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### **How the textbook is inserted in the pedagogical practice of Biology high school teachers in Sobradinho, Distrito Federal, Brazil**

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#### **Abstract**

Textbooks have been present in teaching practices for a long time. It is commonplace to find students and teachers carrying several textbooks to school every day. However, does their presence in classes ensure their use? What roles do they play? Textbooks are teaching resources that are freely distributed by the Brazilian Federal government to public school students, by the National Textbook Program (Programa Nacional do Livro Didático - PNLD) and teachers choose the books to be delivered to their schools. These were factors that motivated the research about if these books become part of the teacher's pedagogic practice and, if confirmed, how. Observations were made during biology lessons in some high schools in Sobradinho, Federal District (central Brazil), and questionnaires were distributed to the teachers, who were interviewed. The results show that the use of biology textbooks by teachers was restricted to planning the activities to be developed during the classes, thus pointing to their underutilisation in classrooms. Teachers do not often use the teacher's guide, instrument that is part of the textbook. More studies about this subject are necessary in the teaching of biology.

**Key words:** Textbook; Biology textbook, Biology teacher, Teaching biology.

## Resumo

Os livros didáticos estão presentes no ensino há muito tempo. É comum encontrar estudantes e professores carregando vários livros didáticos todos os dias para a escola, mas a presença deles nas aulas garante seu uso? Quais papéis eles desempenham? Os livros didáticos são recursos distribuídos gratuitamente pelo governo federal para estudantes de escolas públicas pelo Programa Nacional do Livro Didático e os professores podem escolher os livros que são entregues às escolas. Esses foram os fatores que motivaram a pesquisa sobre se e como esses livros se tornam parte da prática pedagógica do professor e, se confirmados, como. Observações foram feitas durante aulas de biologia em algumas escolas de ensino médio em Sobradinho, Distrito Federal, e foram distribuídos questionários aos professores entrevistados. Os resultados mostram que o uso de livros didáticos de biologia pelos professores se restringiu ao planejamento das atividades desenvolvidas durante a aula, apontando, assim, para sua subutilização nas salas de aula. Os professores não costumam usar o manual do professor, instrumento que faz parte do livro didático. Mais estudos sobre esse assunto são necessários no ensino de biologia.

**Palavras-chave:** Livro didático, livro didático de Biologia, Professor de Biologia, Ensino de Biologia.

## Resumen

Los libros de texto están presentes en la enseñanza desde hace mucho tiempo. Es común encontrar estudiantes y profesores cargando varios libros de texto todos los días para la escuela, pero su presencia en las clases garantiza su uso? ¿Qué roles desempeñan? Los libros de texto son recursos distribuidos gratuitamente por el gobierno federal para estudiantes de escuelas públicas, por el Programa Nacional del Libro Didático y los profesores pueden elegir los libros que se entregan para las escuelas. Estos fueron los factores que motivaron la investigación sobre si y cómo esos libros se convierten en parte de la práctica pedagógica del profesor y, si se confirman, ¿cómo?. Las observaciones fueron realizadas durante clases de biología en algunas escuelas de enseñanza secundaria en Sobradinho, Distrito Federal, y se distribuyeron cuestionarios a los profesores entrevistados. Los resultados muestran que el uso de los libros de texto de biología por los profesores se restringió a la planificación de las actividades desarrolladas durante la clase, apuntando así a su infrutilización en las aulas. Los profesores no suelen usar el manual del profesor, instrumento que forma parte del libro de texto en el Programa Nacional. Más estudios sobre este tema son necesarios en la enseñanza de la biología.

**Palabras clave:** Libro de texto, Libro de texto de Biología, Profesor de Biología, Enseñanza de Biología.

## Introduction

In my teaching practice, as a high school teacher, I confess to having made very little use of the textbook (TB hereon) except for correcting homework and exercises in the classroom. Over time, I have observed that the required textbooks issued at the beginning of the school year often remained unused throughout the term, and this started to worry me. To my mind, not using the material is a waste of money and shows lack of planning on the part of the teacher of the discipline.

