ACERVO
BOLETIM DO CENTRO DE DOCUMENTAÇÃO DO GHEMAT-SP

APPROPRIATIONS OF MONTESSORI PHILOSOPHY FOR MATH TEACHING READ IN REFERENCE NOTEBOOKS FOR TEACHING AND TEACHER TRAINING – COLÉGIO MARIA MONTESSORI/MS (1981)

APROPRIAÇÕES DA FILOSOFIA MONTESSORIANA PARA O ENSINO DE MATEMÁTICA LIDAS EM CADERNOS DE REFERÊNCIA PARA O ENSINO E A FORMAÇÃO DE PROFESSORES - COLÉGIO MARIA MONTESSORI/MS (1981)

Angela Regina da Silva[1]
ORCID iD: https://orcid.org/0000-0001-8798-0520

Késia Ramires[2]
ORCID iD: https://orcid.org/0000-0003-1528-5136

Submitted: August 31, 2023 **Approved:** October 12, 2023

ABSTRACT

This article presents results of a research whose main objective was to identify and analyze what appropriations the founders of a Montessori school would have made regarding Montessori Philosophy for the teaching of mathematics and what, of these appropriations, if any, would have subsidized the development of professional knowledge. We used the professional archive of the founders of Maria Montessori School, located in Campo Grande - MS, as sources. We selected two documents for the analysis: the notebook, entitled Mathematics, by founder Eliza Augusta (1981), which shows clues of contributions from her founding partner, Maria Sheila, and the booklet Teacher Training Course - 1st Phase: Mathematics Methodology (1981), referring to a teacher training course in which Eliza Augusta participated as a student. By analyzing these materials, we identified that the appropriations made by the founders constituted elements for maintaining the Montessori Philosophy among the school community and also provided them with teaching experiences to train teachers. Therefore, the historiography carried out tells not only the history of this important school in the capital of Mato Grosso do Sul but also highlights the endeavor that women teachers undertook to continue Maria Montessori's legacy in the present.

Keywords: Appropriation; Mathematics teaching; Montessorian philosophy

RESUMO

Este artigo apresenta resultados de uma pesquisa cujo principal objetivo foi identificar e analisar que apropriações as fundadoras de uma escola montessoriana teriam realizado acerca da filosofia montessoriana para o ensino de matemática e o que, dessas apropriações, se existido, teria subsidiado na elaboração de conhecimentos profissionais. Como fontes, foram utilizados os arquivos profissionais das fundadoras do Colégio Maria Montessori, localizado em Campo Grande - MS. Dentre os arquivos, constam dois documentos selecionados para a análise: o caderno, intitulado *Matemática*, da fundadora Eliza Augusta (1981), em que há indícios de contribuições da sua parceira fundadora, Maria Sheila, e a apostila *Curso de Preparação de Professores – 1ª Etapa: Metodologia da Matemática* (1981), referente a um curso de formação para professores do qual Eliza Augusta participou como aluna. Da análise desses materiais, identificou-se: que as apropriações realizadas pelas fundadoras se constituíram em elementos para a manutenção da filosofia montessoriana entre a comunidade do Colégio, bem como proporcionaram, a elas, experiências docentes para formarem professores. Portanto, a historiografia realizada conta não somente a história desse importante Colégio da capital sul-mato-grossense, mas também evidencia o empreendimento que mulheres professoras firmaram para continuar o legado de Maria Montessori no tempo presente.

Palavras-chave: Apropriação; Ensino de matemática; Filosofia motessoriana.

1 INTRODUCTION

[1] Master in Mathematics Education from the Federal University of Mato Grosso do Sul (UFMS), Brazil. E-mail: anjareginaaa03@gmail.com
[2] PhD in Science and Mathematics Education from the State University of Maringá (UEM). Professor at the Federal University of Grande Dourados (UFGD), Brazil. E-mail: kesianeves@ufgd.edu.br

This article presents the results of a research whose main objective was to identify and analyze what appropriations the founders of a Montessori school would have made of the Montessori philosophy for math teaching and, from the appropriations, if they happened, what would have served as support for the development of professional knowledge. This problem is part of a larger project[3], which investigates the production of professional knowledge made by educational agents, seeking to narrate stories that contributed (or has contributed) to the constitution of *mathematics of reference for teaching*, a mathematics that is part of the epistemology of the teacher who teaches mathematics, called *mathematics of teaching*[4] (Valente; Bertini, 2022).

