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Working conditions of school and teacher training in science:
a study with teachers of biology of Bahia, Brazil.

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Abstract

We identify what are the influences of working conditions for school science teachers training that is sensitive to intercultural dialogue. The study was conducted in 2009, based on semi-structured interview, and involved nine teachers of biology at Bahia, Brazil. The results indicate that several factors of the schools where the teachers interviewed work interfere negatively in their teaching and their training with regard to intercultural dialogue. Mobilizations are necessary to obtain changes in this way, especially by teachers, schools, universities and decision makers in the field of public policy education.

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Keywords: Teacher training in science; intercultural dialogue; school work conditions.

1. Introduction

The Brazil, by the proper history of its people formation, is a rich country in the cultural standpoint. However, in fact, it has not been recognized in their education systems that wealth, since the pedagogical practices has not allowed over the years the inclusion of representations of cultural knowledge by students. Even though the documents prepared by the national education policies bring indicative of the importance of recognizing ethnic and cultural diversity that makes up the country, school education in Brazil has not entered a significant attempts of dialogue with different cultures and forms of knowledge in

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the country, remaining bound to the idea that Western science is the only legitimate source of valid knowledge (Lopes, 1999).

Although the causes for the exclusion of several views of the world beyond the scope of education, factors within schools contribute to the perpetuation of the problem, including among them the conceptions and expectations of teachers (Canen, 2001, p. 208),

(...) teachers' expectations regarding the performance of students from different cultural patterns of the dominant are often permeated with stereotypes that are reflected in teaching practices that, under the veil of technical neutrality, justify the silencing of different "voices" that come to our schools.

According to Cobern & Loving (2001), it is important that teachers consider the students' cultural knowledge, as this will help students broaden their world views and nature. Meanwhile, it is essential a specific teacher training (Canen, 2001; Baptista, 2010). This is, a training that may program pedagogical practices favorable to the intercultural dialogue between the scientific knowledge that are the subject of education and the knowledge from the various cultural and social environments of students. For Lopes (1999), the dialogue in science education is an argumentative process in which the reasons that lead individuals to think as they think are exposed, considered and evaluated by the criteria of validity and legitimacy that are proper and their contexts.

Considering that teacher training is an ongoing process, which involves everything from his life story and initial training to the conditions of their teaching activities (Selles, 2002), this study aims to identify and discuss the influences of the school work conditions for the continuing education of science teachers to be sensitive to intercultural dialogue. It is understood by continuing education, training stemming from the social relations that are established by teachers in schools with students and peers in education. In terms of school work conditions to understand, the circumstances arranged by schools for teachers to raise their physical, cognitive, psychological and social ties with the specific purpose of achieving the goals of education in these spaces.

It is hoped that the study reported herein may contribute to the discussions in the specific literature on training of science teachers and school work environments, specifically in relation to the consideration of their views, their aspirations and needs, as a form of professional development and improvement of the quality of teaching for cultural diversity and, similarly, for learning in this area.

2. Methodology

The study, of qualitative nature, was developed in 2009, with teachers of biology at the public schools of the state of Bahia, Brazil, specifically using semistructured interviews. The study included nine teachers whose age will vary between 28 and 41 years. They answered the following questions: - What are the influences of school environment on teaching practice in biology regarding the establishment of cultural dialogues? Specifically, between traditional and scientific knowledge of students in school? The teachers signed Terms of consent, as required by Resolution 196/1996 of the Ministry of Health of Brazil, which deals with research involving humans (Brazil, 2003).

Data were recorded with the aid of a digital recorder and transcribed into a text editor (Microsoft Word ©). The analysis was carried out according to the logic sequence of submission of responses by the teachers, trying to respect their opinions, speculations and feelings in the contexts in which they were placed (Ludke & André, 1986). For each teacher interviewed, codes were created in order to ensure confidentiality, as follows: PE1 (Professor Interviewed 1), PE2 (Professor Interviewed 2) and so on.

The researcher sought throughout the course, leaving participants free to express their experiences, difficulties, needs and ideas since, in agreement with Campos (2005), freedom of expression on the part of teachers contributes to become reflective and thus subject their own formations.