I then questioned my colleagues, Biology teachers, about the use of the TB for planning, class preparation, or even classroom use with students. My colleagues informed me that they only use the textbook whenever in doubt about some content and that they do not usually ask their students to read them either. Faced with this situation, I began to reflect on the use, or rather, about the non-use of the TBs by the teachers.

When I carried out a bibliographic survey of research that had TBs as their object of study, I was struck by the affirmation of some authors concerning textbooks. For many authors, this teaching resource is usually extant in the classroom, comprising as one of the basic elements for organizing teaching (Batista, Cunha & Cândido, 2010) and that it is as present in the classroom as the teacher him or herself (Molina, 1997).

In addition, in 2014, the National Fund for the Development of Education (NFDE) investment in the Brazilian National Textbook Program (BNTP) for high school was R\$ 333,116,928.96, serving 7,649,794 students and 19,243 schools. In total 34,629,051 books were distributed around the country (Brazil, 2014). This amount invested included expenses with acquisition, distribution and quality control of these TB. For comparison purposes, in 2012, the financial resources invested by NFDE in school meals through the National Feeding Program for Schools (NFPS) was approximately R\$ 3,306,000.00, serving 43.1 million students, while financial resources for the NTP, in that same year, totaled only to R\$ 364,162,178.57 and attended 8,780,436 students. This makes the NFDE a sizeable investment program for educational resources using more resources than the NFPS itself, except in the year 2000 when investment in NFPS was actually higher (Höfling, 2000).

Considering the study about the use of Biology textbooks carried out by Nascimento (2002), which evidenced the little use of this resource during biology classes; and considering the affirmation, by both teachers and students, that the students do not have the financial resources to buy textbooks, the question now is: even though the Biotextbook (BioTB from hereon) is a free material and therefore available in most Brazilian public elementary schools, do the Biology teacher and his students use this teaching resource? If they use it, how is this resource introduced in teaching and learning situations?

Therefore, a study that analyzes the use of BioTB in the classroom is needed where its main users (the student and the teacher, the mediator of the learning process) are taken as point of reference so that questions can be explored about the use of BioTB as a teaching and learning tool. Given that the textbook is a tool for the systematization of school content, commonly used in the teaching-learning process by teachers and students, studies that discuss its use as a pedagogical resource is then of the utmost importance (Dias, Gomes, Nosella & Freitas, 2015).

It is important to note that the present study forms part of a broader doctorate study, the objectives of which included the observation of biology teachers' classes to verify whether the BioTB, distributed by the federal government through the NFDE, is utilized in the pedagogical practice and, once confirmed, to verify how this is done.

### **Theoretical aspects**

Defining 'textbook' may seem easy, but differentiating it from other printed materials makes the task a bit more complicated. This difficulty is also addressed by Choppin (2004), who points out the complexity of the concept of textbook and the need to define it, especially when analyzing the historical evolution of this teaching resource. The author emphasizes that in most languages it is not always possible to specify the feature that is related to each of the denominations given to the textbooks and adds, stating conversely, that using the same word does not necessarily mean that it is referring to the same object.

Molina (1987) defines TB as a written work, organized with the specific purpose of being used in a teaching situation. The author further states that in general, it is unmistakable, which does not mean that it is unchangeable. Nascimento (2002), in turn, in a study about the use of TB in school, presents a definition based on authors such as Richaudeau (1979) and Gérard & Roegiers (1998). For Nascimento (*op.cit.*), the TB is:

A printed teaching resource, which conveys the general scientific knowledge of a given discipline. It is intentionally structured to be used in the teaching and learning process as a support during formal education, aimed at individual or group instruction intended for the education of the student in any stages of his or her school life, regardless of age group (Nascimento, 2002, p.13).