Thus, we assume that the school Colégio Maria Montessori of Mato Grosso do Sul's capital would have made it possible for its teachers to know the Montessori perspective, having as source what the school's founders understood as important to transmit. We also assume that the founders would have school materials to maintain this institution for more than 40 years and that, most of all, the history of these materials could point to a production of professional knowledge that would foment our project's studies.

But who was Montessori? Maria Tecla Artemisia Montessori was born in Chiaravalle, Italy, on August 31, 1870. In 1875, she moved to Roma, where she studied and graduated in engineering. In 1896, she graduated in medical school, being the first woman in Italy to receive the title of physician. At the university she graduated from, Maria Montessori started volunteer work in a psychiatric clinic and began her studies regarding the development of non-normal children[5] (Campos, 2017), appropriating the studies of Jean-Marc Itard and his disciple, Edouard Séguin[6]. Maria Montessori's interest in pedagogy grew as she wanted to develop a system based on the child's[7] freedom and autonomy, a philosophy.

---

[3]A project named "Socio-historical investigations on the knowledge about reference for teaching in mathematics: knowledge on gender inclusion, on the mathematics of teaching and teachers education", financed by the Fundação de Apoio ao Desenvolvimento do Ensino, Ciência e Tecnologia do Estado de Mato Grosso do Sul - Fundect.

[4] Despite of being a support for the greater project, such conceptualization is not approached in this article for it involves the results of one of its sub-projects.

[5] Name used at the time to refer to children with difficulties in learning, disorders, and with physical disabilities, etc.

[6] Itard dedicated himself to the education of the senses as a way to stimulate the child's motor coordination by repeating exercises and also in the education of the senses. Séguim, a teacher and doctor, started with the experiences carried out by Itard and developed the physiological method (Montessori, 1965).

[7] Montessor's studies gave her credibility, especially with the publishing of the Scientific Pedagogy (1909), which was translated into other languages, showing how important were her ideas. Doctor, educator, and researcher, her figure gained space in the world scenario, much because of her trilogy, with the works: Psychoarithmetic (1934a), Psychogeometry (1934b), and Psychogrammar (1934c). To learn more, you can consult the work (Silva, 2023): <https://posgraduacao.ufms.br/portal/trabalho-arquivos/download/12696>

And what philosophy was this? Why give special attention to the Montessori philosophy when research usually refers to the method, the pedagogy, or the Montessori education system? The answer is obvious when we hear that the "philosophy is for education and life" – a comment that we heard at the Montessori school we investigated. From the first encounter we had with the school's founders, the teachers Eliza Augusta Castilho Dias Pinho and Maria Sheila Oliveira Saldanha, as well as the coordinator Ângela Maria Sous Perez, and based on their words, it was clear that it is the philosophy that supports the Montessori education. That is how the educators, students, and workers of the Colégio Maria Montessori understand the school environment in which they live. It would not make sense to discuss the appropriations the founders made of the philosophy or the materials they produced without considering the philosophy that is taught by Montessori. So, we start with this premise.

There are several institutions in Brazil that align with the Montessori education[8] system, which is defined by the relationship between the Montessori philosophy (establishes guiding principles) and Montessori methodology (establishes procedures to be followed). They work under the logic that the legacy of this physician and educator should never be considered finished, that is, that her work should be continued and added to (OMB, 2023). This continuity is carried out by offering courses, developing materials, holding meetings between Montessori followers, meetings between partner schools, etc. Today, the Montessori Education Brazilian Association (Associação Brasileira de Educação Montessoriana – ABEM), founded in 1974, and the Brazil Montessori Organization (Organização Montessori do Brasil – OMB), created with the *IX National Meeting of Montessori Schools' Directors*, in 1996, help with the production of materials to continue Montessori's legacy. One of OMB's partners is the Colégio Maria Montessori, from Campo Grande, a founding partner of the organization that we selected for our investigation.

The school is the only one in the state that is based on the Montessori education and the first with this perspective in the country's Midwest region. It has, as their founders, two agents who are at the same time teachers at the school, directors, and teachers' trainers. The two received these nominations during this historiography as we discovered that the school has been providing training for teachers following the Montessori philosophy. Only after this training, which lasts three years, the teachers are considered capable of working at the school. We highlight that the coordinator Ângela has been helping with these trainings for more than thirty

[8] According to Grzeça (2020), the Montessori education involves the method, the pedagogy, and the Montessori philosophy.

years.

