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MEANING NUCLEI: THE DIALECTICAL APPROACH OF MEANING APPREHENSIONS PRODUCED IN GROUPS

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Abstract

The objective of this paper is to explain a form of analysis based on the proposal called meaning nuclei, in order to clarify the dialectical apprehension process of meanings produced in groups. Based on the Socio-Historical Psychology, the paper is divided into three sections that debate an investigation carried out with the management teams of three public schools in São Paulo. The first one discusses elements of the context in which the research was carried out. Then, the analysis procedure, focusing on the material and definition of the research *corpus* is detailed. Finally, the paper presents an internuclei analysis, in which, by looking into the questions that emerge in each nucleus, the authors show the bindings that articulate them. This process takes place under the light of the theoretical basis of contemporary literature on the subject studied.

SCHOOL MANAGEMENT • GROUPS • DIALECTICAL MATERIALISM • RESEARCH METHODOLOGY

NÚCLEOS DE SIGNIFICAÇÃO: ANÁLISE DIALÉTICA DAS SIGNIFICAÇÕES PRODUZIDAS EM GRUPO

Resumo

O objetivo do artigo é explicitar uma forma de análise, baseada na proposta denominada núcleos de significação, com a finalidade de elucidar o processo dialético de apreensão das significações produzidas em grupos. Fundamentado na psicologia sócio-histórica, o estudo aborda uma pesquisa realizada com equipes gestoras de três escolas públicas de São Paulo. São discutidos elementos do contexto em que foi realizada a pesquisa, bem como o procedimento da análise, com enfoque no material e definição do *corpus* da pesquisa. Apresenta-se uma análise internúcleos, na qual se articulam os núcleos produzidos na análise das questões que emergem em cada um deles. Esse processo se dá à luz da base teórica da produção contemporânea sobre o tema estudado.

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NÚCLEOS DE SIGNIFICACIÓN: ANÁLISIS DIALÉCTICO DE LAS SIGNIFICACIONES QUE SE PRODUCEN EN GRUPO

Resumen

El objetivo del presente artículo es explicitar una forma de análisis que se basa en la propuesta denominada núcleos de significación, con la finalidad de dilucidar el proceso dialéctico de aprehensión de las significaciones que se producen en grupos. Fundamentado en la psicología sociohistórica, el estudio aborda una investigación realizada con equipos de gestión de tres escuelas públicas de São Paulo. Se discuten elementos del marco en el que se efectuó la investigación, así como el procedimiento del análisis, con enfoque en el material y la definición del *corpus* de la investigación. Se presenta un análisis internúcleos, en el que se articulan los núcleos que se producen en el análisis de los temas que emergen de cada uno de ellos. Este proceso ocurre a la luz de la base teórica de la producción contemporánea sobre el tema estudiado.

GESTIÓN ESCOLAR • GRUPOS • MATERIALISMO DIALÉCTICO • METODOLOGÍA DE INVESTIGACIÓN

NOYAUX DE SIGNIFICATION : ANALYSE DIALECTIQUE DES SIGNIFICATIONS PRODUITES EN GROUPE

Résumé

L'objectif de cet article est d'expliciter un cadre d'analyse fondé sur les noyaux de signification dans le but d'élucider le processus dialectique d'appréhension des significations produites en groupes. Basée sur la psychologie socio-historique, l'étude porte sur une recherche menée auprès des équipes de gestion de trois écoles publiques de São Paulo. Des éléments du contexte dans lequel s'insère la recherche, ainsi que la procédure d'analyse sont examinés, particulièrement le matériel et la définition du *corpus* de la recherche. L'étude présente une analyse inter noyaux dans laquelle s'articulent les noyaux produits dans l'analyse des questions qui émergent de chacun d'entre eux. Ce procédé s'effectue à la lumière de l'apport théorique de la production contemporaine portant sur le thème.

GESTION SCOLAIRE • GROUPES • MATÉRIALISME DIALECTIQUE • MÉTHODOLOGIE DE RECHERCHE

THE PURPOSE OF THIS PAPER IS TO EXPLAIN A MEANS OF ANALYSIS BASED ON A PROPOSAL that is called *meaning nuclei*, with a view to clarifying the dialectical apprehension of meanings produced in groups. Therefore, the paper aims at explaining how this procedure takes place in research designs that have look at the group as their subject of study. It is worth mentioning that mentioning that the term “signification” is employed with a view to express the dialectical articulation between senses and meanings, thus revealing that individuals and society, thought and language, affect and cognition constitute relations acknowledged as units. For this reason, we also explicitly show the radical need for the use of theoretical and methodological presuppositions of the Dialectical-Historical Materialism, as well as their developments in the Socio-historical Psychology.

The fact that more than one subject – or group of subjects – is taken as corpus for analysis has generated the need to change the procedure that was used until today so as to meet the needs posed by the material reality under analysis. Consequently, we have added new possibilities of analysis when we work with groups of subjects, i.e., possibilities that could enable us to analyze the link between significations produced within the group, which is understood as an organic whole that is, at the same time, unique yet contradictory, whilst we also ponder that the significations produced are exclusive to each space, simultaneously unique and historical. Considering this new moment, it has become urgent to create procedural and analytical strategies that could allow us to dialectically apprehend the significations produced, understanding them as an expression of the group dialectics, which, at the same time, is an essential constitutive element of the significations that compose the group. That said, we ought to clarify that, in this study, we take the notion of group as a meeting of subjects that gather together to democratically, critically and collaboratively discuss a certain theme / proposal.