This definition, although very well expounded, still allows the inclusion of handouts, in addition to the availability of digital TBs. Taking into account that currently these books must be accompanied by a teacher's manual, a suggestion to complement the definition of Nascimento (2002) would be: a printed or digital resource that conveys the general and pedagogic scientific knowledge of a given discipline. It is intentionally structured to be included in the teaching and learning process as a support during formal education, in individual or group instruction, aimed at instructing the student in

any stage of his or her school life, regardless of age group. It assists in further teacher formation, guiding him or her on how to improve or renew practice, helping in the learning process and in class management. It also presents the teacher's manual, a didactic-pedagogical proposal.

The terms used to refer the books used in schools may also vary according to some authors. For Gérard & Roegiers (1998), in the context of the school edition, the names "book" or "manual" are equivalent, because they refer to the same type of work. They, however, represent different registers: the book a more affective connotation, and the manual indicates an institutional connotation (Gérard & Roegiers, 1998). The most frequent in scientific articles and in the NTP itself is the name "textbook", term that will be used throughout this work. Some people choose to call it a school manual or didactic manual, justifying that:

For all purposes, the textbook is not exactly a book, but a manual that, by definition, should serve as a pedagogical support in the teaching process - making explicit the pedagogical conception that frames it; clarifying the objectives of the activities directed to the student; recommending activities and also indicating additional sources of consultation - and the learning process - through the texts that it offers, as well as exercises and activities directed at the learner (D'Ávila, 2008, p. 22).

As for the roles played by TB for secondary education, this can be considered both from the point of view of the student and the teacher:

The book destined to high school has multiple roles, among which the following stand out: (i) to favor the expansion of knowledge acquired throughout the elementary school; (ii) offer information that can contribute to the insertion of students in the labor market, which implies the student's ability to independently and reflexively seek new knowledge and (iii) to provide up-to-date information in order to support the continuing education of teachers, most of whom are unable to take up professional development due to heavy workload (Brazil, 2009, p.16).

There seems to be no question that the role of TB varies according to the different contexts and forms of use. Considering the pedagogical uses, Richaudeau (1979) emphasizes that the functional analysis of TBs can be made from the general objectives of teaching or from the various types of pedagogical activity. The first aspect considered by the author highlights the scientific, pedagogical and institutional points of view. In this, the TB offers not only scientific knowledge, but an entire ideology of knowledge and "a conception of the importance of science and techniques, a conception of history, a conception of linguistic norms that need to be observed" (Richaudeau, 1979, p.53). For the author, these conceptions characterize a work and make it appear adequate or inadequate to a given culture. The pedagogical point of view refers to a conception of communication and teaching and learning. And the institutional point of view emphasizes that the TB reflects the organization of the school system in which it is used.

Taking into consideration the pedagogical process, Richaudeau (1979) affirms that the TB assumes three main functions: to transmit information, to structure and to organize the learning and to help the student in the understanding of the outside world. As for the first function, there seems to be consensus among other authors - Freitag, Motta and Costa (1997), Gérard and Roegiers (1998), Santomé (1998) and Zabala (1998) -, living little room for doubt that the TB offers the school community the specific pedagogic knowledge and can therefore be a very useful tool.

As for the second function, Richaudeau alludes to the influence that the TB exerts in the choice, the extent and the organization of the knowledge to be taught. The third function is related to the way in which the TB influences the child or the adult in grasping the outside world. Richaudeau stresses that depending on the TB, it will may or may not allow the integration of particular experiences of each subject and generate a free and creative activity, or, on the contrary, engage the student in rote behaviors.

Choppin (2004) on the other hand, emphasizes a historical study, showing that schoolbooks play four very important roles and can undergo significant variations depending on the sociocultural environment, the time, the subjects, the levels of teaching, the methods and the types of use.

