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QUALITY OF CONVENTIONS IN SITUATIONS AND DEMOCRATIC EDUCATIONAL PRACTICE

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Abstract:

The article is based on a doctoral thesis (AUAREK, 2012) and analyzes the activity of Professor ZAB in the laboratory of the discipline Electrical Commands (LAB1) of the Technical Course in Electrotechnology of CEFET-X, institution belonging to the Federal Network of Professional Education, Scientific and Technological Department. The analysis of Class 21 (Au21) allows a better understanding of the structuring singularities of the teacher's activity and of the learning activity in the laboratory, considered as a work situation. All this as a revealing phenomenon of the operational, intellectual and cultural wealth of the pedagogical and social relations between teacher and student. In these relations, knowledge, values and norms are mobilized in the activity of the teacher and the student, namely in the development of the learning teaching work around solving a problem with the assembly of a device in which the timers presented faults. This problem is described as an "unforeseen obscure" that triggers learning-rich opportunities for learners as well as for teacher.

Keywords: Teacher's Work Activity; Professional Education in Laboratory Situation, «Unpredicted Obscure».

1. INTRODUCTION

From the analysis of the teacher's educational practice¹, we sought to understand what knowledge and values circulate in an electrotechnical laboratory of a Brazilian Federal Center for Technological Education such as CEFET-X, which belongs to the Brazilian Federal Network of Professional, Scientific and Technological Education (LAB1) sought to better understand the teacher's renormalizations that underlie a democratic activity. We propose to discuss the relationship between the recognition of the unforeseen as a source of learning and promoter of the construction of democratic relationships in teacher work situations and, also, in work situations in general.

We took as a principle that the activity between the teacher and the student, in a laboratory situation, could reveal important elements to be studied regarding the quality of cooperative relationships². These elements, once identified, described and analyzed, could contribute to other research and ergonomic and ergological interventions in order to promote democratic relationships in teaching/learning work situations, as well as in work situations in general.

¹ Auarek, W. M. F. (2012). Secondary Technical Professional Education, circulation of knowledge and values in teaching work. Doctoral Thesis, Postgraduate Program in Education, Knowledge and Social Inclusion at the Faculty of Education of the Federal University of Minas Gerais, Belo Horizonte. Thesis developed with the support of CAPES.

² Quality of cooperation relationships are understood here as the contributions, in terms of exchanges of values and knowledge, exchanged between agents, of a given work situation, which influence “its global wealth, through operational, intellectual, cultural, which develops (...) [in the activity]” (SCHWARTZ, 2002, p. 125).

2. METHODOLOGY

In this analysis of the teaching/learning activity in professional education, the teacher is considered as a historical individual endowed with intentionality in his actions. Thus, it can be understood that the teacher takes ownership, in a unique way, of the changes that have occurred in their social and educational context.

In particular, we demarcate that the focus of this research was the case study based on the analysis of the work activity of the professor of Technical Professional Education of Secondary Level, professor ZAB, in the laboratory of the Electrical Commands discipline of the Technical Course in Electrotechnics at CEFET-X in processes of renewed meanings, that is, in processes of renormalization of their work standards. These compose the knowledge necessary for an educational practice rich in values such as those presented by Paulo Freire (1996).

In the Electrical Controls discipline, unforeseen events can manifest themselves through events such as: a motor that does not work or a different vibration in a certain device. Among these unforeseen events, we identify, analyze and describe the «unforeseen obscure event», so called due to its characteristic of causing the teacher and the student to work in a vacuum of anticipating possible solutions to problems that were reinforced by acting in respect. mutual in the face of adversities faced.

Diálogo dos referenciais para melhor prosseguir na análise

We base our reflections, discussions and analyzes on Ergology and the Ergonomics of activity as its propaedeutics, as well as making use of forays into Paulo Freire regarding the knowledge necessary for democratic educational practice. These were the founding axes for the analyzes and writings carried out. Professional Didactics and Vygotski's studies came to add these axes in view of discussions of learning in

work situation and the study of the development of concepts in humans. However, we only cite these last two references without the opportunity to delve deeper into their presentation in view of the scope of this text.