The Colégio Maria Montessori, created in 1980, still works. With their creators' work, Eliza Augusta and Maria Sheila, the school educate children and teachers on the Montessori education and currently employs the Montessori philosophy and method up through High School level. Just because of this, its history is worth being told. But considering the limitations in this text, we prioritized the process of appropriation made by the founders and what productions they did to maintain Montessori's legacy in the teachers training for math teaching.

For this we sought documents in which there were clues of the appropriations by Eliza Augusta and Maria Sheila. During this research, we had access to notebooks and booklets that belonged to them. For this article, we analyzed the notebook *Mathematics*, by Eliza Augusta (1981) and the booklet *Teachers Training Course - 1st Phase: Mathematics Methodology* (1981). The first is a notebook for math teaching, written by Eliza Augusta Castilho Dias Pinho with clues of Maria Sheila's contributions. The second is related to a course in which Eliza Augusta participated in 1981.

Despite analyzing only documents that belonged to Eliza Augusta, the appropriations of the two educators are written in the documents, as they shared the notebooks and books. These sources present records of appropriations and representations of the Montessori philosophy for math teaching and also record professional knowledge that helped the teaching and education of teachers following the Montessori education in Campo Grande, Mato Grosso do Sul.

2 THEORETICAL REFERENCE

The historiographical research that we carried out aligns with the History of Math Teaching, based on references that deal with cultural history such as Certeau (1982, p. 66), who recommends the historiographical operation pay attention to the "relationship between a place (a recruiting, a mean, a profession, etc.), analysis procedures (a discipline), and the construction of a text (a literature)". This way, the historiographical research must follow procedures in order to turn a certain object of analysis into a historical object. In other words, history is not *a priori* data, but a narrative built by the historian who modifies it according to their cultural-historical context:

> The author highlights that the activity of research must be mediated by a technique or a form of making history that varies according to the cultural context of society. This way, history herself is submitted to what was carried out in practice by the historian and in the construction of a historical text. In addition to the traditional research sources - resolutions, laws, official documents, and of a legal nature -, it is considered new sources for the history

> research: students' or teachers' notebooks, journals and pedagogical manuals, newspapers, photographs, and other materials produced in the school day and that allows for entering a new dimension of the context of the schooling practices of a certain period (Silva, 2023, p. 17, our translation).

When we consider the research from the historical perspective and have the discussion of the appropriations of education agents as a hypothesis, we use the notions of appropriation and representation conceptualized by Chartier (1990, 1991) as theoretical reference and for the analysis, seeking to "identify the way how in different places and moment a social reality is built, thought, and given to be read" (Chartier, 1990, p. 16, our translation). Thus, we seek to identify how the Montessori philosophy would have been interpreted by teachers who continued Maria Montessori's legacy, that is, how the "reality of Montessori education" was appropriated.

We also said that our objective was to observe, in the case of the founders having made appropriations of the Montessori education for math teaching, whether these appropriations would have subsidized the development of professional knowledge. We investigated these appropriations by assuming that it is possible to read the representation of the Montessori philosophy in Maria Montessori's works, in courses, in school materials that condense knowledge, etc. (Rezende, 2021).

We investigated that in Eliza Augusta and Maria Sheila's appropriations many ideas are close to the Montessori ones, such as the "little roll" that helps the child with the construction of their own record (about the subjects studied), a stimulus to their study autonomy, similar to what the physician defended. Other approximations were also observed during the visits and talks we had with Eliza Augusta, Maria Sheila, and Ângela, such as: valuing nature, family, respecting children, etc.

According to this historiography, we consider that the appropriations made by the founders consequently created representations. Chartier (1990), by conceptualizing representations and appropriations, comments that these are understood as practices that produce meaning, being inscribed in a certain space, in the relationship between one's self and the other. As Barros (2005) explains, the practices related to something create representations, and these representations create practices to the point that one cannot distinguish where one begins and the other ends. Therefore, these appropriations are practices that produce meaning and will create representations of the practices. It is a circular movement in which appropriations become representations and representations will allow new appropriations.

Thus, we understand that they made representations with their appropriation of the Montessori philosophy. In turn, these appropriations and representations can be read in their

professional[9] archive, used as materials to train other teachers. These materials were rich documents that pointed out clues both of the school[10] culture and the professional knowledge that continued the education project following the Montessori education.