The first function pointed out by Choppin is referential, curricular or program-based where, if teaching programs exist, the TB can be used to implement said program. LD is therefore a “privileged support of educational content, a depository of knowledge, techniques or even skills that a particular social group deems necessary to transmit to the new generations” (Choppin, 2004, p.553). The second function, which the author labels as ‘instrumental’, refers to what the book can offer in terms of learning strategy, considering that it presents a proposal for exercises, or even other types of activities, geared towards facilitating memorization of knowledge or problem solving. For the author, the third and the oldest function is the ideological and cultural one. This function tends to indoctrinate the young generations in an explicit and systematic way. Being man-made, the TB carries ideologies, cultures and philosophical aspects of its authors. The teacher should be careful when choosing a TB so that it is appropriate to the socioeconomic and cultural context of the students who will use it. The fourth and final function is documentary. It is not a universal function, it is found only in pedagogical environments that give privileges to the personal initiative of the child, favoring their child autonomy and presuming high level of teacher training.

Based on the two main users of the TB, Gérard & Roegiers (1998) also indicate their general functions: those related to the student and those related to the teacher. In relation to the student, the functions are directly connected to the learning that occurs in the school and beyond. For the authors, these functions are concerned with the transmission of knowledge, the development of skills and competences, consolidation, evaluation and support in the integration of acquisitions including socio-cultural and

educational reference. When the focus is on the teacher, the authors emphasize the functions of scientific and general information, of pedagogical training linked to the discipline, of assistance in learning and classroom management and help in the evaluation of student acquisition. The function of scientific and general information is related to the search of information by the teacher, providing him with indispensable knowledge in his teaching practice. The second function of teacher-related TB, according to Gérard & Roegiers - pedagogical training linked to the discipline - refers to the teacher's continuing education, providing him with several indications on how to improve or even renew his / her practice. For the authors, even a student's book without the accompaniment of a teacher's manual can perform this function, since the indications, activities and the type of documents it contains may lead the teacher to be more attentive to the students' potentials (Gérard & Roegiers, 1998, p.90). The help function in the learning and in the management of the classes gives the teacher numerous tools that allow the daily improvement in learning. The help function in the evaluation of the achievement helps in the evaluation instruments that can be proposed in the student's or the teacher's book.

In presenting the functions of the TB, the authors ended up indicating common points. The transmission of information cited by Richaudeau (1979) resembles the referential function presented by Choppin (2004) and resembles the scientific and general information and the pedagogical training function linked to the discipline presented by Gérard & Roegiers (1998).

The transmission of information also resembles the function of knowledge transmission, described by Gérard & Roegiers (1998). Even with possible conceptual errors that some TBs may contain, they can still be considered to be safer sources of information than those contained in, for example, some Internet sites, since in the digital universe anyone can insert any kind of information without prior verification.

Another common point between the functions of TB presented can be verified when Richaudeau cites the function of structuring and organizing learning, carried out by the textbook, which in turn is referred to by Choppin as instrumental and by Gérard & Roegiers as an integrator of the acquisitions, a function that leads the student to use scholastic knowledge in situations different from those addressed in the school.

Regardless of the name attributed to the function presented by the authors, it is the responsibility of TB to support the content that must be transmitted to the student and to the teacher as mediator of this process.

## **Methodology**

For the development of this work, a qualitative research of the ethnographic type was carried out. According to André (1995), this method is an adaptation of ethnography,

a type of research developed by anthropologists for the purpose of studying culture and society, thus, the term indicates two meanings: the first one is related to a set of techniques used to collect data on the values, habits, practices, behaviors and beliefs of a social group. The second sense is a written report resulting from the use of these techniques (André, 1995).