Marked by group analysis, this research process has also highlighted the epistemological need to use the category that is proper to Socio-historical Psychology – the “subjective dimension of reality” – since it enables the creation of theoretical resources that can explain and clarify the construction and shape of signification processes, their links, contradictions and syntheses that – when understood as an organic, singular and historical whole - reveal a certain subjective dimension of reality. In our example, a subjective dimension of School Management. We will return the topic of subjective dimension of reality in the discussion of the categories that underlie our analysis.

Before starting the discussion about the use of the analytical proposal, called Signification Nuclei, it is necessary to remember that this procedure has the clear intention of indicating a speech analysis process (speech transcription), understanding speech as our starting point, still apparent, but considering the essentiality of the categories, totality and historicity through the analytical process. We therefore explain that it is essential to take the transcriptions of the speeches in order to apprehend our object and objective of study, but that it should never be understood as a phenomenon that is detached from the social and historical relations that shape the subjects and their entire expressions.

According to Cury (2000), the Dialectical-Historical Materialism differs from the formal methodology of bourgeois science when it follows the search for totality in its investigations of reality, thus being committed with revealing the historical movement and its contradictions, as well as the possibilities for overcoming them.

It is this reasoning that supports the theoretical-methodological procedure of signification nuclei. By adopting this framework, we deny dualistic conceptions that separate objective from subjective, social from individual, affective from cognitive. We therefore move away from idealistic

positions – in which the subject is constituted despite the social –, and from mechanistic and/or “unrefined” materialist positions, which deny the subject as producer of social reality. With this in mind, we sustain historicity, materiality and dialecticity as essential to our analysis. This reasoning will lead us, from the first readings of the research material (the subject's speeches), to the selection of pre-indicators¹, the constitution of indicators and finally to the organization of the Signification Nuclei. This is the process that will allow us to apprehend the historical process in which the subjects dialectically constitute the group as well as each other.

Keeping with the coherence of the announced method, it is important to emphasize that this analytical movement cannot happen in a linear manner, but as a process that dialectically organizes and reorganize itself, always seeking to apprehend the what is real beyond appearance. It is, therefore, in line with the dialectical movement of analysis of reality that the objective of this paper is proposed, having this analytical idea in mind, especially with regard to the significations produced in groups of subjects.

What we aim to achieve by analyzing the subjective dimension of reality is not simply to apprehend the significations that the subjects put forth. Rather, we want to have these dimensions, as well as the mediations that constitute them, as starting point to focus and shed light on the phenomenon that we aim to explain. Therefore, the goal is to understand the links and composition of the significations constituted by subjects in the activities in which they are engaged, regardless of whether these are about the views of the world that are produced within the school, about school management, or even significations about public policies, laws, regulations, pedagogical proposals that constitute the educational system. In other words, what we seek is to understand how this dimension, which is subjective, moves reality. In order to make this discussion explicit, this paper was structured as follows: we will present the context in which the research was carried out; then, we will detail the analysis procedure (selection of material and definition of the research corpus); we will then present the internuclei analysis.

Research context

The example that we will use was taken from a Doctorate investigation (Aranha, 2015), which focused on three school management teams, each one composed of a principal and his/her deputy², and a coordinator. The institutions were two State Schools and one Local School, all of which are located in the City of São Paulo and surrounding towns, which is a group of municipalities known as the Greater São Paulo.

The participants (three principals, three coordinators and two deputy principals) were selected because they worked in three schools that volunteered in projects developed by research groups in which the researcher was also a participant³, and which were organized and led by researches from the Pontifical Catholic University of São Paulo (PUC-SP).

The main aim of the investigation was to understand the phenomenon of school management, having as a starting point, the perspective of the subjects that experience it.

The information was produced in each of the three schools, by means of interviews, reflective meetings and teacher education encounters with the participants, in addition to the use of information from other sources, such as political-pedagogical projects, school regulations and educational laws, thereby allowing for the development of a dialectical and historical analysis of the investigated

1 These concepts will be explained throughout the chapter.

2 Note that the job of principal assistant or deputy did not exist in the Pre-Primary Education Centers (CEI) in the Municipality of São Paulo when the investigation was carried out. Therefore, only two of the schools had a deputy principal.

3 Research Groups: Teacher Activity and Subjectivity (GADS) and Language in Activities within the School Context (LACE).

institutional context. As a means of methodological organization, each school had its own meeting schedule (some of which were with each individual and others were collective). Every meeting and encounter with the researcher with each team was transcribed, thus constituting our corpus of analysis.

The selection of participants was guided by the possibility of finding very favorable conditions to apprehend the managerial teams' significations about what they do and how they do it, observing them in their activities, discussing with them, sharing information and preliminary analyses. This choice was filled with intentionality, because the conditions verified – and also constructed –, in which the meetings, conversations, information production took place were extremely adequate to the objective of the investigation. In this sense, the previous knowledge about the participants and their contexts – which were possible because of the fact that they had joined research and teacher education projects –, as well as the long-term relationship that was established between them and the researcher, enabled the development of critical collaboration, marked by mutual respect and recognition, which favored the exchange of materials, the depth of discussions about the legal guidelines of the managerial teams' activity, a broader understanding of the specific context of each school, as well as their implications, and the differences and similarities in relation to the different networks in which the schools were inserted (Local/Municipal or State Governments).

Analysis procedure: selection of material and definition of research corpus

In order to analyze the data, the methodological resource adopted included the following movements, which were dialectically articulated: floating and recurrent readings of the transcribed material; identification of the word (s) with meaning; pre-indicator (s); grouping of pre-indicators into indicators; and articulation of the indicators: the constitution of signification nuclei. We will resume each of these steps below.

Floating and recurrent readings of the transcribed material

In Aranha's investigation (2015), after all the material had been collected, i.e., material referring to the three schools and their managerial teams (principals, their deputies and coordinators), we carried out a thorough and recurrent reading of it all, including the transcriptions of the events that constituted the corpus (meetings, interviews, teacher education meetings).

