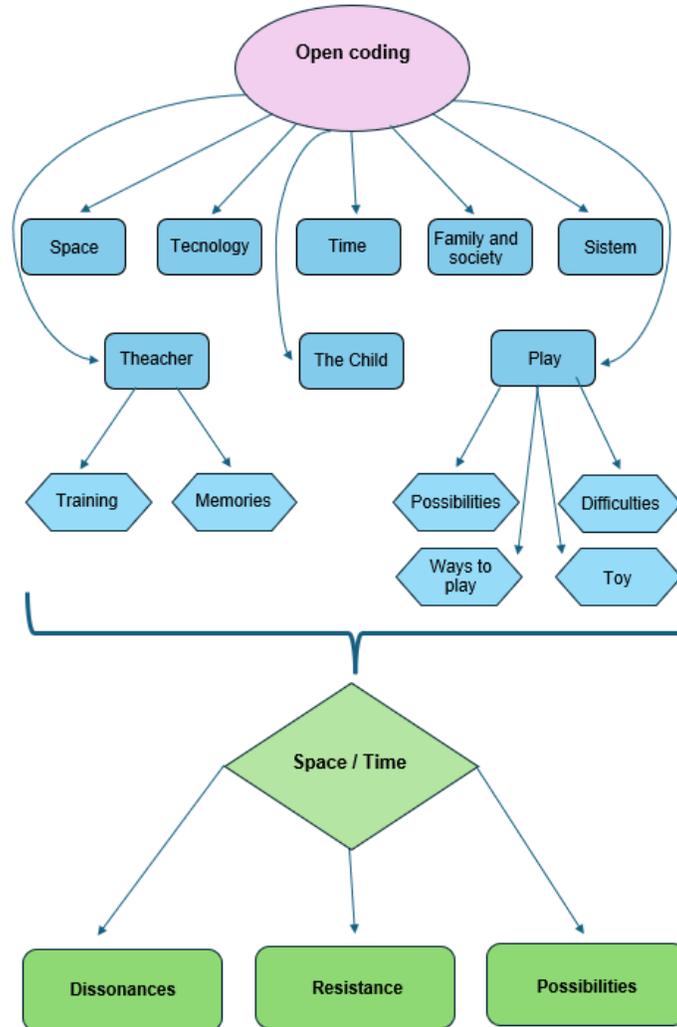
The definition of what the categories of a research study will be is not a choice of the researcher; they must emerge from the data, and this occurs through readings, the questions posed to the observed data, and comparative analyzes of the material carried out based approximations and distances in the search for how the presented categories relate to each other[19].

In the research, the analysis led the properties that initially emerged to a new perspective, as can be observed in the flowchart presented in Figure 1, in which the properties that appeared in the open coding indicated a main category that was named Time/Space, which led to three categories named: Dissonances, Resistances, and Possibilities.

What is the time/space for play within the Early Childhood Education school? How, where, and in what way do the dissonances, resistances, and possibilities found in the data influence the time/space of play within Early Childhood

Education schools? Given this categorization, questions such as why, in what way, where, when, how, and with what results, suggested by Strauss and Corbin[19]. to aid in the contextualization of the phenomenon, could begin to be answered and allowed for the understanding of the object of study from a completely new and unexpected perspective.

Figure 1 - Flowchart of the development of categories

Source: Quaranta[6].

An important observation that the GT brings us about the definition of categories is that they are not fixed, a

another researcher, coming from a different theoretical orientation and having another research question, could arrive at a very different interpretation. However, once the analyst explains in detail how they arrived at a conceptualization, other researchers, regardless of their perspective, may be able to follow the analyst's logical path and agree that this is a plausible explanation for what is happening [19:146].

In this way, there is not a single path and a single answer to the data, but rather one that responds to the researcher's guidance, allowing them to follow different perspectives according to their analysis. However, the chosen path must be explained and coherent so that others can follow it.

Although GT still suggests a third form of analysis, selective coding, this was not used in the research that gave rise to this text. The main reason for its non-use was the time required to complete the research. Delving into the selective analysis would require a time that, due to the deadlines imposed by the system for the completion of theses

and dissertations, has become unfeasible. For this reason, we will only present the selective analysis, but we will not delve into practical examples.

Selective coding is the moment to refine the theory in the "search for internal consistency and logical flaws, completing poorly developed categories and pruning excesses, and validating the scheme" [19:155] so that the theory can be formalized. At this stage, the categories will be refined and integrated into a larger theoretical framework thru a review of the data in search of their validation.

Considerations (even if provisional)
Conducting research based on Pedagogical Action Research (PAR) as a field research methodology and Grounded Theory (GT) for the critical analysis of data was a challenge that required dedication throughout the entire development of the research.

The PAR, being formative research, is a methodology that required time for its development, where, during the reflective meetings, the teacher had the opportunity to discuss concepts, perceptions, and possibilities for a pedagogical practice that would bring meaning and significance to their work. In this type of research, the researcher always has the subjectivity of the subjects of the practice before them throughout the process, which increases the complexity of this form of research and at the same time densifies the quantity and quality of the data and knowledge being constructed.

The GT, in turn, requested time, collective syntheses, in-depth analyzes, and abstraction to look at the data, allowing them to be understood in an articulated and continuous manner, producing partial syntheses of knowledge about the reality being researched.

The time factor presented a significant challenge, limiting the depth of the final stage of data analysis. Due to a lack of sufficient time to perform an in-depth selective coding process, it was not possible to further refine the findings – a step that would have undoubtedly enhanced the overall analysis.

At the beginning of this article, we questioned the possibility of a GT, from a critical perspective, being able to contribute to the consolidation of the data constructed during a PAR into a theoretical approximation. We were able to observe that the practice of a GT can be a facilitator in the organization of research data, as it is carried out systematically, opening doors to new questions that are reattached to the initial analysis, approaching the methodology of cyclical spirals used in PARs.

The methodology of data organization thru GT allows for a movement that, while systematizing some data, also drives the production of new questions and new perspectives during the research process. Therefore, it helps us redirect our own fieldwork by producing cyclical spirals of understanding the meanings being developed. This dynamic also facilitates that, when drafting the data analysis, the way the researchers synthesized and interpreted the data becomes more transparent.

Conducting research on a critical database, utilizing both PAR and GT, was a demanding task. It required significant dedication and time to integrate these two methodologies into a single project. However,the results obtained by Quaranta[6]were highly rewarding, offering a methodological breadth that allowed the data analysis to approach the formulation of an educational theory.

Transparency and reliability in the obtained data are also key distinguishing factors made possible by the integration of PAR and GT. Furthermore, this approach fostered a deeper understanding of the results among both teachers and researchers. This, in turn, facilitated broader discussion within the school where the study was conducted and led to a better grasp of the importance of play in early childhood education.

These results demonstrate that qualitative research can generate data that – when subjected to in-depth and methodical analysis – can confirm or generate new theoretical perspectives.

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