Ethnographic type of research, as well as ethnography, prioritizes the interpretation of the fact investigated, taking into account the subjective perceptions of the researcher and the respondent (Fonseca, 1999). It is a type of study that is considered relevant in current educational research, for valuing daily school life and emphasizing education as a social, cultural and historical process, characterized fundamentally by a direct contact of the researcher with the researched situation, which allows to reconstruct both the processes as the relationships that configure the daily school experience (André, 1995). According to the author, in ethnographic research,

[...] the length of time in which the researcher maintains this direct contact with the situation being studied can vary widely, ranging from a few weeks to several months or years. In addition to, of course, the specific objectives of the work, such a decision will depend on the availability of the researcher's time, his acceptance by the group, his fieldwork experience and the number of people involved in the data collection (André, 1995, p. 29).

The researcher must observe the largest possible number of day-to-day situations, through direct contact, which will make him or her better understand the situations faced, thus seeking the answers to the problem initially formulated. The research plan must be flexible enough to allow, according to the observation of day-to-day life and its description, the reformulation of hypotheses that provide new discoveries.

In order to better understand the pedagogical practice of the teacher, and thus to analyze the insertion of the TB in the context of the classroom, observations of Biology classes were made during a period that, where a topic of the curriculum was tackled. Ludke and André (1986) emphasize that the use of observation as an instrument of scientific investigation implies, first and foremost, that it is controlled and systematic, therefore, it requires careful planning. Planning observation means determining in advance what and how to observe (Ludke and André, 1986).

For the observation, a field diary was used, which consisted of a book in which all information was recorded incorporating both descriptive and reflective registers, as described by André (1995). In the descriptive part, points considered important for the research were recorded in detail, such as: the description of the subjects involved (physical appearance, dressing, speaking and acting); the reconstruction of dialogues (words or gestures used); the description of places (the classroom environment); the description of the activities, besides the behaviors of the observer (attitudes, actions and even the conversations with the participants during the period of the study), as pointed out by Ludke and André (1986), including all that could remind

researcher about everything that occurred during the field observation. On the other hand, the reflective registers included the personal observations of the researcher during the field work. In it, the researcher recorded, after each visits to the schools, his or her analytical reflections (what was learned during the field work, new ideas); methodological reflections (problems faced and possible solutions); changes in the perspective of the observer (opinions and changes in opinion during the fieldwork) and possible clarifications that were needed.

### ***Research Participants***

Five biology teachers who work in public schools in Brasilia participated in this study - two women and three men. All teachers are licensed in the biological sciences. Four of these teachers have been teaching for more than 10 years, and only one is at the beginning of the teaching career. Note that that to protect the teachers identity, a code was created for each of them, P for teacher; A for female teacher; B for male teacher.

### ***Research field: schools***

The research was done in 3 public high schools of the State Department of Education of the Federal District of Brasilia. These schools cater to teenagers between 14 to 18 years old.

### ***Procedures for data analysis***

The instruments used generated quantitative and qualitative data on different aspects of pedagogical practice. After reading and re-reading the collected material, a set of analytical categories was constructed, taking into account what was detected in the observations and the interviews. According to Ludke and André (1986), successive readings of the data allow the division of the material into component elements, without losing sight of the relationship of these elements with the other components of the data.

### **Discussion of results**

**Class observation** - Five teachers were observed in the three schools where the research was carried out. The number of classes observed varied from teacher to teacher, depending on the time it took to work on the topic being that the teacher was lecturing. Considering the scope of this paper, I opted to present in this article the discussions regarding the observation of the 48 biology classes, highlighting, however, only a few analytical items: initial routine, the development of the classes, teacher-student relationship, pupil-student relationship, evaluation of the activities and the insertion of the TB into the pedagogical practice of the teacher, whenever possible establishing relationships among data obtained in the interviews conducted with the teachers.

**Description of classes and initial routine** - The number of students in each class varied between 18 and 31 students. The organization of the classroom is traditional, that is, the desks are always in rows, except when there is groupwork to do. It is worth mentioning that in one of the schools involved in the research, it is the students who must change rooms, because the activities of each curricular discipline are developed in thematic classrooms.