Initially, we tested possibilities of nuclei that contained indicators that covered participants' speeches from the three schools, and we did this exercise. However, we remembered that the proposal of "signification nuclei" which we carry out here is to dialectically combine the social and historical conditions that favor an analytical movement that can apprehend the subjects' constitutive processes gathered in a group, and thus, apprehend the genesis of significations that are produced in that context. As a consequence, we understood that it was essential to avoid losing any possible elements that were specific to the groups analyzed - from different institutions – i.e, it was essential to keep the materiality to be analyzed.

Following this idea, each nucleus aggregated speeches produced in a single school. This choice proved to be correct, since, from the analysis of each institutions' intranuclei, we arrived at syntheses that, presenting the constitutive mediations of that space, classified the internuclei analysis. This took place because, in the last phase of the Signification Nuclei (SN) analysis, we had the possibility of articulating elements and theories that were very consistent with each institution, enabling the achievement a deeper, and broader understanding of the focused theme – i.e, of the educational scenario, its diversity and complexity, with its challenges and overcoming possibilities.

Initially, we read the each school's material several times, and in each time, carrying out what we call fluctuating reading. At first (even though we must admit that we already had an objective), the reading did was not focused on finding specific aspects or categories, but on deepening the knowledge of the material from that specific reality.

Later, in a second moment, we returned to the reading, but this time, with the objective of highlighting aspects that called our attention due to the characteristic of what was reported (in the case, for example, of being related to the investigation's objective), or of the frequency, reiteration, appreciation tone, or the importance that was stressed in the informants' speeches, the emotional load that could be felt in the context, insinuations that were not fulfilled, or even due to the quality of the reflection (Aguiar & Ozella, 2006, 2013).

Thus, in this movement we took into account the assumptions of the method regarding the understanding that making science implies making cuts. At this moment, our corpus of analysis, or our empirical information, are the subjects' speeches, and our clipping, or rather, the unit of analysis used by us is the word itself, here understood as signification (i.e., senses and meanings). By following the Marxist proposition, taken up by Vygotski⁴ (Vygotski, 1934/2001), we therefore state that the unit of analysis refers to the "smallest part that reveals the properties of the whole"; i.e., that reveals the essential properties of those concrete subjects that were our focus. Thus, the use of the notion of signification is justified, since it is understood as the articulation of the senses and meanings, as the synthesis of the objective and the subjective. To illustrate such discussion, Vygotski (1934/2001, p. 8) states that one:

Should find these properties that are not decomposed, that are maintained, are inherent to a certain totality as a unit, and find the units in which these properties are contradictorily represented in order to try, by means of analysis, to solve the challenges that are presented. *What unit does not allow itself to being decomposed and contains the properties that are inherent to verbalized thought as a totality? We think that this unit can be found in the internal aspect of the word: in its meaning.*⁵ (Vygotski, 1934/2001, p. 8, our emphasis; own translation).

It is important to remember that, since the beginning of the analysis and, therefore, of the abstraction process, guided by the fundamentals of the Dialectical-Historical Materialism, we emphasized the need to understand how the singularity reveals the totality, mediated by the particularity (Oliveira, 2001). Thus, we intended to highlight such units in their specificity and materiality so that, through the analytical and interpretative path – by means of apprehension and articulation of mediations (particularities = historical, social, institutional, political, ideological elements, among others), produced within and by the social and historical totality - we can unveil and shed light on elements belonging to the Subjective Dimension, or in other words, elements of the School Management phenomenon. We reaffirm the importance that the cuts made compose a unit of signification. This initial moment of analytical and interpretative process will be called the organization of the pre-indicators, as shown below.

Identification of word(s) with signification – pre-indicator(s)

As already presented, we understand that the pre-indicators must contain and express materiality, i.e., the significations of the subjects substantiated in signs, that is, in words with meaning. Thus, by using Kosik's reasoning (1963/2011), in this first movement, we "pulled" these expressions out of their immediate contexts, making them relatively independent, and bearing in mind that they carry significant information that will enable not only the highlight of issues that may constitute important theses to be investigated, but also might prove essential to reinstating the totality.

4 We have adopted the writing Vygotski, as per *Obras Escogidas*, but we preserve the other writings used by scholars that are quoted in this paper.

5 In the original: "Deve encontrar essas propriedades que não se decompõem e se conservam, são inerentes a uma dada totalidade enquanto unidade, e descobrir aquelas unidades em que essas propriedades estão representadas num aspecto contrário para, através dessa análise, tentar resolver as questões que se lhe apresentam. *Que unidade é essa que não se deixa decompor e contém propriedades inerentes ao pensamento verbalizado como uma totalidade? Achamos que essa unidade pode ser encontrada no aspecto interno da palavra: no seu significado.*"

To exemplify, we will use some pre-indicators that were constituted during the analysis of information.

Example 1: marking the pre-indicator

- Principal Elza 23/04/12 – That was what I was talking about, I mean, I think, no, I am sure that ***managing people is the most important thing in the school***, the teacher-staff member relationship and even for the student this is true. ***If this relationship here is not good, for the student, it will be terrible***. One thing that I have learnt in this journey is: ***if the teacher is not happy, the child will be unhappy***.

Note that, in the example, we highlighted in bold the words that we consider to be units of analysis, those that constitute a unit of signification, i.e., words that are inserted in a context that qualify them and, therefore, reveal something that is specific to the subject, as exemplified below.

The example shows that we always identify each participant, which has allowed us to organize indicators with more than one participant.

