



TEACHER TRAINING FOR THE USE OF READING AS AN INSTRUMENT IN CHEMISTRY TEACHING

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Abstract

The purpose of this research was to train undergraduate students in Chemistry in order to use reading as an instrument in the teaching of this discipline, to train and make the trainees aware of the importance of critical-reflexive practice. The study was based on the theoretical-methodological discussions of the work with the reading in the dialogical perspective in consonance with the Socio-Historical-Cultural theory. The methodology adopted was the Critical Research of Collaboration, when proposing the creation of spaces of formation mediated by collaborative relations in the production of knowledge on the theoretical bases of scholastic practices, whose objective is to destabilize the senses and meanings crystallized to re-signify them. The research was developed in 2016 at the Federal Institute of Education Science and Technology of Goiás - Campus Itumbiara, with eleven trainees of the course of Chemistry. The data were produced through questionnaires, practical lectures in the teaching of Chemistry, reflexive sessions about video lessons. In a qualitative approach the data produced were analyzed with reference to the following categories: Initial directions on the use of reading; Role of the teacher and student's role in working with reading; Re-signification of meanings on the use of reading in the teaching of Chemistry. The analysis pointed out that the reading frequency in Chemistry classes is inferior when compared to the subjects in the Humanities areas. Usually the reading practices are developed in a monological posture, in which the subject of reading is the teacher. Through the reflective session, the trainees were able to re-signify their senses about the use of reading, teacher and student roles in the teaching process and how much the theoretical-methodological approach assumed by them influences this process, giving students a better understanding of the contents of the Chemistry. The statements of the students show that they are aware of the important transformation of their educational practices in the use of reading in the teaching and learning process of Chemistry, experienced in the workshop.

Keywords: Reading Processes; Teacher training; Chemistry teaching.

1. Introduction

The internship practiced in state schools in the city of Itumbiara-GO through the Chemistry Degree course of the Federal Institute of Education, Science and Technology - Itumbiara Campus point out the absence of reading in the teaching of Chemistry. The non-use of reading in the teaching of Chemistry is verified in this discipline in which there is predominance of memorization and applications of formulas, promoting the devaluation of reading and interpretation [2].

In view of the above, the problem issue that guided this research was: How to contribute for the future teacher to work reading as an instrument in the teaching-learning of Chemistry?

In order to answer this question, the research had as objectives: to rethink the use of reading as an instrument in the teaching-learning of Chemistry; to train and to make the trainees aware of the importance of the critical-reflexive practice because of the possibility of theoretical-methodological re-signification regarding the use of new reading strategies.

2. Literature revision

In the study of the use of reading in the teaching of Chemistry, attention is drawn to the classes of the discipline focused on the application of definitions and calculations, leaving in the background reading and contextualization, which are of utmost importance for a true learning of the contents [2].

It is important to work on reading and writing skills in science classes because students present difficulties in Physics, Chemistry, Mathematics and other problems because they do not know how to

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interpret the statements. It is often sought prompt and quick answers to pre-established questions that aim at the removal of information from texts [1].

The analysis of work with reading in Brazilian schools shows that schooling does not lead to the formation of readers and producers of effective texts. The readings developed are linear and literal, seeking to locate information for repetition or copying to answer oral and written questionnaires [6].

Studies on the conceptions of reading that guided reading practices in schools in the last decades show that until the 1970s they used the behaviorist perspective, in which syllables were read from words and phrases in a linear process of decoding. linear and literal readings. From the 70's, with the contribution of the psychological sciences and then, in the 80's, with Textual Linguistics, the reader was considered as the subject of his reading [6] [3] [5]. But it is only from the 1990s onwards, with studies on literacy in a socio-historical approach, that we begin to consider the historicity of the reader's reading in relation to the text that is read and how much this base interferes in understanding together with reading conditions determined by a socio-historical context [5].

The approach of reading activity in the perspective of Socio-historical-cultural Activity Theory analyzes the roles of teacher and student within the Monological and Dialogical perspectives of reading and writing [4]. In the monological approach the meaning of the text is in the text itself. Reading activities focus only on one saying: the author of the text, when asking the student to understand the main ideas of the text, locate content. The role of the teacher is to correct the student's responses, in order to verify whether they correspond to the contents of the text or not. The students have the role of checking their answers with the author's voice, accepted by the teacher.

Already in the dialogical approach the meaning of the text is constructed in the interaction. The proposed activities allow the student to situate themselves in a certain context of reading that sharpens their eyes on the text to be read; to make comparisons between texts, to perceive the social values that constitute them, to affectively and ethically appreciate their contents. The role of the teacher is to analyze the students, collectively, to verify consistencies and inconsistencies in the relationship between the statement and the justification given by the student. The role of students is to justify their responses by establishing a dialogue with the author of the text, with the teacher and with colleagues [4].

Associated with the theoretical conceptions of reading, it is also important to this study the vigostyanos concepts of sense and meaning, essential to the creation of contexts of teacher training, that allow the organization of critical relations of collaboration. There is a dialectical relationship between sense and meaning, in what sense it is considered the way in which meanings are appropriated and externalized by individuals [7].

Central to this discussion is also the concept of mediation in the process of teaching-learning and development, since individuals are the interaction with others, in the contexts of their experiences in relations mediated by cultural artifacts, of which language is the more important. It is, in fact, the appropriation of cultural artifacts that makes development possible [7].

3. Methodology

The research was developed in the second semester of 2016 at the Federal Institute of Education Science and Technology of Goiás - Campus Itumbiara, with eleven students of the Degree in Chemistry enrolled in the discipline of "Supervised Curricular Internship". Students are organized into groups A, B, C, and D. When cited individually they will be identified by initials of their choice.