There seems to be consensus among teachers that all classes should be started with the roll call. Normally, this is not done by calling students by name, but by the corresponding number in the call list, which in my view depersonalizes the student. The roll call, however, is necessary, since most schools in Brasilia do not have of digital attendance control.

**Class development** – The classes taught by the teachers included the most varied subjects of biology - Kingdom Protista, Kingdom Fungi, Ecology and Cytology. Classroom activities were mostly comprised of lectures aided with datashow (PA1, PB1), or with the use of the whiteboard (PA1, PB1, PB2, PB4). An expository class is understood to be that moment in which the teacher presents the content to the students. This exposition can, according to Haidt (1994), take on two didactic approaches: the dogmatic exposition, which, in this case, can not be challenged and must be accepted without discussion; or the open or dialogued exposition, in which the message presented serves only as a pretext to initiate a process of student participation, in which case there may be a challenge. In the case of the observed teachers we can say that the pedagogical practice of teachers PA1 and PB1 was, in the majority of the observations, more consistent with a dialogued class while teachers PA2, PB2 and PB4 were limited to a more dogmatic exposition. During the explanations, teachers (PA1 and PB1) sought to cite examples related to students daily lives, which may facilitate students' understanding of the content. In other cases, the teachers (PA2, PB2) were limited to the presentation of the contents.

Although teachers recognized the importance of prior conceptions of students on the subject being taught, none of them created room for discussion so that students could expound on their knowledge about the subject. It is true that some teachers allowed the students to present their doubts on the subject, but no challenging questions were presented to the students to encourage discussions. We can create some hypotheses about these conceptions when the students asked questions about the topic of the class.

**Relationships in the classroom** - The relationship between the teachers and the students was respectful and close, with the exception of a teacher (PB2) who assumed a more authoritarian attitude. It is worth remembering that the teacher can be a good role model for the student, often unconsciously learning, from the attitudes of the teachers (Morales, 2011). For this author, two characteristics are necessary for a teacher to

be considered a role model to his students. The first is that he or she must be a good teacher and be considered that way so by the students. The second is that he or she is well accepted by students, that is, the teacher is loved and esteemed. This affective acceptance is, for Morales (2011), always important if the teacher wants the messages he considers valuable to reach the students. Professor PA1, for example, showed the students at various times that she cared for them, talking and advising them, and that somehow brought them closer to her.

Still in this respect Freire (1996) states that:

The atmosphere of respect that comes from fair, serious, humble, generous relations, in which the teaching authority and the freedoms of students are ethically accepted, authenticates the formative character of the pedagogical space... The authoritative, rigid teacher does not count on any creativity of the learner. It is not characteristic of the teacher, nor does he expect the pupil to show a taste for adventure (Freire, 1996, p.90).

**Evaluation of activities** - class observation allow us to affirm that the teachers were concerned about the evaluation of the learning process. To do this, at the beginning of each class, after the attendance, teachers asked review questions related to the topic of the previous class in order to verify learning and to establish links with the “new” topic to be taught. However, most of the questions asked of the students were only memorization questions. In addition, in one of the classes, PB1 used conceptual map to evaluate the concepts developed during the classes. The teacher asked the students, at the end of each class, to draw a conceptual map and deliver it to the next class. According to the teacher, earlier in the year he taught students how to construct concept maps. Unfortunately, during the observation period, the students did not submit to the teacher any of the concept maps assigned. The discussion of these maps with the class would have been interesting because the teacher would have been able to verify if the students, in fact, were managing to construct the conceptual map and if the technique was fulfilling its function, of promoting significant learning.

Although two teachers (PA2 and PB2) requested the submission of the assigned activities during the classes observed, only PB2 returned the same to the students. Returning students’ work is important so that the student become aware of the mistakes committed and so seek to clear his doubts about the subject, thus facilitating understanding and even expanding learning.