Activity Ergonomics and Ergonomic Work Analysis (AET) formed the basis for analyzing the ZAB teacher's teaching activity. AET seeks to unravel the intricate relationship of elements that make up the activity, such as the short, medium and long term objectives, the results to be obtained, the social and hierarchical relationships experienced, the skills at play, the singular meanings given to work. This Analysis is guided by the study of a demand, one could say, by the delimitation of a problem that can manifest itself from different segments of social practice.

Ergology allows the deepening of concepts that imply the analysis of activity, allowing the expansion of this analysis to other broader instances and different domains of study of the reality that surrounds us. From individual aspects to the debate on each person's standards at broader levels of society. It considers its concepts in relation to the understanding of the activity as a debate on more general norms, among them we mention: the antecedent norms/requirements that are imposed in the reality of the work situation; renormalizations based on the meanings of values, as well as the circulation of knowledge and values in the activity.

The teacher, like every active worker, is involved in a world of norms. In the context, he is implicated by the constraints on his actions which he confronts with the norms of himself, thus being in constant debate of norms. A situation in which he must decide/arbitrate under a hierarchy of norms from the here and now to a longer period of time.

From an ergological point of view, the concept of activity reflects complexity in at least three of its main characteristics. The first of these is that the activity is transgressive in the sense of being unpredictable. In this way, it creates and generates changes and makes history happen. It questions what is antecedent and foreseen. It is what is never repeated and what cannot be monopolized

or absorbed by any discipline or field of practice. Being transversal is its second fundamental characteristic, which implies that the activity crosses all fields of knowing and doing: the conscious and the unconscious, the verbal and the non-verbal, the biological and the cultural, the mechanical and the values. Finally, as a third characteristic, activity mediates between the singular and the generalizable, the local and the global (SCHWARTZ; DURRIVE, 2007).

The ergological approach to the activity engenders the emergence of intellectual discomfort that constantly raises the need for new learning to emerge. This approach guides the understanding of the singular activity and its implications for the formation and circulation of knowledge and values in work situations. This is continually renewed and valued in the intervention sites with regard to the epistemological and ethical propositions that emerge.

The teacher in the relationship with the student in the situation of

«unforeseen obscure», makes the manifestation of the

«decide together», in co-responsibility, teacher conduct that responds to the ethical appeal proposed by Paulo Freire (1996). The educator must develop as a researcher, providing the student and himself with questions and arguments with increasing epistemic rigor. Encourage students to do the same to understand and transform the world and themselves, as well as to build learning. The teacher makes this proposition as he exercises “right thinking” (Paulo Freire, 1996).

«thinking right» in the definition of Freire (1996), is not being so sure of your own certainties. This “right thinking” takes place in educational practice when the teacher ventures to combine the positions of authority/freedom, listening and testimony. It thus promotes the freedom of

educating to the extent that it testifies to trust in the way in which it carries out its educational practice. In this way he testifies to his authority in the sense said by Paulo Freire.

An authority to teach/learn that is revealed in the firmness of your actions, your decisions, your respect for freedoms, your restitution of issues, your acceptance of reviewing yourself. (Freire, 1996, p.91).

In democratic educational practice, authority and freedom in the classroom are composed of a dialectical relationship, in mutual tension: the teacher and the student deal with both in practice, one measuring itself against the other. As long as one does not overlap the other, in terms of the coherence of legitimacy that they find in the situations in which they occur, there is consented respect between teacher and student. When this condition of consented respect is broken, hypertrophy of one or the other is caused, which leads to authoritarianism and libertinism, tools that serve usurpation in the way of saying ergological discipline (AUAREK, 2012).

Methodological paths: ergological and ergonomic approach

The name CEFET-X that we adopted for the researched institution is justified by the ethical requirement of secrecy. This justification for the name of professor ZAB is extended to the laboratory studied, LAB1, and to the students.

The research area consisted of an institution of the Federal Network of Professional, Scientific and Technological Education of Brazil, CEFET-X, more specifically the laboratory of the Electrical Commands I discipline of the Technical Course in Electrotechnics, in which we followed the activity of professor ZAB. A case study. Insertion in the field took place for one year and two months, during which three modules of the aforementioned discipline were taught by Professor ZAB.