The methodology adopted was the Collaborative Critical Research [4], a questioning way of thinking and acting, in which one of the instruments used in collaborative analysis in the teacher training process is the reflexive session, a space and moment (workshop) for the participants can intentionally and reflexively look, critically understand and analyze the meanings of their actions in the video lessons and other developed activities, thus enabling them to develop for others and for themselves. This is the moment to destabilize the senses and meanings crystallized to re-signify them.

The data were produced in a workshop by means of initial questionnaires, videogravation of practical reading classes in the teaching of chemistry, reflexive sessions on videotaped classes and theoretical studies on theories and practices of readings.

In a qualitative approach the data were analyzed with reference to the following categories: Initial directions on the use of reading in the teaching of Chemistry; Role of the teacher and student's role in working with reading; Resignification of meanings about the use of reading, discussed below.



4. Analysis and discussion of data

As for the initial senses about the use of reading the applied questionnaire pointed out that the traditional practice of linear reading, characteristic of the 70's [6], [3], [5] is the predominant one in schools. The trainees reported that the reading frequency in Chemistry classes is lower when compared to the disciplines of the Humanities areas [2]. They further stated that when reading occurs, the teacher adopts a monological stance [4], in which the focus of the reading is on the teacher, as evidenced by the following speech:

GR: "The teacher reads about the analyzed content and transcribes summary of what he read on the board, explains to the students so they understand ..."

It is also verified in the various statements of the licenciandos that the behaviorist perspective [3] and monological [4] prevails in the activities of reading observed and that compose the experience of the trainees.

Interviewees reported that group reading is also widely practiced by teachers, but it is also a reading in behaviorist perspective [3], each student reads a passage, just a decoding process, the teacher does not create space for interaction between students and with the author of the text.

As for the first reading classes developed by the trainees it was analyzed that the focus was on the trainee teacher with the main role of reading and explaining the content to the student, characterizing the monological approach 4. Already in the second classes the trainees questioned the students during the reading, causing that they were constructing together the meanings [7] and reminiscing contents of the Chemistry. The focus is no longer the teacher, bringing the student to the center, giving him the opportunity to answer the questions and discuss the answers among colleagues. It can be affirmed that there was predominance of the dialogical approach [4].

The Reflective Session was the essential space created for the re-signification and transformation of the trainees, aiming to reflect in a collaborative way among the colleagues the classes taught by the trainees. They were oriented to focus on the roles of teacher and student during their classes, based on the theoretical discussions of the different approaches of reading, made previously in one of the meetings of the workshop.

They realized that in their first classes they predominantly addressed a monological position [4] because they did not open space by means of questions for students to expose their thoughts, their comprehension, to provide ready answers and not to explore doubts. It was observed that at first the students did not know how to use the language like mediation [7] in a dialogic class [4], as it is verified in its final declarations:

DM: "The greatest difficulty was to associate the teaching of Chemistry with reading and to teach a class in the Dialogical perspective. We are accustomed to seeing chemistry with formulas, calculations and it is difficult to make use of reading in this discipline, detachment from this addiction was very difficult. "

It can be observed in the speech of the trainees that there was resignification of their initial senses. Most of them had difficulties in having to prepare the first Chemistry class using the reading in the dialogical perspective as instrument in the teaching of Chemistry. It was noticed that in their second classes there was no such difficulty, they managed to present a more dialogated class, they knew how to explore the reading activities in order to contribute to the students' learning, which shows that they understood and produced a new meaning for the practice of reading, formerly very traditional. It is observed that the trainees re-signified the idea they had about the roles of teacher and student and how much the theoretical-methodological approach assumed by them in the classroom influences the objectives of the classes.

5. Final considerations

It is concluded that the objectives of this study were achieved and that the experience was of great relevance for the trainees. It was possible to perceive how important the workshop was for the trainees and contributed to the teacher training and how much the theoretical-methodological choice can directly influence the process of teaching and learning. The workshop provided the interns with moments of re-signification by transforming the meaning they initially had of their reading practices



into the monological approach, attributing to it another meaning, the relevance of working the reading in the dialogical perspective.

References

- [1] FRANCISCO JUNIOR, W. E. "Reading Strategies and Chemical Education: What relationships? New Chemistry in the School". Vol. 32, nº 4, Nov, 2010. Available at: <http://qnesc.sbq.org.br/online/qnesc32_4/03-EA5809.pdf> Accessed on 22 mar.2016.
- [2] GIRÃO, L. N. "The practice of reading in the teaching of Chemistry: a pedagogical proposal of contextualized teaching". 2011. 156f. Dissertation (Professional Master's in Science and Mathematics Teaching) - Science Center, Federal University of Ceará, Fortaleza, 2011.
- [3] KLEIMAN, A. B. "Reading approaches". SCRIPTA, Belo Horizonte, v. 7. n. 14, p.13-22, 1st sem. 2004.
- [4] MAGALHÃES, M. C. C. "Collaborative Critical Research: Epistemological-methodological choices in the organization and conduction of intervention research in the school context". In: MAGALHÃES, M. C. C. ; FIDALGO, S. S. (Orgs) Questions of Methodology and Language in Teacher Training. Campinas / SP: Literature Market, 2011, p. 13-39. (Faces Series of Applied Linguistics).
- [5] ORLANDI, E. P. "Discourse Analysis: principles and procedures". Campinas, SP: Pontes, 2001.
- [6] ROJO, R. "Literacy and Reading Capabilities for Citizenship". São Paulo: SEE-CENP, 2004. (Text presented at a congress in May 2004).
- [7] VYGOTSKY, L. S (1934). "The construction of thought and language". São Paulo: Martins Fontes 2001.