PRACTICES IN THE TEACHING OF SCIENCES IN SCHOOL INCLUSION OF A BLIND PUPIL WITH DELLEMAN SYNDROME

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Abstract: This research investigates the use of Assistive Technologies (AT) in the process of inclusion of a visually impaired pupil based on different actions involving the teaching of Sciences, the school community and the family. A qualitative research approach was used, and a case study framework was adopted. The field of study was a state school in the city of Boa Vista, Roraima, Brazil, which accepts people with special needs in regular groups of the elementary school years. The object was the teaching of Sciences. The subject was a blind student with Delleman Syndrome who has undergone 21 surgeries. The subject uses AT as resource to assist in school attendance, in the personal development process and in the construction of knowledge and learning since early education. Interviews on the object of study were also conducted with teachers of Sciences in ordinary groups with special pupils and teachers working in teaching rooms equipped with visual resources. This approach afforded to understand the reality being investigated.

Keywords: School Inclusion; Assistive Technologies; Pedagogical Practices for the Teaching of Sciences.

INTRODUCTION

In Brazil, the National Policy for Special Education in the Perspective of Inclusive Education established the right to education to all children with special educational needs. In this sense, one of the focal points of this policy is regular teaching practices in conjunction with specialized educational service, which has to be offered before or after the respective daily school shift. Programs to enrich curricula, language teaching and specific communication and signaling codes also have to be included, apart from Assistive Technologies (AT).

1. THE TEACHING OF SCIENCES IN THE SPECIAL EDUCATION CONTEXT

The need to promote and develop the teaching of Sciences lies in the fact that these variables afford the student to better follow the evolution of science as well as the transformations that take place in nature and in human history. In this context, apart from being informative, the teaching of Sciences may also endorse scientific reasoning.
With this objective in mind, the Ministry of Education (MEC) implemented the National Curriculum Parameters (PCN) and, in the context of Special Education, adopted a set of guidelines titled “Curriculum Adaptations of National Curriculum Parameters in the Teaching of Pupils with Special Needs” (BRASIL, 1998).

The teaching of Sciences to visually impaired pupils demands from the teacher more than the development and application of activities focused on the content to be taught. Ironically, the persistence of a methodological and conceptual link observed between these teaching contents and visual didactic and pedagogic models adopted in scientific theories makes it more difficult for the teacher to bridge the didactic transposition as expected (CAMARGO et al., 2006).

Another aspect that deserves to be stressed is the fact that Assistive Technologies may be used as interfaces in the learning process, which leads to more intense interaction and independence of the blind pupil in the classroom environment, promoting learning skills.

2. The pedagogical practice in Sciences: the data obtained

This study relied on the cooperation of eight teachers of an elementary school in the State of Roraima, Brazil. Based on the roles each teacher performed, they were identified as follows: two Sciences teachers (P1 and P2), one educational advisor (P3), the school’s principal (P4), one classroom teacher (P5) and three visual resources teachers (P6, P7 and P8). The subject assessed in the present study was a 17-year-old 6th grade junior high pupil called R., who has oculocerebrocutaneous syndrome (OCCS), also called Delleman Syndrome. This disease is a multiple syndrome of congenital anomalies characterized by orbital cysts, brain malformation, congenital cleft upper lip and palate, neurosensory deafness and focal dermal hypoplasia. However, the subject who participated in this study did not present brain malformation (BRANDÃO, 2010).

The periods the teachers who took part in this research were working with blind pupils varied between 1 and 10 years, mean 4.25 years. Concerning specialized teacher training, five teachers declared having no specialized education in teaching blind pupils, three informed that they had taken a specialization course for teaching special pupils, and these same teachers said that had taken a further education course and/or participated in occasional training programs to meet the needs of blind pupils.

In terms of the knowledge of the Braille system, the two Sciences teachers said that they did not know the system and that only the teachers assigned to visual resources activities had specific training for that purpose. The same was observed concerning the teachers assigned to pedagogical tasks in the school.