During our insertion in the field we use activity analysis through Ergology and Ergonomics of the activity. The activity of the ZAB teacher is analyzed using the AET procedure described by Güerin et al. (2001) in its characteristics, purposes and objects of interaction. The AET was carried out based on the research demand/proposition, but also based on points of significance identified in the ZAB professor's verbalizations. This was done based on data transcribed from the class taught on 21/09/2009 (Au21). One of a

total of eight classes. This class was transcribed by crossing data from filming, audio and observations, in addition to self-confrontation procedures. This is transcribed as a chronicle of Professor ZAB's activity.

The data collection instruments, briefly described, were: global observations, systematic observations, open interviews, an in-depth interview with professor ZAB, partial self-confrontation interviews and a self-confrontation and final validation interview with professor ZAB .

The Electrical Controls subject was chosen because it is a key subject to allow the student to access the other subjects of the Course. Also seen here is the predominance of time spent by the student assembling and disassembling devices compared to the total workload of the other subjects observed.

The laboratory as a work situation

In LAB1, the teacher's teaching program provided for eight assemblies to be carried out. The students, a total of eight, worked in pairs at each of the benches. At Au21 two students worked alone. In LAB 1, the student works on assembling and disassembling electrical controls. To this end, he manipulates the assembly devices based on a previously planned and prepared scheme with a view to a goal, such as the operation of a light bulb when blinking.

When students begin the assembly procedure, guided by Professor ZAB, they carry out: a survey of the necessary equipment and list them to then separate them and carry out tests for their proper functioning. From there, they carry out the actual assembly, arranging the devices according to the diagram drawn in advance. Finally, at a time deemed relevant by the student or the ZAB teacher, they present the assembly and the teacher gives them a grade.

The purpose of determining the location and manner in which devices are connected to the circuit is to achieve a predetermined result such as signaling an intervention command, for example, the direction of a conveyor belt. Obtaining this result involves a series of creation and testing of hypotheses before the device is even in

operation. Therefore, one of the resources that Professor ZAB uses is the unexpected, as he himself says:

[...] I'll look at that, don't care! When he calls, oops, wait... look at the unexpected! But then you have to be very careful because if I reduce the time too much he will never be able to call because it is new knowledge. So there's a little equation in there, which is very interesting, suddenly it's a timeline... [...]. (Professor ZAB, in a self-confrontation and validation interview on 11/22/11)

The ZAB teacher values the unforeseen events that happen in their eventuality, but, in addition, the teacher seeks to create conditions for them to happen. He causes unforeseen events even if this implies “obscure unforeseen events”. He reports that the “unforeseen dark situation” can either be an excellent opportunity to promote the values and knowledge important for your educational practice, or it can become a huge constraint for a teacher’s work activity.

The correlation of forces between the elements of the activity, including unforeseen events, can guide and modulate the regulation of the activity of oneself by oneself and, also, of oneself by others. These regulations limit or enhance the possibilities given to the human training/professional training of those involved in the situation.

Analysis of educational relationships from the perspective of the obscure unforeseen

Consequence of a theoretical/empirical effort of the ergological and ergonomic analysis of the ZAB teacher's activity with inspiration in the studies of Paulo Freire (1996), on educational practice, from which we describe the “joint activity” that manifests itself between the ZAB teacher and the students in LAB1. It is important to emphasize that the detailed description of this “joint activity” reveals its vocation and its quality of encouraging teachers and students to give themselves completely, without subterfuge, engaging in mutual respect and under democratic values (AUAREK, 2012; p. 118 to 125).

The description of an unforeseen event, called the shooting event, coming from an assembly device for A6 and A7, engages the Students and the ZAB teacher in a “joint activity”. Here we very briefly describe this event that

illustrates and provides important empirical data for the analysis of the characteristics of “joint activity” and how it intensifies the experience of the values that circulate in LAB1, leading to operational, intellectual and social richness in the teacher/teacher relationship. student.

In this event, a pair of students works on an assembly whose objective is to flash a light bulb. To do this, they use two timers, devices that intercept or release the passage of electrical current according to the time schedule registered in it. Alternating the actuation of these timers causes the lamp to turn on and off intermittently. In this circuit between the connection of the lamp to the two timers, other devices are present in the circuit: cables, buttons, relays and fuses – to protect the passage of current above the desired and safe level.