Example 2: identification of each participant

- Deputy Principal 23/04/12: *I think that, **this is a Community that comes to the school for everything they need**, they think that **the school can solve everything**, don't they?*
- Coordinator 23/04/12: *You see, it is a **difficult Community**, we are surrounded by two slums, aren't we? **The student comes to school wearing flip flops**, even if it is freezing cold, we have to **make a hot cup of tea for them**, to try to warm them up, because **they can't focus on the lesson**.*
- Principal Elza 29/05/12: *When I tell the teachers that **the children need to be treated well**, because **this is the only place where they feel like people, actual human beings**.*
- Principal Elza 08/10/12: *In my [class] allocation, **I ask what they [teachers] want**.*
- Principal Elza 08/10/12: *This **pedagogical side I don't have**. **I struggle to have, I think I don't have . . . I am not very pedagogical**, I say that I am more administrative than pedagogical. **This is a flaw of mine, until today, I tried studying**.*
- Principal Elza: *Yes. In 83, I finished my undergraduate course [in Mathematics] and took a **pedagogical complementation course**. Then the principal of the school where I worked invited me to become her assistant. **So, I stated as an assistant. . . . I tried it out, and it worked**. It was good. I learned a lot with her. With her, I learned the **office work. Not management work, no. I learned to deal with people, to be nice**.*

As we have already pointed out, the pre-indicators presented in the previous paragraph were apprehended after several readings, and this process was organized and reorganized, and revised so that new pre-indicators could be found, and others suppressed. It is important to remember that the pre-indicators should be seen as “theses” that can, depending on the progress of the analytical process, be rejected at any time, due to a new arrangement that may, in this process, create a new interpretation that can express a breakthrough in the analytical-interpretative movement.

We intentionally brought an example in which we have already carried out the process of articulating pre-indicators that reveal similarity and complementarity in relation to each other, and this is itself the result of the researcher's analytical effort to seek the totality in the material that is available (research *corpus*), i.e., the pre-indicators that are possible to be linked as per the criteria that have previously been pointed out.

By building pre-indicators, we have more clarity as to some of the central matters addressed by the subjects. With that in mind, we started the movement of linking or articulating pre-indicators with the intention of resetting the whole. The intention is that the articulation of pre-indicators

into indicators may produce a new relationship of the significations that are targeted by the subjects, so that we can move towards more totalizing explanations, expressing the researcher's progress in apprehending the links between the historically constituted uniqueness of the subjects. To proceed with this articulation, the proposal, as already pointed out, is that we use the criteria of similarity, complementarity and contrast.

Grouping pre-indicators into indicators

The articulation of pre-indicators, which end in the constitution of indicators, creates the possibility of the emerging a new group with another explanation potential.

The pre-indicators then compose a group that is dialectically linked, i.e., significations in this group are analyzed as multidetermined, within the dialecticity that constitutes them, thus generating another synthesis.

In this moment, the possibility of finding other elements referring to the subjects, as a result of the organization of pre-indicators, creates conditions for the researcher to grasp and dialectically link significations that may have been dispersed in speeches, but are now organized into indicators. This occurs even if the links are not immediately visible, but when articulated, generate new explanatory syntheses. As an example, we will look at a possible articulation of these pre-indicators that resulted in an indicator (Figure 1).

FIGURE 1
ARTICULATION OF PRE-INDICATORS AND INDICATORS: FEATURES OF THE CONTEXT NEAR THE SCHOOL AND THEIR IMPLICATIONS FOR THE MANAGERIAL TEAM'S ACTIVITY

Pre-Indicators	Indicator
<ul style="list-style-type: none"> Deputy Principal 23/04/12: I think that, this is a Community that comes to the school for everything they need, they think that the school can solve everything, don't they? Principal Elza: Yes. In 83, I finished my undergraduate course [in Mathematics] and took a pedagogical complementation course. Then the principal of the school where I worked invited me to become her assistant. So, I stated as an assistant. . . I tried it out, and it worked. It was good. I learned a lot with her. With her, I learned the office work. Not management work, no. I learned to deal with people, to be nice. Coordinator: The student comes to school wearing flip flops, even if it is freezing cold, we have to make a hot cup of tea for them, to try to warm them up, because they can't focus on the lesson. Deputy Principal: I have also worked as coordinator, and nominated principal, but here, in this reality, that's where you need to know more. Principal Elza 29/05/12: When I tell the teachers that the children need to be treated well, because this is the only place where they feel like people, actual human beings. Principal Elza 27/03/12: The person [teacher, staff] is working, s/he does what s/he can. S/he is within their limitation as well. They don't choose to come here. Here (to this school) we see teachers that scored lower, the ones that couldn't get into other schools. Principal Elza 29/05: When I first came here, in 2005, I could really feel the poverty, in those days, I think it was worse. And it had less structure, it was in the beginning of urban development. Before [the Family Allowance Program], there were many more children that came to school hungry. 	<p>Features of the context near the school and their implications for the managerial team's activity.</p>

Source: Authors' elaboration.

We have shown above a figure that exemplifies how we have organized the constitution of an indicator from its pre-indicators, which represent the original materiality of the constitution of the indicator itself, i.e., its raw material. We once again draw attention to the fact that for the constitution of the indicator, we used the speeches of several participants from the same school, understanding that the significations affect and re-organize each other, mutually constituting one another – which contributes for our deepening of the understanding of that context, its contradictions and possibilities.

The constitution of the exemplified indicator and its name - "Features of the context near the school and their implications for the managerial team's activity" – are a synthesis of the pre-indicators

that compose it, allowing us to, for example, have a better understanding of the significations that managers attribute to the constitutive power of social reality in students' lives, and how this situation affects their professional activities. The indicator also contributes to broaden our understanding that, in regions of social vulnerability, schools are the great public-state facilities, becoming a reference for families, which unveils a scenario of inequalities and instability that affect Brazilian public education.