When analyzing the pedagogical practices carried out by teachers and how ATs are used by R. in Sciences classes in terms of accessibility, inclusion, formation, as well as the knowledge and the perceptions the teachers have about these technologies and their notions concerning teaching and learning using ATs in the case of a disabled subject, we observed that:

- The views about teaching, learning and visual impairment vary considerably among the members of the study group, from a transmission-reception approach to a view based on the interaction between teacher and pupil.
• Considering the teaching process that resorts to ATs, only the visual resources teachers understand that the teaching process is not restricted to the classroom and the blackboard. For these teachers, “there is no single way to teach; everything depends on the pupil’s needs” and “the creativity of individual teachers is very important”.

• Considering the learning process, the teachers did not identify the difference between the use of ATs and the blackboard. The didactic strategies and/or tools they utilize in the classroom so as to facilitate the learning by a blind pupil in Sciences classes are the “blackboard”, “speaking louder, nearer to the pupil so as to afford him to listen in better”, “dictations of the activities for the pupil to copy”. However, both stress the fact that the visual resources classroom is the site that has the technological and didactic resources that facilitate the learning by blind pupils.

• Three teachers answered directly that the technological and didactic resources that facilitate learning are located in the visual resources classroom. One of these teachers stresses the fact that these “are essential resources in the learning process”, mentioning “the importance of the slate and of the stylus, since the blind pupil is unable to write without these instruments”. Also, it was said that “the use of the Braille System is the first step for the inclusion of a blind pupil”. Three teachers did not answer the questions about learning.

• The words of the Sciences teachers afforded to observe that they use the visual resources classroom as the only technological tool, since “it is the place where capacitated professionals are available to direct pupils in their extra-class or complementary classroom activities”.

The techniques and strategies used by teachers of Sciences evaluated here are still based on expository classes. When planning the activities in a classroom with visually impaired pupils, it is the teacher’s duty to offer the pupil the conditions and opportunities to explore his/her own intellectual skills, promoting a multi-sensory learning process (SILVA, 2006).

Concerning the pedagogical practices in the classroom that aim at the pupil/teacher and teacher/pupil interaction, teachers P1 and P2 underline the importance of classes based on traditional methodologies, as in the “blackboard”, as well as of the sporadic group work and of Sciences lab classes. In R.’s own words, “In the Sciences lab she allowed me to grab things so as to better perceive them”.

When commenting on the didactic strategies and/or resources used in the classroom to facilitate the learning of Sciences, P7 says, “The material is adapted as requested by the teacher and he would very properly say that that material was not good for him and that it needed adaptation”.

The interviews with the teachers and the in loco observation carried out during the two years (2008 and 2009) R. was assessed prove that the subject did not feel difficulties to follow scientific reasoning and that he was very skilful in writing the classroom exercises in the Perkins device.

3. Conclusion

The analysis of the data collected in the school investigated indicate the rather limited understanding teachers have of the inclusion of special educational needs, ATs,
and didactic resources for the blind and visually impaired. According to these teachers, considering R., learning and teaching using ATs (inclusion) takes place in the visual resource classroom.

The data collected and analyzed afford to observe the considerable limitations around the understanding of school inclusion, inclusion of pupils with special education needs, AT and didactic resources for the blind and those with visual impairment, from teachers P1, P2, P3 and P4, in the school where this research was conducted, in the state of Roraima, Brazil. In the opinion of these teachers, more specifically concerning the pupil R., teaching and learning using ATs (inclusion) take place in the visual resources classroom. However, P6 and P7, who are assigned to the classroom mentioned, understand that teaching and learning do not depend on the physical space as such, and that these activities are indeed influenced by the needs of a given pupil.

In this sense, the teaching of Sciences using these technologies, more specifically for R., and ATs, may add to supporting issues of didactic/pedagogical character more directly related to everyday school activities. Additionally, these technologies may enable the conditions to understand how the pupil with visual impairment interacts with reality, effectively developing his own learning processes.

Finally, the use of ATs in the teaching of Sciences not only facilitates accessibility and social inclusion of visually impaired subjects, but also promotes the teaching and learning of the subject, affording the pupil the tools to search for information he or she needs and (re)constructing his or her own knowledge.

REFERENCES


