THE SCIENCE AND BIOLOGY TEACHING PRACTICES AT ESCOLA CAETANO DE CAMPOS: the trajectory of a teacher – 1961/1998

As práticas de ensino de Ciências e Biologia na Escola Caetano de Campos: a trajetória de uma professora (1961/1998)

Las prácticas de enseñanza de Ciencias y Biología en la Escola Caetano de Campos: la trayectoria de una docente (1961/1998)

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Abstract: Although the literature recognizes that there are differences between the prescribed curriculum and the practiced curriculum, there is still a lack of studies on the history of teaching practices. Considering this, the aim of this study was to understand the relationship between the educational conceptions of teacher Clarinda Mercadante Lima, who worked at Escola Caetano de Campos, and the pedagogical practices that shaped the curriculum of the Science and Biology disciplines at this institution. The analysis was based on theoretical notions from the field of cultural history and on the data obtained in two interviews that were assessed from a phenomenological perspective. The results pointed to several singularities in the teaching practice that can be interpreted based on the specificities of her training process and the cultural context in which operated.
Keywords: science teaching; natural Sciences; curricular activities; history of education.

Resumo: Embora a literatura reconheça que há diferenças entre o currículo prescrito e o praticado, ainda há uma carência de trabalhos sobre a história das práticas de ensino. Sendo assim, o objetivo deste trabalho é entender a relação entre as concepções de educação da professora Clarinda Mercadante Lima, que atuou na Escola Caetano de Campos, e as práticas pedagógicas que constituíram o currículo das disciplinas de Ciências e Biologia nessa instituição. A análise se apoiou nas noções teóricas do campo da história cultural e nos dados obtidos em duas entrevistas que foram apreciadas por uma perspectiva fenomenológica. Os resultados apontaram para diversas singularidades na prática da docente que podem ser interpretadas a partir das especificidades do seu processo de formação e do contexto cultural no qual ela estava inserida.
Palavras-chave: ensino de ciências; ciências naturais; atividades curriculares; história da educação.

Resumen: Aunque la literatura reconoce que existen diferencias entre el currículo prescrito y el practicado, todavía falta trabajo sobre la historia de las prácticas docentes. En vista de ello, el objetivo de este trabajo es comprender la relación entre las concepciones educativas de la maestra Clarinda Mercadante Lima, que trabajó en la Escola Caetano de Campos y las prácticas pedagógicas que constituyeron el currículo de las materias de Ciencias y Biología de esta institución. El análisis se basó en nociones teóricas del campo de la historia cultural y en datos obtenidos en dos entrevistas que fueron evaluadas desde una perspectiva fenomenológica. Los resultados apuntaron varias singularidades en la práctica docente que pueden ser interpretadas a partir de las especificidades de su proceso de formación y del contexto cultural en el que estaba inmersa.
Palabras clave: enseñanza de las ciencias; Ciencias Naturales; actividades curriculares; historia de la educación.

https://doi.org/10.4025/rbhe.v25.2025.e365en
e-ISSN: 2238-0094

INTRODUCTION

Perhaps there is a consensus among teachers that there is a shift between the prescribed curriculum and the curriculum that is developed in schools. Even in periods when ready-made teaching materials and centralized assessment processes seek to restrict teachers' creative freedom, it is clear that different appropriations always occur on the part of the subjects, which promote differences among what occurs within the systems, institutions and classrooms.

This fact can arise due to conscious resistance, but also as a result of the vicissitudes that occur in the time and space in which the pedagogical process is developed. The school is alive and, like every organism, it is constantly changing. No matter how rigorous the planning, what was planned always undergoes a process of adaptation or contextualization. Unforeseen events usually arise the need to be responded to, leading to processes of appropriation, in the sense proposed by Certeau (2003).

According to this author, appropriation refers to production that is carried out through use. In this sense, Certeau (2003, p. 41) is not concerned with the study of representations or elaborated behaviors, but seeks to understand the consumer's "ways of doing" with what is received. This perspective offers valuable insights for analyzing the educational process, as pedagogical practices are shaped not only by what is prescribed but also by improvisation, sensitivity, and the evolving ways of doing that emerge throughout the process.