When assembling this circuit, the pair of students came across one of the timers tripping, that is, timer 1 suffered strong vibrations that made it “shake” on the bench, emitting a loud noise. Professor ZAB approaches them and begins to analyze with the students what problem may be occurring with the timer. After discussing various explanatory hypotheses for the shots and the lamp not turning on as expected, as they carry out tests to accept or refute them, they recognize that timer 1 is defective. The students replace him while the teacher looks for the class diary to record the total grade, recognizing the validity of the montage.

After replacing timer 1, the shooting phenomenon appears again. The teacher and students A6 and A7 return to invest together in new hypotheses to try to solve the problem.

They return to carrying out many tests, for example, adjusting the time of the two timers. After this, they came to the conclusion that the second timer was also defective, that is, the second obvious unforeseen event. Once the two timers were replaced, everything worked perfectly and Professor ZAB could finally consider the assembly valid and worthy of the total points. The manifestation of a defect in the timers led the teacher and student to gradually bring their thoughts closer to concluding with certainty about the need to replace the timers. In this way, they identified the validity of the assembly as they learned from each other based on the operating responses manifested by the

assembly devices in tests.

"Unforeseen obscure events" are such because, momentarily, they involve the person in a situation of impediment to decision/establishment of hypotheses, that is, when the testing option is non-existent or when tests are applied to guide the resolution of the problem. , means demonstrating a lack of consented authority on the part of the teacher (AUAREK, 2012).

In his activity related to the events manifested by the students and by the assembly devices, the teacher uses renormalizations. These renormalizations are of different orders: conceptual (technical decisions of an analytical and reflective nature), psycho-affective (managing the condition of mutual respect and trust of students) and organizational (how far to go with time pressure and the proposition of complexity for the assembly).

Professor ZAB reports that the obscure unforeseen event can either be an excellent opportunity to promote the values and knowledge important for his educational practice, or it can become a huge constraint for a teacher's teaching work activity. This unforeseen event, as advised by Professor ZAB, circulates the central ethical value that everyone is in this situation to learn and teach and teach to learn, as Paulo Freire (1996) says.

Sometimes the ZAB teacher causes unforeseen events in order to establish a moment of "joint activity" in which he intervenes more intensely in terms of mutual understanding between him and the student. This is caused by the way the joint arrangement of devices is presented and what is done with them. The "joint activity" occurs mainly when devices malfunction and leads to tests, the sharing of reflections, as well as the joint creation of different possibilities for managing the situation. It is explained in the following verbalization:

You don't show your value when everything is going well, but when an event happens that puts you in a difficult situation. It is at this moment that you resolve with the student, without arrogance, without wanting to appear "bam-bam-bam". (Stimulated verbalization from professor ZAB, in an interview in self-confrontation and final validation, 11/22/2012)

When the teacher pronounces these words, he expresses the wealth of possibilities for learning and human formation that emerges in moments of great difficulty.

By sharing with the student the understanding of the unforeseen and especially the "unforeseen obscure", the teacher exercises more than an intervention or guidance in the student's learning, he produces knowledge and arbitrates the norms together with the student. The teacher and the student, in this situation, do not see themselves as sure of themselves. Professor ZAB states:

[...] when the unforeseen event starts to become a "dark unforeseen event" – which is one that has never gone unresolved in my life, then we have to form a concept together, you know?! (Stimulated verbalization from professor ZAB, in an interview in self-confrontation and validation on 11/22/11).

In this type of situation, the teacher has a series of solution hypotheses but cannot launch into tests.

2. CONCLUSION

We consider that the present discussion is valid within the framework of new proposals for studies and research on democratic educational practice that leads to student autonomy. This discussion contributes to thinking about the importance of the student's activity in the school institution together with the teacher's activity in its richness and quality. This is even more important to think about Professional Education in Brazil in a reality of expansion never seen before in the country's history.

The analysis of the ZAB teacher's activity based on the data we collected, organized and analyzed, reveals to us the knowledge that is important to consider to better understand what goes on in a classroom, in this case, LAB1, based on the propositions of a teacher who commits himself to building an autonomous and democratic educational practice, radically achieving a healthy tension between authority/freedom. A tension that expresses, in the relationship between the teacher and the student, respect for the knowledge and norms of one for the other, with humility and without subordination, with epistemic and ethical rigor. Finally, with a huge desire to learn and make others learn.

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