According to the method that guides us, it is, first of all, clear to us that the synthesis organized as the indicator is always provisional because it still does not articulate the totality of the subjects' expressions, which, given its complexity, is much more than this specific set of pre-indicators. In fact, it is clear to us that the totality, i.e., the historically constituted subjectivities, which are seen in the significations (organized and articulated at this moment of analysis as indicators), are constantly moving, being mediated by class, gender relations, race, ideology, culture, school institutional context, etc.

Secondly, though just as important, this analytical procedure clearly shows that we are guided by the importance of historicity, emphasizing it as a phenomenon that constitutes social reality.

Thus, the contents (**pre-indicators**) that constitute the exemplified **indicator** are not a random construction by the researcher. They belong to and constitute the historically constituted subjectivity of the subjects and are expressed in *their speech, in the participants' language*, being highlighted and linked as part of an analytical and interpretative effort, so as to show the constitutive and explanatory elements of the produced significations.

Many other **indicators** were constructed during the investigation, all of them carrying a set of pre-indicators.

Next, we show a **list of indicators** that were organized in the study here referred to, only some of which will be presented in this paper:

- *Features of the context near the school and their implications for the managerial team's activity;*⁶
- The importance given by the principal to the role played by education to overcome the needs of students and the community in which she works;
- *Managing people is the most important part of the school work so as to avoid causing trouble and to help teachers and students;*
- *The principal's activity in guiding the daily works within the school: between respect and assistance;*
- *Administrative matters: agreements, concessions and reprisals on a daily basis so that the student may always have classes;*
- *The principal's acknowledgement/perception of her own deficiency in terms of pedagogical knowledge;*
- *The school routine: between obstacles and conflicts;*
- *The State's absence in education* and its implication in the school's daily activity;
- The importance and absence of the school's Political-Pedagogical Project, and the result this has in the process of guiding the teachers;
- The importance given by the team to the research project that was initiating, and the daily hindrances that might affect its fulfillment;

These indicators, plus the pre-indicators that they carry, will be organized to compose the Signification Nucleus whose constitution we will present below, as a didactic effort.

6 The indicators that are in bold are the ones from which we have selected examples of pre-indicators.

Articulation of indicators: the constitution of signification nuclei

The constitution of signification nuclei is a broader abstractness, since it is a moment in which the indicators and their contents (the pre-indicators) are dialectically linked with a view to exhibit a new synthesis.

We know that the indicators express a still not very revealing part of the whole, i.e. of the analyzed subjects' significations; a part (that is constitutive of the whole and constituted by it) that lacks elements to express the totality to which we will get closer after new movements of a dialectic articulation, in this case, towards the Signification Nuclei (SN).

In this articulation movement, it is essential to consider not only the criteria that have already been mentioned – similarity, complementarity, opposition, but also, and especially, the possibility for the researcher to reveal, through this movement, some contradiction that may be seen in the significations that are targeted, present between objectified meanings.

Thus, in addition to the similarities and complementarities of the articulated content, we consider that the relationship between indicators is not formal or linear, but mediated by properties that constitute them even if these are not apparent. We are referring to those relationships in which one indicator constitutes the other, without being the other; in which, when integrated into the SN, produce new interpretations and understandings about the studied phenomenon, as shown in figure 2. We highlight the contradiction as a criterion for articulation, lest we stay at the level of appearance or of false dichotomies, ignoring the elements that constitute units of opposites.

FIGURE 2

ARTICULATION BETWEEN INDICATORS AND SIGNIFICATION NUCLEUS: BETWEEN THE COMMITMENT WITH THE COMMUNITY, THE EXCESSIVE ADMINISTRATIVE WORKLOAD AND THE NEED TO STUDY: "MANAGING PEOPLE IS THE MOST IMPORTANT PART OF THE SCHOOL"

Indicators	Signification Nucleus
<ul style="list-style-type: none"> • 1st Features of the context near the school and their implications for the managerial team's activity; • 2nd The importance given by the principal to the role played by education; • 3rd Managing people is the most important part of the school work so as to avoid causing trouble and to help teachers and students; • 4th - The importance of administrative matters: agreements, concessions and reprisals on a daily basis so that the student may always have classes; • 5th The principal's acknowledgement of her own deficiency in terms of pedagogical knowledge; • 6th- The principal's exhaustion in view of the system's limits; • 7th – The principal's education: practice and daily experience; • 8th - The importance of pedagogical competence and the deputy principal's involvement with the help of/to help the pedagogical coordinator; • 9th – The School's objectives: learning to read and write so as to be able to continue studying and have a better life; • 10th- Principal's exhaustion with regards to the State's system. Lack of material conditions and human resources; • 11th – The importance of studying to understand the community's difficulties; • 12th – The managerial team's education: effort, instability and serving; 	<p>Between the commitment with the community, the excessive administrative workload and the need to study: "Managing people is the most important part of the school"</p>

Source: Authors' elaboration.

Considering the importance given to the articulation movements in the Signification Nuclei (SN) procedure, and considering that the movements are understood not necessarily or solely by similarity and complementarity, but also by the possible contradictions existing between the indicators, we will present some examples that show what moved us in the process composition of the signification nuclei.

Next, we will didactically explain the movements we carried out to fulfill this articulation.

Looking at the 3rd and 4th indicators that were presented in figure 2 – “*Managing people is the most important part of the school work so as to avoid causing trouble and to help teachers and students*” and “*The importance of administrative matters: agreements, concessions and reprisals on a daily basis so that the student may always have classes*”, in that order – we notice that, despite the fact that they do not refer to the same matter, there is a complementary relationship between them. In other words, when linked, they reveal more clearly the type of signification produced by the Managerial Team, their tasks and the importance given to so that the children may always have classes.