Classes are never repeated and, no matter how detailed the pedagogical project and the forms of control by higher authorities, there is no way to predict all the variables that exist in the human relationships established in classrooms. Therefore, analyzing the educational process only from the perspective of the prescribed curriculum is not enough to understand the complexity of training in school education.

Some authors have theorized about the characteristics of the curriculum from the point of view of its conformation by pedagogical practices. In this sense, the school is conceived as a social system and the curriculum is conceived as a "complex practical field" (Sacristán, 1998, p. 21) in which there are disputes of interests and ideologies in activities that involve choices of content and methods and the implementation of practices.

In this sense, one cannot think about the curriculum without considering the contexts in which it is developed, since practices would be shaped by political and social issues associated with a historical time, by the structural and pedagogical characteristics of the environment and by the character of the subjects involved in the teaching processes, including the "experiences that each person has and brings to school life, reflected in aptitudes, interests, skills, etc. [...]" (Sacristán, 1998, p. 22).

The seminal works of Andre Chervel (1990) and Dominique Julia (1995) analyzed how pedagogical practices produce (and not just reproduce) specific school knowledge. Both chose to approach this question from a historical and cultural

perspective. The first author started from the premise that school discipline is not reduced to the vulgarization of teaching content or adaptations by didactics. Therefore, he analyzed its genesis (how does the school system produce a discipline?), its function (what is the purpose of the discipline?) and its functioning (how do the disciplines achieve the desired training?) to argue that the school produces original (school) knowledge that derives both from the choices and from the characteristics of the approaches. This resulted in the statement that "between the school discipline put into action in pedagogical work and the real results obtained, there is much more than a difference of degree, or precision" (Chervel, 1990, p. 10) that can only be understood from the school, and not through the external categories that link school institutions to education systems.

Dominique Julia, in turn, highlighted the role of practices in shaping school culture. According to the author, school culture can be understood through two dimensions: the normative, which prescribes and guides behavior, and the practical, through which knowledge is transmitted and behaviors are internalized. Thus, the two authors relate school practices to dimensions outside the school, considering that school discipline is linked to a social function or that school culture is derived from operating norms. In addition, they value the school as a field for the implementation of the educational process and the teacher as a protagonist in the process of producing school knowledge.

Seeking to understand the aspects related to the actions of subjects, Rudd and Goodson (2016) proposed the notion of *refraction*, whose function is to articulate systems and policies (structure) with practices (agency), considering the social and historical contexts in which this articulation occurs. The notion of refraction, inspired by the change in the behavior of light when there is a change in the propagation medium, suggests that educational movements or policies undergo a shift when they change context. Thus, educational movements and/or policies undergo modification processes when they are put into action at the national level (in the case of international movements or policies) or institutional level (in the case of national movements) through "decisions and initiatives of contextualization, decontextualization, and recontextualization in micro-level interactions" (Rudd & Goodson, 2016, p. 108).

Investigating educational reforms in seven European countries by crossing national policies (structures) with the actions of subjects (agencies) from different generations in different periods, Goodson (2019, p. 86) concluded that "at the end point of a multilayered refraction process is the individual or the professional" and, consequently, the refraction process is conditioned by the "historical periods and cultural contexts" (Goodson, 2019, p. 87) in which the subjects are inserted.

In short, the theories indicate that the actions of subjects (agency) in the educational process do not coincide with the prescriptions, whatever they may be, and

are affected by aspects of personal life in specific historical contexts. Far from being just a detail of the process, the characteristics of the agents determine a school education that can be significantly different from that proposed by the prescribed curriculum.

Taking these points into consideration, the problem that motivates this work is to understand how the characteristics of the academic background and cultural context of a Science and Biology teacher who worked at the Caetano de Campos School shaped the pedagogical practices that constituted the curriculum of these disciplines in this educational institution. In this sense, we sought to identify aspects of the teacher's personal life and training and evidence of how her trajectory was linked to her pedagogical practice.

In this investigation, we also sought to identify evidence that could support important points for understanding the interconnections between the prescribed curriculum and teaching practices. It is expected that this work will contribute to the field by analyzing pedagogical practices as a research category.

RESEARCH METHODOLOGY

Historical research allows for the necessary distance for analysis, but research into school practices faces limitations in terms of sources. The prescribed curriculum is in a way more accessible, but pedagogical practices, in general, have few preserved records. Furthermore, it is very common for teachers to record only the topic or little more than that in class diaries. In this sense, semi-structured interviews (Lüdke & Andre, 2015, p. 40) were chosen to collect data on science classes at Escola Caetano de Campos, and the analysis was based on a method based on a phenomenological perspective.