### ***The textbook in the classroom***

Regarding the use of the TB in the classroom, most of the teachers participating in the research claim to use it in a variety of ways: for reading, sharing (or not), solving exercises, reviewing concepts already studied or even for looking at images. The uses cited by teachers point to the functions of learning aid, class management and scientific information in general as proposed by Gérard & Roegiers (1998).

However, of the forty-eight classes of biology observed, only three showed use of the textbook in the classroom (6,25%). In one of these classes, the teacher did the activities that were included in the book. In this case, the students performed the exercises in pairs. To carry out this activity, students had to read a text from the book and then answer questions related to the topic. This activity took the time of two classes (approximately 100 minutes). According to Santos and Carneiro (2006), this form of employment of the TB evidences a new function: the training of the students to perform well in the college entrance exam. After the students completed the exercises, the teacher, in turn, corrected the exercises and returned them to the students in the subsequent class. In the following class, he again used the TB, but transcribing parts of its content onto the board for students to copy. It is worth mentioning that the students had their books in class, which raises the question of the pedagogical objective of the teacher copying passage from textbook to the blackboard.

Professor PB3, when asked about the use of LD in the classroom, states:

I ask the students in advance to bring (the textbook), right? In fact, I had to use a little authority in this sense because the students complained a lot about the weight of the books, but I argued that this is important for them, that student life is like that, that they have to carry the book... I even said they would not be allowed in the classroom if they did not bring the book. This was a way of disciplining them and they bring the book... (PB3)

The teacher's statement raises the recurring complaint among students concerning the weight of the TBs as justification for not bringing them into the classroom, and how the teacher got the students to bring the book, only under threat .

As Gérard & Roegiers (1998) affirm, the use of the book as aid in the integration of acquisitions is essential. It allows the student to perceive his or her difficulty in applying knowledge in situations outside of the classroom, thus the use of the book becomes meaningful. However, the initial threat that the teacher claims to have made on the students had an effect, since the students brought the book to the classroom, albeit not using it during the classes observed. Although TB use was not observed in the classroom, teacher PB3 described in his interview how he uses this teaching resource:

We start with students alternating in the reading to see how they are reading them, then we read and discuss... if there is some kind of mistake or some nomenclature that is no longer used, we deal with it at that time... (PB3)

The teacher's argument demonstrates his concern with the learner's reading competence, with reading comprehension and how it progresses in situations of conceptual errors in the book. He adds:

... basically I use the book for them to see pictures, read a text, understand what's there, see pictures and figures and do exercises. (PB3)

The teacher's speech reveals the functions of learning aid and scientific and general information, carried out by the textbooks as pointed out by Gérard & Roegiers (1998).

### **The textbook and planning**

Of the five teachers interviewed, four reported using the TB during planning. In this case we can say that this teaching resource played two roles: scientific and general information and pedagogical training linked to the discipline. These functions are mixed in the discourse of teachers who present the textbook as a source of research or as a guideline for the construction of slides used in the classroom or even as a roadmap for the content to be taught to the students:

I research, at first in the textbook. I start the class, I'll have to talk about the vegetable kingdom now, so I look in their book which path that the author is taking. Based on that, I take the slides I already have, I'm adding the information that the new book brings... I see what the new author's proposal is, I add what I did not have in the previous slides. (PA1)

The statement of PA1 demonstrates concern with updating the contents of the slides in addition to helping in the "dosage" of the contents. This same teacher also emphasizes that she does not make use of the TB in the first year classes:

In the first year, I do not look at the book much. I follow the content that we have worked with for the first year, right? So I'm following this order of content. In the 2nd series I look because living beings is already a more complex thing. (PA1)

From this statement, it can be hypothesized that since this teacher has been working on the contents of the 1st grade for a certain time, she is not worried about updating the information that will be worked with the students of this series, as suggested when she refers to the contents given in the 2nd series. This practice may be the result of her greater familiarity with the contents of the 1st series compared to the contents of the second series.