However, such explanations can be expanded, and can express greater explanatory potential if we bring the 6th indicator to our analysis and interpretation, which until now has considered the 3rd and 4th indicators: “*The principal’s exhaustion in view of the system’s limits.*”

In doing so, we have created another explanatory and interpretive possibility that is more comprehensive. If the 3rd and 4th indicators refer to the immense role played by the managers and their spirit whilst complying with it, in the 6th they show that they cannot take it any longer, that they are on the edge.

By using the dialectical logic, we can say that such indicators refute each other; one denies the other at the same time that they are mutually constitutive. We can say that there is a mediation relationship between them that cannot be ignored, in which one does not exist without the other, at the same time that it is not the other. We can only move forward in our interpretative analysis if we understand the relationship between the 3rd and 4th indicators with the 6th as a contradiction. It is important to emphasize, following Harvey (2016), that here we do not refer to the existence of conflicting statements, in which it is impossible that both be truthful because, according to the author, if this were the case, we would be referring to contradiction as per the Aristotelian perspective. In the case we analyze, the two poles of the relationship constitute opposing forces that are present in the same situation, mutually constituting each other. Therefore, we must understand that the significations about the importance and need to fulfill this vital task of being members of the managerial team is constituted by the significations about objective working conditions, with its bureaucracy, its limitations and the discouragement that this frame implies.

Also about the relevance of considering the contradictions, we reiterate that they are always social and as such, constitutive of the subjects and, therefore, of the significations that can be found in the indicators. Thus, the apprehension and explanation of these contradictions in our analysis and interpretation are essential to emphasize the constitutive social and historical mediations. As Harvey (2016) reminds us, the most general and widespread contradiction in our society is that between concrete reality and appearance, and our task as researchers is to carry out the analytical and interpretative effort to overcome the opacity of what is seen as real.

As another example of the need for an analysis beyond the appearance of the constitutive mediations, we discuss indicator 5: “*The principal’s acknowledgement of her own deficiency in terms of pedagogical knowledge*”. We noticed that the managers recognize the gaps in their education, which is evident, is apparent. However, the explanations they produce are blaming, ahistorical statements, detached from any social movement. In this case, by means of an analytical and interpretative movement, we can signal the presence of the ideology that camouflages reality as constitutive element of the significations here discussed, an ideology that produces a cloudy reality and speeches such as “the schools spend too much State money”, “They (the schools), if they made an effort . . . everything would change”. Laden with social contradictions, such ideas lead to assigning blames to the subjects, and naturalizing the significations of these speeches. The ideology, in this case, an essential mediation, impels the managers to avoid referring to the lack of public universities, or to a State that is unequal, contradictory, and which, on the one hand, states the importance of education, the need for knowledge production and, on the other, scraps public education and withdraws funds from education. Our

analysis shows us that the coordinators are not aware of the contradictions that are present, naturalizing the poor education of many public school educators. When considering these elements, it is possible for the researcher to understand and theorize about the dialectical movement of subjectivity and objectivity that has historically been constituting the subjectivity. The researcher does so by leaving the appearance and apprehending the historical constitutive process constituting of significations, which undoubtedly has its genesis in the basic contradictions generated, in the means by which production takes place in the Capitalist society.

With this in mind, the Signification Nucleus(ei) (SN) must express an analytical movement to overcome previous moments (the movement of pre-indicator and indicator constitutions).

We also highlight the importance of the name given to the Signification Nucleus since, as part of an interpretative effort by the researcher, the name must express the synthesis achieved. Bearing this in mind, it is often appropriate to take advantage of some sentences uttered by the subjects that may be used to synthesize the essential contents contained in the Nucleus.

It is important to remember that the examples used here were taken from the four nuclei presented. For nucleus 1, we gathered the speeches uttered by one principal, one deputy principal and one coordinator working in one State school in São Paulo, and which we will call **school A**. Nuclei 2 and 3 group the speeches uttered by one principal, one deputy principal and one coordinator employed in another State school in the city of São Paulo, and which we will call **school B**. Finally, nucleus 4 was assembled with speeches uttered by one principal and one coordinator that work in a Center for Pre-Primary Education (CEI), a school within the Municipal Education Network of São Paulo – and which we have called **school C**

- Nucleus 1 – *“Between the commitment with the community, the excessive administrative workload and the need to study: “Managing people is the most important part of the school”.*
- Nucleus 2 – The challenges faced by management: between the commitment, the educational frailties, the devalue of professionals and the network bureaucracy: *“we don’t have teachers”* (Constituted from the material that was abstracted from the speeches of school B participants).
- Nucleus 3 – The learning process of the managerial team and the possible construction of a critical collaborative process: *“It is useless to make demands, we need to do everything together.”* (from the second school – Constituted from material that was abstracted from the speeches of school B participants)
- Nucleus 4 – School management: planning, delegating and following up: *“we think together, we follow up and evaluate”* (Constituted from material that was abstracted from the speeches of school C participants).

To conclude, from the analysis of each of the nuclei, we could constitute internuclei, with a view to recovering and moving forward in theorizing about the findings that had been apprehended in the process.

Internuclei analysis

This process of internuclei construction takes place with the articulation of all the nuclei that were produced during the investigation (from the three schools), taking into account the issues that emerged from the analysis that was carried out about each institution. We understand that it is essential to reinforce that the significations produced and apprehended are unique; they organize and synthesize the participants’ experiences, affects, reasoning and acting modes, but they can never be understood in themselves. Rather, they are seen as significations that are unique, whilst at the same time, signify and

express the managerial team, the school locus, i.e., the subjective dimension of the School Management in these three schools, and the historical, political and social conditions that constitute them.