Professor Clarinda Mercadante Lima joined the Caetano de Campos School in 1961 and worked as a Science and Biology teacher at the institution for approximately four decades. During this period, in addition to being divided into two distinct units called EEPSG Caetano de Campos, one located in the Consolação neighborhood and the other in the Aclimação neighborhood (São Paulo, 1978), the institution underwent profound changes in the policies that defined Brazilian education, such as: Law No. 4,024/61 (Brazil, 1961), which established the first Law of Guidelines and Bases for Brazilian education; Law No. 5,692/71 (Brazil, 1971), which changed the purpose of secondary education, making it vocational; Law No. 7,044/82 (Brazil, 1982), which revoked the mandatory nature of vocational education, and Law No. 9,394/96 (Brazil, 1996), which established the guidelines and bases of national education.

Furthermore, in the context of military governments, there was a greater rapprochement with the USA, which resulted in the insertion, in Brazil, of American projects for science education and, specifically in the case of Biology, of the work

Biological Science Curriculum Study – BSCS (Krasilchik, 2000). It was in this complex scenario, both from a political and ideological point of view, that Professor Clarinda, the subject of this study, worked as a teacher and developed pedagogical practices in the subjects of Science and Biology.

The main source of data collection was an interview lasting approximately 2h30, conducted in October 2017 at the former Caetano de Campos School, located in the Praça da República building. The transcription was performed using the Trint™ platform, and the generated text was reviewed to avoid possible transcription errors by the platform's artificial intelligence and to correctly name the interviewers' and interviewee's statements. In addition to this interview, another interview conducted by the Mario Covas Education Reference Center (CRE) in May 2017 was used as a reference source (São Paulo, 2017).

For data analysis, a phenomenological perspective was chosen. Obtaining data that describes personal experience is a challenging task not only because of the complexity of human nature, but also because it is a multidimensional phenomenon that is psychologically and culturally oriented, in addition to being socially structured (Alhazmi, 2022).

Interview analyses through a phenomenological perspective can provide rich sources of knowledge (Høffding, 2021). Derived from the work of Edmund H. Husserl (1859-1938), phenomenology was greatly influenced by Alfred Schutz (1899-1959), Maurice Merleau-Ponty (1908-1961), Alfred North Whitehead (1861-1947), Amedeo P. Giordi (1971) and Richard Zanner (1970), proving capable of capturing the essence (*eidos*) of personal experience and revealing its meaning (Patton, 2022; Hashlamoun, 2019).

In this sense, analyses with phenomenological perspectives become important methodological tools that help recognize meanings from personal experiences (Husserl, 1931; Hycner, 1985; Koopmans, 2015; Hourigan & Edgar, 2020; Gasparyan, 2021). Based on this assumption, this investigation sought to understand how the pedagogical practices developed by Professor Clarinda shaped the curricula of the Science and Biology subjects during the time she worked at Escola Caetano de Campos.

In this sense, analysis procedures based on the work of Richard H. Hycner (1985) were used, the stages of which can be divided, briefly, into: 1) transcription of the interview; 2) phenomenological reduction; 3) creation of general units of meaning; 4) outlining of the units of meaning relevant to the research question; 5) grouping of the relevant units of meaning; 6) determination of themes; and 7) summarization of the findings.

The practical limits of phenomenological interview analysis, as pointed out by Hycner (1985), can be summarized in two: *confabulation*, which can be understood as the risk of the interviewee filling in the memory gaps according to her subjectivity or in order to please the interviewer; and the risk of *the interviewer's influence* during the interview or analysis. The knowledge of these limits, inherent to the process, however, does not "eliminate the subjectivity of the research" (Hycner, 1985, p. 297). As pointed

out by Hycner (1985, p. 297), from the point of view of phenomenology, "it is precisely the nature of this 'subjectivity' that allows for greater 'objectivity', that is, a more comprehensive and faithful approach to the phenomenon".