Most teachers claim to use the TB to support their lesson planning, PB1 even affirms using college textbooks:

As textbooks sometimes present conceptual error, then I can not completely base my class on what's in the book and I always warn students about it, that the textbook is not the absolute truth there. Quite the contrary, many things can be questioned there... so I use the textbook more as a script is... of the curriculum I'm going to follow. (PB1)

In this claim of the teacher it is evidenced that although the teacher uses the TB as a script - the pedagogical training function - he or she does not follow this book as an authority, since possible conceptual errors are found in it. When asked if the book used in the school contains many conceptual errors, PB1 states:

There are, but they are not a significant number. However, in those moments, when I find some, I do... it's a discussion with the students, sometimes it's not even a conceptual error, it's a vision that the book gives that is different from the vision I have of a certain topic. So what I do is to contrast between these two visions, until the student realizes it, that there are different views on the same topic. (PB1)

This statement by the teacher shows that he is well acquainted with the book with which he works and is not limited to learning the concept. He goes beyond, as it seems to develop students' critical thinking. In addition, it reveals a non-dogmatic look at Science.

It (science) is not consensual, so that's more or less it. Now, I always take care to read material that is in the book, read of the questions that are in the book, not to have a surprise, right? (PB1)

The only teacher who claims not to use the TB to prepare his classes is PB2, which can demonstrate a certain "freedom" from the TB, although he states that he uses it to know what it contains:

I use it, I use it only to know what information the boys will get from the book. But I do not usually use this book to prepare my classes. Because what they need to know goes far beyond the book. It's ... the book should already be focused, the education should already be all aimed at the college entrance exam. (PB2)

In this last statement of the teacher (PB2) - his concern with the entrance exam becomes evident, which reveals a conception of high school whose only function is to prepare the student for the university entrance examination; concern for citizen formation, as provided for in the LDBEN of 1961 is nil. It is also worth remembering that: "One of the roles of the secondary school, perhaps the most important, is to mold students into conscious citizens, protagonists and fully literate" (Distrito Federal, 2014, p. 18).

## Final Considerations

The analysis of the inclusion and use of the textbooks by the respondents of this study shows that this resource does form part of the classroom daily routine. As evidenced in the 48 classes observed, only 6,25% - 3 classes used the textbook. This result does not corroborate Molina (1997) who states that the textbook is an element that is as highly present in the classroom as the teacher itself. Neither do the results corroborate Batista; Cunha; Cândido (2010) in their claim about the presence of the textbook in the day-to-day of the classroom as one of the basic organizing constituents of teacher practice.

On the other hand, most of the teachers interviewed admit to consulting the textbook for class planning. They also state looking other sources of information, such as the internet. In this case, the teacher often tries to read the contents, either to learn more

about the subject, to complement information or to clarify doubts. In this case, this teaching resource plays the role of subsidizing the teacher's continuing education.

There is no doubt that the book exerts influence in the teaching of Biology, although it is indirect, but we can no longer affirm based on the results of this study, that its presence is a constant in the classroom. The fact that the teacher uses it at the time of planning does not mean that he or she is dependent on this teaching resource. We must not forget that access to scientific knowledge today is much easier than it was twenty years ago when Internet access was considerably less.

The few times the book was used in class was limited to mere reading of the text followed by exercises. There was no discussion of the topic in question among the students. The concern, at that moment, was to find the answers to the questions. We know that students have difficulties with reading and interpreting the texts that convey scientific knowledge, however, at no time was there any support nor incentive from the teacher to encourage the reading of the text and / or clarification of doubts.

The pedagogical practice of the teachers involved in this study presents characteristics of an expository class, often accompanied by slides and, at times, allowing students to present their doubts. This teaching model does allow space for activities involving the textbooks, as knowledge is delivered directly to the students by the teacher in forms of lectures. This teacher-centered pedagogical practice shows a network of representations about the process of teaching, learning, evaluation, the discipline, among others, that prevents the use of more innovative activities.

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