We present below some elements that were found in the internuclei analysis of the investigation discussed here, and call attention to the fact that this movement was possible due to the researcher's analytical and interpretive effort to organize the Signification Nuclei and due to the consideration of other academic and theoretical productions in the area that could contribute to enrich the study and create zones of intelligibility about the reality that is being studied.

The first item that emerged from the analyses carried out was the importance of the school principal. In every nucleus, the power that this agent holds was evident. In their role, they can favor or hinder the development of the school project, allowing for the necessary conditions to be set up in the institution so as to allow for in-service professional education to take place involving the entire school community, and guaranteeing that the student may learn.

Taking into account what we find in the literature about this theme, and going back to some Brazilian historical roots, the importance of the principal as a teaching authority was constituted in the early years of the creation of the educational reform, established with Law 169 (1893) and Decree 248 (1894), when School Groups⁷ were founded. From that moment onwards, the principal was considered the institutional interlocutor for the administration and, therefore, took on the central role in the hierarchical-administrative structure of public education (Saviani *et al.*, 2006). Nonetheless, it is important to emphasize that the authority attributed to the position validated the principal's competence both with respect to administrative and pedagogical matters. As Paro (2006, 2012) shows, the principal was the bearer of notorious knowledge or expertise and even the guidance of teachers was up to him/her. Therefore, the administrative and pedagogic dimensions were not set apart – a point that we also argue in favor, since we understand that the administrative and the pedagogic are a dialectical pair, and one does not exist without the other.

The principal's actions must be of intentional leadership that takes the administrative scope into consideration, but intrinsically relates it to the pedagogical dimension. When the principal's activity is clarified by the pedagogical dimension, his/her power is expanded. This aspect was observed in the managerial teams' expressions that are articulated as part of Nucleus 4. There the principal is seen as a leader of the school community, a leadership that is shared with the coordinator, ready and prepared to follow up the pedagogical processes that are carried out within the school.

In Nucleus 3, we can also note the interest and discoveries of the principal (Alice) in search of a knowledge production that could collaborate to qualify her activity and the impacts of such action to mobilize the other team members.

However, for the school to become a critical and transforming educational community, and the principal – and other members of the management team – be converted into leaders will depend on the objective and subjective conditions that determine the school, some of which require that we pay attention to its structural aspects.

By analyzing the significations expressed by the management teams, we were also able to show the weight of the administrative dimension, often to the detriment of the pedagogical field, reducing the activity of the management team to mere bureaucratic aspects.

In Nucleus 1, the principal, Elza, highlighted the general difficulties with the State's computer system during the research period. In Nuclei 1 and 2, Alice and Elza expressed the rush of everyday life which occupied a significant part of their time, preventing them from dealing with the school's pedagogical dimension. Such issues are depicted in the literature: Paro (2006, 2012), Libâneo *et al.* (2012),

7 Translator's note: School Group is a model of school establishment characterized by a grouping of schools, and adopted in Brazil during the Republican period.

Placco and Souza (2012). These authors signal that the principals, and sometimes even the coordinators' actions are reduced to managing daily life, which is also their role, though not the only role they have. In Nuclei 2 and 3, principals Elza and Alice⁸ revealed how they were affected by accountability demands at all levels (salaries, canteen, purchases, maintenance, etc.) and pointed to the need for management, at the administrative level, to have a more efficient management and control system of the processes that are centralized in the institution because, as we have previously mentioned, the school currently occupies the basic unit of the educational system, and as we understand, it is responsible for the organization of the entire functional life of those who constitute it (staff, teachers, students).

Another fundamental issue apprehended was the managers' concern about the number of teachers they can count on, which ought to be prepared and recognized for their social importance. The analysis of nuclei 1, 2 and 3 indicated that the managers did not always have enough teachers and showed a constant lack of teachers, sometimes due to the State's hiring policies, sometimes due to entering exams and impromptu removals that left the school with a shortage of teachers.

In this sense, it was possible to apprehend the effort that the managerial team had to employ in order to prevent students from being left without classes – which led them to establish agreements with teachers regarding leaves of absence and medical leave – as shown in Nucleus 1, and requests for teacher substitution, which was shown in Nucleus 2. These measures, though important for the organization of daily routines, generated uncertainties, and often led the teams to exhaustion, contributing to their withdrawal from the pedagogical dimension. Strictly reduced to the administrative dimension, as managers of daily routines, the powers bestowed on them diminish, and their spheres of action become highly bureaucratic. These situations often favor the maintenance of repetitive, hardly ever reflective, and therefore, alienated daily lives.

As Heller (1989) argues, daily life is marked by heterogeneity, i.e., by a variety of facts that hold different importance and value, especially with regard to the content, the signification or importance of the various types of activity. Therefore, in the daily life sphere, the person neither has the time, nor the possibility of meeting the demands from several orders, and his actions are marked by the need for speed, safety and agility. This favors the absence of theorization and reflection in each unique action, which results in “ultra-generalization” in which people and situations are defined based on a pattern that is previously known to the individual, and this results in the adoption of procedures and attitudes that preserve references and experiences that have already been experimented. Such characteristics that mark the everyday sphere, as defined by Heller (1989), were seen in the analytical articulation of nuclei 1 and 2, in which both the principals and the coordinators were requested by demands of different sorts, acting on different fronts and having to handle an endless number of tasks. The principals, as well as the coordinators, frequently acted under emergency and urgency conditions, and on such occasions, practical reflection guided by past experiences was the predominant choice, pressed by a reasoning in which the “useful” is taken as practical and often seen as equivalent to what is truthful, i.e., a reasoning that takes “the things themselves”, or in their immediacy (Heller, 1989), without considering the social and historical mediations that constitute them.

As we have strongly shown in Nucleus 2, the educators currently resent the fact that they have received insufficient education to deal with current challenges (Gatti, 2014; Passone, 2014), and experience social and professional undervalue.