ANALYSIS RESULTS

Following the steps, after obtaining the text of the interview transcript, phenomenological reduction was performed, that is, the transcription was read with the intention of finding and delimiting units of general meaning. This method consists of finding general meanings of interest to the study in the interviewee's statements. For example, the interviewee's statement "At Aclimação, she used transparency of the genitals. I still have the transparencies drawn today (sic.)" leads to the creation of a unit of general meaning described by the researchers as "Regarding the teaching materials, she reports that she used transparency with pictures of the genitals", receiving the coding number 53.

Based on this principle, 88 units of general meaning were obtained at this stage. After this stage, each obtained unit was evaluated and grouped within a "Relevant Theme". In the example presented, general coding unit 53 was grouped with the theme "Pedagogical Practices", since this unit deals with an example of what teacher Clarinda's pedagogical practice was like. It is worth noting that, even though 88 units were obtained, only 84 were grouped into the 7 themes relevant to the research question. This is due to the fact that, in the following analysis, not all units were of interest or directly linked to the research questions addressed here. The themes and their corresponding units are summarized in Table 1.

Table 1 – List of relevant themes and their respective units of general significance

Relevant topics	Unit(s) of General Significance	Total
A. Teaching Performance	24, 26, 33, 52, 59, 67, 68, 70, 78, 79, 85, 88.	12
B. Biography	1, 2, 20, 28, 29, 30, 31, 46, 50, 86, 87.	11
Caetano de Campos School	25, 30, 44, 45, 57.	5
D. Academic-professional training	4, 6, 7, 8, 9, 11, 23.	7
E. Academic-professional influences	13, 14, 15, 16, 17, 18, 19, 20, 41.	9
F. Teaching Materials	53, 69, 71, 80, 83.	5
G. Pedagogical Practices	21, 34, 35, 36, 47, 48, 49, 50, 51, 52, 53, 60, 61, 62, 63, 64, 65, 66, 72, 73, 74, 75, 76, 81, 82, 84.	26

Source: Organized by the authors.

After defining the relevant themes, the next step was to analyze them in order to understand the characteristics of the teacher's performance and the curriculum

practiced at the school in Science and Biology classes. Through the analysis, it was found that the relevant themes can be grouped into two sets of data. The first, which relates to themes A, B, C, D and E, allows us to evaluate how her academic and professional training took place, since the teacher's educational trajectory can help us understand her practices. The second, which encompasses themes F and G, allows us to analyze what her practices were like in the classroom.

In principle, what draws attention is that the topic of "pedagogical practices" appears prominently in the interview. Although the teacher participated in a training context at an institution of excellence (USP), with great names in the field and with the possibility of pursuing a career as a researcher (this topic will be discussed in more detail in the next topic), what excites her is education and, especially, the classroom.

Initially, the analyses of their trajectory will be presented, followed by the analysis of the report of their practices. Next, the main aspects related to the two sets of data obtained will be presented and discussed.

THE TRAINING OF PROFESSOR CLARINDA

At the time of the interview, Professor Clarinda was 82 years old. With a degree in Natural History from the University of São Paulo (USP), she began teaching in the late 1960s and retired in 1988. Even after retiring as a teacher, she continued to work in education with editorial work and, as she demonstrated throughout the interview, she never abandoned her love for the profession and for Biology.

Regarding her academic background, she states that what motivated her to enroll in the Natural History course was her affinity with animals. Although she mentioned that she had also considered the Medicine course, she said that she felt "completely fulfilled within the course" (Lima as cited in São Paulo, 2017, p. 2). She remembers that during this period it was "exhausting", since, in addition to Biology content, there was also Mineralogy content. She also remembers the traditionalism of the classes, all theoretical, including the practical subjects. After completing the Natural History subjects, she was allowed to graduate or take the didactic supplement, which she did. Thus, she studied General Didactics, Specific Didactics and Adolescent Psychology.

In addition to curricular activities, she highlights that another important aspect of her training was participation in research groups, which granted her skills such as reasoning, questioning, developing hypotheses and syntheses, generally related to scientific research activities, but which she understands was important for her teaching performance.