3. Results and discussions

Overall, the results indicate that several factors of school environments where the teachers interviewed work interfere negatively to teacher training that is sensitive to intercultural dialogue, namely:

- Exhausting working hours. According to the participating teachers the long teaching activities propel the lack of sufficient time for the preparation of lesson plans that consider cultural diversity. Serves as an example the speech of PE5: *“It is not easy for us the life of a teacher. We have many activities to do and it does not allow us to have much free time ...”*. To Dos Reis et al (2005), an excessive load of work hours can directly affect the health of teachers, resulting in the low frequency of these professionals for medical leave and permanence of a large number of students stranded in the corridors of schools.
- Classrooms with large numbers of students and excessive amounts of scientific content to be completed during the school year. For De Paula (1999), the school that shows openness to the consideration of cultural diversity present in it, cannot repeat the assimilationist model, which takes place through repetition and simple transfer of content regarded as finished and ready for the student who takes the role of passive recipient. The teachers said their schools overestimate the performance of a large amount of scientific content and therefore they are unable to provide an acceptable time to occur the argumentations of the individuals involved. In speaking of PE1, *“... but how to dialogue if the rooms are always full? It turns out difficult. We have content to meet and how provide a time for reasoning for each student?”* The science education within a multicultural perspective should not repeat planning of teaching as a science, while cultural activity did not pass through transformations and as the students knew nothing about the issues that are worked in classrooms. It is needed an investigative position by teachers, attention to the pedagogical aspects, including the planning of teaching, the selection of content, strategies, how to assess (Candau, 2002), so that changes occur in order to take account of diversity cultural.
- Inadequacy of didactic materials. For the participants, didactic materials available in their schools difficult the establishment of relationship between the content of teaching and the realities of the students. According to Baptista (2007), a science education that claims to be sensitive to cultural diversity needs of the appropriateness of teaching materials so that it is possible to establish relations of similarity and / or differences between scientific and cultural knowledge of students. Serves as an example of this problem the speech of PE8: *“Another thing I find difficult... is ... the didactic material not allows us to make any relationship with the local reality of our school and students”*.
- Violence among students. Finally, the participating teachers have argued that there is violence in schools, especially among students, and this difficult the establishment of peaceful interpersonal relationships in the classroom. Consequently, it ends up interfering in their teaching. For PE3, *“They fight with each other and with us when we try to resolve disputes... This discourages, even discourages people as a teacher. We stressed to the point of not be able to give a lesson of good quality”*. On this issue, it is important to note, in agreement with Ferrari & Araujo (2005), that school violence eventually leads the teacher to feel, too, violated, as far as he tries to intervene to resolve conflicts among students, which are disrupting their classes. The feeling of violence on the part of teachers is related to something called “contemporary symptom”, which is the declining authority of the teacher, which, in turn, leads to loss of desire to teach and consequently, learning (Ferrari & Araujo, 2005).

4. Conclusions

The study reported herein showed that for the biology teachers of public schools in the state of Bahia working conditions influence negatively in their school teaching and, tied in their training and quality of given education in relation to the intercultural dialogue.

In fact, the environments of schools are amalgams between the physical and behavioral characteristics of individuals who are part of it. Such mixtures form the school cultures which, in turn, influence the pedagogical practices. However, it should be noted, the school cultures, as well as all others, are neither static nor immutable. In contrast, the cultures may vary according to time and posts (Chartier, 1990). Therefore, it is important the teachers to identify working conditions as part of a culture that may undergo changes. However, it is necessary that they feel committed and want these changes.

The teacher – in front of the problems they face in school regarding the importance of cultural diversity and dialogue - aims to decide whether or not that significant change occurs. In this sense, we suggest actions by teachers and their schools to manage opportunities for teachers to reflect and discuss with their pairs the problems experienced with respect to cultural diversity present in those spaces. Similarly, decision makers in the field of public policy education in the country, to improve the working conditions of teachers, a key variable for the progress in relation to indicators of quality of education that often is left aside in government policies.

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