By the same understanding, the analyses reveal a vicious circle that is hard to breach. As shown in Nucleus 2, low salaries force many teachers to work in several schools, thus reducing even further the little time they have to seek teacher education, and providing them with hardly any physical

8 As previously stated, in the original investigation, this constituted 4 signification nuclei.

and/or material conditions to broaden their professional qualification (Paro, 2006). To make matters worse, there is the problem of precariousness of the teacher's job, marked by social devalue which is a result of poor salaries, and which has been responsible for attracting to this careers people that end up conforming with the precarious condition of their activity.

It was important to hear that all the managers stated that they know what is expected of them. As principals, Alice (Nucleus 2 and 3), Elza (Nucleus 1) and Ane (Nucleus 4) stated the relevance of the pedagogical dimension in their activity and the difficulties that prevented them from focusing on that dimension, as we have already shown.

Therefore, it is important to emphasize that the nuclei analysis revealed that the managerial teams that took part in the investigation reflected quite strongly about the themes that were pointed out, the impediments and the possibilities shown. And they often sought spaces of in-service education, and engaged in these activities when they thought it necessary. We see evidence, in the analysis, of the management teams' assent to projects of professional education that are carried out by research groups, such as the Research Group of Teacher Activity and Subjectivity (GADS), the research and extramural group Reading and Writing in Different Areas (LEDA), and the project Learning by Playing (AB), all of them from the Pontifical Catholic University of São Paulo (PUC-SP).⁹ The activities that were carried out in the groups seem to have been constituted in possibilities of daily life suspension and reflection (Heller, 1989).

We need to highlight the fact that the participants not only joined in the research projects, but they also sought the ones that could contribute to their schools. Elza (Nucleus 1) only accepted that her school too part in the investigation if it brought benefits to the school. At the end of the first year of research by the Teacher Activity and Subjectivity group, Elza said that the meeting with the researchers was a locus that allowed her to stop and think. Lourdes, Elza's deputy principal, reinforced that view, stating that the meetings with the researchers were, until that time, the only space in which they could meet to think about the school.

We have noticed that, if the professionals meet in educational loci that maintain a dialogue with their experiences and needs, it becomes evident that development and learning take place and that this may positively impact on the educational and managerial processes that take place in the school.

Therefore, we have verified that the research and the extramural projects can contribute to the transformation of education in the country, showing the importance of collaboration with the university in an effort to improve the conditions of the Brazilian public school.

The analysis of nucleus 4 revealed that all of the conditions mentioned (quality initial or pre-service professional education, continuous or in-service education offered by the Regional Educational Offices (DRE), voluntarily joining research and education projects) that were offered by PUC-SP research groups, Leda and AB were fundamental mediations for the constitution of significations that the management teams credited to their activity. It also shows that, when the objective and subjective conditions are present, it is possible to produce the desired reality.

Along these lines, it is important to state that, if in the political speech, education is a national priority, there is a need that it also be a priority in governmental actions. It is imperative that the financial resources that are set aside for the education of professionals be re-evaluated. Thus, we end our interpretation of internuclei believing that, by recomposing the significations of these managers, Alice, Elza, Ane, Lourdes, Marilda, Deise, Vânia and Silvia, about their feelings, reasonings and actions, we are contributing to broaden the debate about some serious educational matters in this country

9 Research groups that were in the researched schools.

We have listed some elements that we consider to be important and that are bound in the speeches of these concrete subjects because they are fundamental for our understanding of the scenario, of the principal's role, the establishment of division of labor duties within the managerial team, the importance of initial teacher education and also spaces for continuous education that is supported by knowledge that constitutes the essence of the teacher activity, such as deeply mastering the pedagogical dimension.

We have showed that in order to overcome an activity that is guided by daily routine, there is a need for the creation of spaces of professional education that can articulate theory and practice, both in initial and continuous education, or spaces for collective work. We have pointed to the importance of research and extramural projects, as well as to the role played by the university to support the overcoming of the current educational situation, and we have stated that within their scope of action, these institutions can contribute by supplying theoretical elements and reflective loci, thus, allowing the school to rethink its project.

The analyses that were carried out here have contributed to deepen the understanding of the complexity of the theme known as school management. By following the subjects that carry out this activity – the participants in this investigation – we could apprehend the challenges and possibilities that this team faces. If with their actions, the team is to contribute to producing a more equitable and democratic school, it is essential that we remember that the several dimensions of this task require specific learning – some regarding the pedagogical dimension, that requires profound knowledge of the teaching and learning that are necessary for an adequate coordination of the school, and some regarding administrative and bureaucratic specificities that, if neglected, may generate losses to the school and its users and staff members. These dimensions are dialectically articulated, and this points to complexities regarding the education of these agents.

To conclude, we underline the importance of theoretical-methodological coherence throughout the investigation. In this sense, we restate the importance of the theoretical-methodological procedure used, i.e., the Signification Nuclei. It was by using this procedure that we could discuss the activity of the subjects from the perspective of the objectivity-subjectivity dialectics, which enabled us to have a broader and totalizing understanding of the activity that is carried out. In this process, it is possible to highlight essential mediations that, if understood, can be intentionally guided to a certain aim, in our case, that of a less alienated reasoning, that may produce knowledge that, connected to other information, may contribute to overcoming the difficult situation of education in our country.

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Note on authorship

Wanda Maria Junqueira de Aguiar: concept, supervision and theoretical-methodological discussion of the study and the data analysis; Elvira Maria Godinho Aranha: concept and theoretical-methodological discussion of the study, data production and analysis; Júlio Ribeiro Soares: theoretical-methodological discussion of the study and data analysis.

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The data underlying the research text are reported in the article.

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