Working with physiologist Paulo Sawaya, she was awarded a scholarship by the Brazilian National Council for Scientific and Technological Development (CNPq), but

turned it down because she preferred to start her work at the Caetano de Campos School. She also worked with Professor Oswaldo Frota-Pessoa and Professor Rachel Gevertz. Regarding her relationship with Professor Gevertz, she remembers attending meetings of the research group and being influenced didactically by the professor's "lucid and competent" manner, in addition to using her book[1] during her teaching career. Professor Clarinda's training in the field of science education was also influenced by Professor Myriam Krasilchik, who at the time worked at the USP School of Application, where Professor Clarinda taught as part of the requirements for the Special Didactics course.

When she recalls her early years as a teacher, she remembers the advice given by the administrative superintendent about what she denominates "responsible posture." In the superintendent's words, as recalled in the interview, the teacher needed to "be delicate and have a respectful posture, a posture of commitment," characteristics that teacher Clarinda understood she had and that were a result of her family background and that, according to her account, made her "accepted" by the teaching staff. After graduating, teacher Clarinda worked in several educational institutions, but it was at Escola Caetano de Campos that she taught for the longest time. In 1978, she began working at Escola Caetano de Campos da Aclimação and, after retiring, she worked only with publishers, as a proofreader, editor or author of teaching materials.

The teacher's account reveals the importance she attaches to her training process. From the point of view of the curriculum, she not only states that it was a "demanding" course, but also remembers the names of the teachers and the books that served as support. Regarding extracurricular activities, she highlights her involvement in research and the training she received through it, which contributed to her pedagogical practice by giving her teaching of Science and Biology a broader purpose and enabling her to approach practical classes with greater confidence. At this point, an aspect highlighted by Chervel (1990) emerges, that is, that there is a distinction between the function (purpose) and the functioning (operationalization) of the school subject.

In addition to her academic background, the teacher's account is clear in relation to the importance of the superintendent's advice given at the beginning of her career and which is still present in her memories. She also established a relationship between her family background and her integration into the profession. These influences, combined with her academic knowledge, suggest that her training as a teacher was not limited to the conceptual content of the subject and, supported by Rudd and Goodson (2019), it can be said that the characteristics of the teaching did not coincide with the structure (or with the prescribed curriculum), but were very

[1] Frota-Pessoa, O., Gevertz, R., & Silva, A. G. da. (1970). *Como ensinar ciências*. Editora Nacional; Editora da USP.

deeply articulated with the cultural context in which she was inserted. The importance of this issue is related to the understanding of the aspects that involve the relationship between professional teacher training and performance in the classroom, and this is what will be analyzed in the next topic.

THE PEDAGOGICAL PRACTICES OF PROFESSOR CLARINDA

In this section, analyses of Professor Clarinda's reports regarding her classroom practices will be presented, in order to understand the unique aspects of her performance and the relationship with the specific characteristics of her training and her cultural context.

In the words of Professor Clarinda, "the teacher is not the one who teaches the line, the teacher is the one who teaches the line and between the lines" (Lima as cited in São Paulo, 2017, 17). With this motto, she was always active in the classroom. At Caetano de Campos School, she had access to the Science Laboratory and a "specific room for Biology". The interview reveals strong memories of her practical classes, which indicates the importance of this activity in her teaching work.

Although she believes she did not retain any significant concepts from her complementary teaching classes, she believes that her methods at the beginning of her career could be considered constructivist. Recalling that time, she comments: "When constructivism came along, I said: My God, is this what constructivism is? I was already using that! I was already doing that!" She believed that much of this practice was influenced by Professor Myriam Krasilchik.

In this excerpt, the interview offers some points to understand the characteristics of the curriculum that was practiced at the school. First, the teacher's motto makes it clear that her conception of science teaching was much broader than that which was limited to understanding conceptual content.

Another interesting aspect of this excerpt is that, although the teacher does not remember the concepts learned in the didactic supplementation classes, she associates her practice with constructivism. Constructivism is recognized as a movement that was based on Educational Psychology, which problematized "how one learns", and not "what one should learn" (Silva, 1993, p. 9). Since it is based on the memories of the interview, it is not possible to verify whether or not her practice can in fact be considered constructivist. It is possible to think of other possibilities, such as the influence of New School precepts, which had as "one of their most striking characteristics [...] the importance given to the students' activity" (Mesquita, 2010, p. 64).

In any case, Professor Clarinda's memories indicate that her concern as a teacher was not limited to teaching content, but to a broader education for students. These statements indicate how the curriculum that is realized in practice can be

distinguished both from theory (in this case, constructivism) and from standards (themes and approaches prescribed in teaching materials).

Among the books she remembers using most at the beginning of her career is the one by Professor José Coimbra Duarte. In addition to this, she mentions that she used those by Professor Isaias Raw, Professor Frota-Pessoa, Professor Minervina, Professor Myriam Krasilchik and the Green Version of the *Biological Science Curriculum Studies - BSCS*, produced and adapted by FUNBEC. According to her, the book helped to build the introduction to the topic of the class, which involved an investigation process before the theory. In her words: "There is always an introduction and then comes the question, the investigation. When the investigation comes, it discusses, uses the microscope and then it starts to get into the theory (...) I did all of that".

It is clear that her activity was supported by a wide range of authors, which indicates that the teacher was not restricted to official programs or a specific textbook. This was only possible because the teacher had a solid academic background and a very particular conception of what it meant to teach science. The influence of the cultural context of the time can be seen in the citation of the use of the BSCS. This teaching material produced in the USA and adapted by FUNBEC had "wide dissemination in regions under North American cultural influence" (Krasilchik, 2000, p. 86). However, the teacher's account also suggests that the curriculum is a field of disputes among theories, concepts, purposes and practices.

The practical classes are among her most consolidated memories. She still keeps the notebooks produced in these classes by her students with drawings of the animals that they brought and dissected in class. Professor Clarinda reports that the students used scissors to open the specimens and wrote everything down in their notebooks, according to her instructions. She still remembers how she guided this practice in the laboratory: "draw the squid, indicating its external characteristics, classify it". She says that they drew, were instructed to compare it with the book and, only afterward, she intervened, making the necessary corrections. Reading one of the notebooks, Professor Clarinda highlights how the notes were made by a student:

> See what she writes: "Study of the arachnid class. Material, a magnifying glass, dissection board, a preserved dead spider. Procedure: observe the example received, spider, classify the order", that is, I gave the practice and they would look it up in the book". She wrote down: "number of appendages, types... Presence and number of eyes. Respiratory orifices", which you can't see properly and "genital orifices". Then she drew what she saw. Then she researched: habitat, feeding method and... she looked it up and we discussed it. Why would I keep giving it on the board? It was easy to give it like that... can you believe it was easy? (...) It's hard to do the whole dissection, but then you see everything. It's beautiful. (Lima as cited in São Paulo, 2017, p. 22).

At another point, she describes how she performed a fertilization experiment that she had learned about when she studied animal physiology at the "Marine Laboratory" at USP, in São Sebastião:

> I, or one of my students, would bring in live sea urchins. In the school laboratory, we would inject a substance into the urchin's body with a syringe. A solution that makes it eliminate gametes. Then they [the students] would look at the gametes under the microscope. There had to be male and female urchins. They would place the sperm together with the eggs and watch the sperm enter... fertilize... and we would observe the development of the embryo (Lima as cited in São Paulo, 2017, p. 28).

Thus, whether working with her own slides, with live specimens (slides with paramecia), in an aquarium, terrarium or in a vegetable garden, Professor Clarinda believed that practice was a way of teaching Science and Biology content, as well as scientific practice procedures. In this excerpt from the interview, three aspects of her teaching practice become clear: the first is the importance of her training as a researcher, which gave her the confidence to teach practical classes; the second is the influence of the context, since the American projects (in this case, the BSCS) aimed to develop a scientific spirit, in addition to understanding conceptual content; the third is the relationship between the curriculum and the environment in which it is practiced, since this approach could only be carried out in a school with a minimum of physical structure, which adds another element to the definition and dispute over the curriculum.

Here again, we can see how the prescribed curriculum can diverge from the curriculum practiced in schools if the conditions of teacher training or the structure of the school do not allow for the implementation of these practices. Thus, it is clear that any analysis of real education cannot be restricted to standards or teaching materials.

Her conception of science teaching allowed her to organize two Science Fairs at the school where she worked, one in 1966 and another in 1971, in addition to organizing the participation of students in the fairs promoted by the Brazilian Institute of Education, Science and Culture (IBECC) between 1971 and 1978. In an interview given to the Mario Covas Reference and Education Center (CRE) between April and May 2017, teacher Clarinda mentions that she participated in the XIII Great Science and Culture Fair of the City of São Paulo, promoted by IBECC, in which one of her 3rd year high school students received special mention with a work on Vitamin D deficiency (São Paulo, 2017).

In addition to the practical classes and her participation in the Fairs, another important aspect of her teaching practice could be seen in the type of work she did as a teacher in the Teaching course at the Aclimação unit of Caetano de Campos. When

she describes her practices, she emphasizes the distinction she made between teaching Biology for the 1st and 2nd grades and for the Teaching course.

In her words, she considered it necessary to provide "knowledge that a teacher must know in order to get to know the student or raise awareness". With this guiding thought, she mentions that she taught her students to do visual acuity tests, learn about childcare, do hearing tests, procedures to treat and prevent pediculosis, use nutritional tape, among other things. She understood that these procedures were vital to have a "sight on the students", after all

> We, as teachers, see things that parents don't see, because you have a group of students, with a type of activity with a more or less homogeneous rhythm, and then one of them changes. He starts to sleep (...) then you think, damn! You notice this before the parent, you notice the misconduct before the parent. So, the good teacher... Or rather, not the good teacher, the teacher. The Teacher when he is a teacher. Because he can be like that and not be, right? The teacher is the one who sees. He has an ease for seeing these things, that's interesting. (Lima as cited in São Paulo, 2017, p. 17).

The memory report shows that teacher Clarinda did not limit herself to teaching conceptual content, but used her knowledge, and especially her sensitivity, to understand the characteristics of the students. In this sense, although the teacher had a deep technical knowledge of her profession, in her practical work she mobilized other factors. Therefore, the *functioning* of school discipline went beyond the social *function* (Chervel, 1990) that was expected for the school.

In this excerpt from the report, she presents evidence of how the "agency", based on experience, developed a sensitive view of the characteristics of the subjects/students with whom it worked that went beyond the "structure" (Rudd & Goodson, 2016). In everyday pedagogical practice, it was not enough to address the prescribed curriculum, because "[...] the teacher is the one who sees [...]" the student.

And, by seeing, she was able to perceive that the difficulty of a student in the classroom was not due to issues related to cognition, but rather to visual problems. This fact had an influence over her at the time of the report, because she remembered that "the little boy that everyone considered mentally challenged (sic), he was (sic) in the last row, like that, with his notebook like that, swinging from side to side, he couldn't even see the blackboard".

The agency's uniqueness was not limited to these aspects, but also involved the way it approached more sensitive topics. When asked about the possible difficulties of dealing with matters considered more delicate, such as sex education, she was emphatic in saying that one of the greatest lessons she had learned in her career was

from her colleague, teacher Antonieta Paula Souza, who stated that in the classroom the teacher was the ultimate authority.

In this sense, she did not shy away from addressing issues that she considered fundamental to the lives of students. Therefore, even though she worked in a context of great political vigilance, Professor Clarinda understood that sexuality should be taught in schools because it is the "result of evolution". According to her, "when you look at the evolution of vertebrates, for example, you realize the perfection of our reproduction".

After all these years of teaching a subject whose content changes and is updated every month, it is vital that the teacher stays up to date. In her case, continuing to study was vital for her to stay up to date with the main changes in the area. For her, knowledge

> I wasn't accumulating, I was transforming, DNA came in, clones came in, transgenics came in. So, you keep evolving, so you keep adding more pieces, but you can't remove the basics, I mean, you transformed... when I was in high school there were 48 chromosomes. Things kept changing, they didn't even know about genes when I was in high school. What I learned in cytology at USP changed everything. (...) And I wrote a lot of inserts, and I did a lot of critical reading, critical reading of books... (...) I had an excellent job, because I kept evolving, I was forced to study, right? No! I wasn't forced because I always liked it, right? (Lima as cited in São Paulo, 2017, p. 30).

This is another sign of the specificity that characterizes Professor Clarinda's work: constant updating. As a teacher working in an area that is constantly changing, she knew that she could not be tied to the prescribed curriculum, which often takes longer to update, but that she had to tune the agency according to the most current knowledge, and this could only be achieved through study and improvement of training.

Finally, she warns that the teacher should not expect the student to know the concept and, returning to her motto, states:

> The teacher is not the one who teaches the line, the teacher is the one who teaches the line and the between the lines. What's the point of me teaching him to memorize all the concepts and not teaching him to question? It's more important that I know that he questioned, that he learned how to question. Right? So, the between the lines is fundamental (Lima as cited in São Paulo, 2017, p. 17).

At a time when all questioning was viewed with reservations, one of the purposes of Professor Clarinda's Science and Biology classes was certainly not in line with the "function" expected of the school. It is possible to imagine the training provided by classes with observations, records and discussions about natural phenomena. It is to be assumed that these practices formed active and questioning subjects, very different from what was expected by official policies.

In short, Professor Clarinda's report indicates that the teacher's activity is much broader than teaching conceptual content. In several passages, she teaches us that, although technical training is essential for a teacher's good performance, this knowledge is not enough. There is always a process of appropriation that differentiates the prescribed curriculum from the practiced curriculum; there is always a need to pay attention to the "subtext".

FINAL REMARKS

Although it is recognized that there is a shift between the prescribed curriculum and the practiced curriculum. It is not easy to characterize pedagogical practices due to the lack of sources and the subjectivity involved in the educational process. Furthermore, during the course of a career, there are always many changes in the standards and purposes of education.

Unfortunately, as long as education is not treated as a matter of State, it will be subject to the trends or ideologies of the current governments. Considering these limitations for the interpretation of pedagogical practices carried out in the past, one of the possibilities for developing research is based on memory reports, despite the many difficulties and limitations that this source of investigation has.

During Clarinda's tenure at the Caetano de Campos School, the following were enacted: the Law of Guidelines and Bases of Education (Law No. 4,024/61) (Brazil, 1961), Law No. 5,692/71 (Brazil, 1971), which established the guidelines for primary and secondary education, and Law No. 7,044/82 (Brazil, 1982), which revoked vocational education in secondary education. Furthermore, during the military governments, the possibility of offering critical education was always viewed with great suspicion. Science teaching was strongly influenced by a technocratic vision that focused more on "adapting to society" (Hilsdorf, 2006, p. 125) than on questioning it.

When asked about the impact of Law No. 5,692/71 (Brazil, 1971) on her teaching practice, she made a point of stating that she never changed the way she worked as a teacher, even though she understood that, over the years, college entrance exams became a concern for young people. Thus, the way in which the "agency" distanced itself from the "structure" can be seen in excerpts from her interview.

Another important characteristic of her practices is Professor Clarinda's interest in the lives of her students. In this sense, at various points in the interview, she reports that she brought up topics that she considered important for their daily lives, regardless of whether they were more sensitive or controversial. In the book commemorating the school's centennial, a former student who attended the school between 1955 and 1969 fondly mentions the "sweetness" of this teacher in her Science classes (Ferreira, 1994).

She talks about her meetings with her students with emotion. Today, she shows that she did her best for education and that she loved the career she chose. It is often difficult to document teachers' experiences and pedagogical practices in the classroom, but the interview helped to recover, at least in part, these experiences and practices, since the prescribed curriculum alone is insufficient to interpret the educational process that took place.

This study was able to characterize how the process of appropriation occurred in the pedagogical practice of a Science and Biology teacher who dedicated herself for almost four decades to educating young people. In addition, it was possible to perceive, whether in the resilience in facing the daily work with students, or in the satisfaction of understanding her role in the formation of critical citizens, the lessons that Professor Clarinda still teaches about what education is.

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Received on: 2024.06.21
Approved on: 2025.03.26
Published on: 2025.04.21 (original)
Published on: 2025.05.21 (English version)

Responsible associate editor:
Olivia Morais de Medeiros Neta (UFRN)
E-mail: olivia.neta@ufrn.br
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Peer review rounds:
R1: two invitations; one report received.
R2: two invitations; one report received.

How to cite this article:

Barboza, R., & Meloni, R. A. (2025). The Science and Biology teaching practices at Escola Caetano de Campos: the trajectory of a teacher (1961/1998). *Revista Brasileira de História da Educação, 25,* e365. DOI: https://doi.org/10.4025/rbhe.v25.2025.e365en

Funding:

This article is the result of a project funded by FAPESP (FAPESP Grant Number: 2022/13891-0).

The RBHE has financial support from the Brazilian Society of History of Education (SBHE) and the Editorial Program (Call No. 30/2023) of the National Council for Scientific and Technological Development (CNPq).