According to Burke (2016), this professional knowledge can be records of teaching experiences, seen as information that can be systematized, characterizing the professional knowledge of a historical time, place, and context (Burke, 2016). Such knowledge, by talking about the same reality, can indicate what circulated at a certain moment to train teachers, to be taught, and what was the reference knowledge for the teaching of a certain time (Valente, 2018).

Based on this, we analyzed Eliza Augusta and Maria Sheila' archives. We analyzed the books they lent us, the notebooks of their teaching experiences, and the booklets with records of the courses they did. We also talked with them and studied some materials of the Brazil Montessori Organization (OMB) and the Montessori Education Brazilian Association (ABEM). From this *corpus*, we selected the notebook and the booklet.

3 ELIZA AUGUSTA, MARIA SHEILA, AND THE COLÉGIO MARIA MONTESSORI

On October 29, 1980, Eliza Augusta and Maria Sheila founded the school Colégio Maria Montessori in Campo Grande, Mato Grosso do Sul. The purpose of the school came from the attention to their children's education. Knowing the Montessori method, they sought more information about it. In the beginning, they participated in teachers' training courses, bought books, traveled to other states that ministered the trainings and deepened their knowledge about the Montessori[11] education system in Brazil.

Eliza Augusta was born and raised in São Paulo' countryside. In 1970, she moved to the state's capital, where she lived until 1979. This year, she and her husband decided to move to Campo Grande, the capital of Mato Grosso do Sul. Once there, Eliza Augusta heard that the school Colégio Dom Bosco was offering a course aimed at the Montessori strand and decided to participate. In the course, she met a long-time friend, Maria Sheila, who had been living in Campo Grande for some years and who had also enrolled in the course. This was the first

[9] We name professional archive all the documents that the founders lent us and that were strictly used in their professional training and of others, that is, to train other professionals of the Maria Montessori school. At the school there were photographs, uniforms, some kind of altar, etc. However, we separate these objects from the professional ones. So, even though they are part of the teachers' personal archive, we preferred to specify as professionals' archives what we understand as part of the teachers' training process.

[10] We understand the school's culture as a culture with its own rules, constituted in the school's internal environment, but in a dialogue with external cultures. We are not dealing with the school culture, such as Julia (2001), for example, because this would surpass the limits of this article.

[11] Montessori education and Montessori education system are written as synonymous with each other.

contact they had with the Montessori education.

The interest in participating in the course came from their worrying about their children's education. Throughout their studies, they found that besides the method, there was also the Montessori philosophy, whose precepts aligned with their ideas, containing characteristics with which they identified and believed to be an education of quality. From there, they started a project: the school Colégio Maria Montessori. The school started to work at a rented house in the street Abrão Júlio Rabe, a corner from the street 13 de Junho. To work, they made some adaptations to the building. They founded the school at the end of 1980, and activities started in 1981.

Eliza Augusta graduated in teaching and started to teach when she was 18 years old. She started her career with literacy and worked at different schools, including schools in rural areas. She later pursued a degree in Pedagogy, specifically in Management and Administration. She also got a Teaching Degree and taught Portuguese classes. Maria Sheila graduated in Social Assistance and later specialized in Psychopedagogy. She was always interested in geometry as she observed similarities between geometry and sewing[12] – her mother's work.

We identified in our sources that the founders participated in training courses in other states, mostly Rio de Janeiro and São Paulo, offered by the Montessori Education Brazilian Association, the Brazil Montessori Organization, and the Maria Montessori Pedagogical Institute (in Portuguese – Instituto Pedagógico Maria Montessori). With these courses, they appropriated the Montessori philosophy and put the knowledge they acquired into practice, administrating and teaching at the Colégio Maria Montessori. Besides, they started to offer training to teachers to work at the school, since it was not possible for everyone to participate in courses in other states, and especially because they needed more teachers to meet the school's demand.

As the school started to work and train teachers, many of them stayed there. Odete da Cruz Rodrigues was one of them. Not knowing the Montessori education, her learning came from what Eliza Augusta and Maria Sheila taught her. She was one of the first teachers to do the training offered by the Colégio Maria Montessori. For this reason, it was with her that we found the founders' professional archives, which we named as *reference notebooks for teachers' teaching and training*, from 1981.

Odete, employed in 1985, taught Math (and other subjects) for more than thirty-five

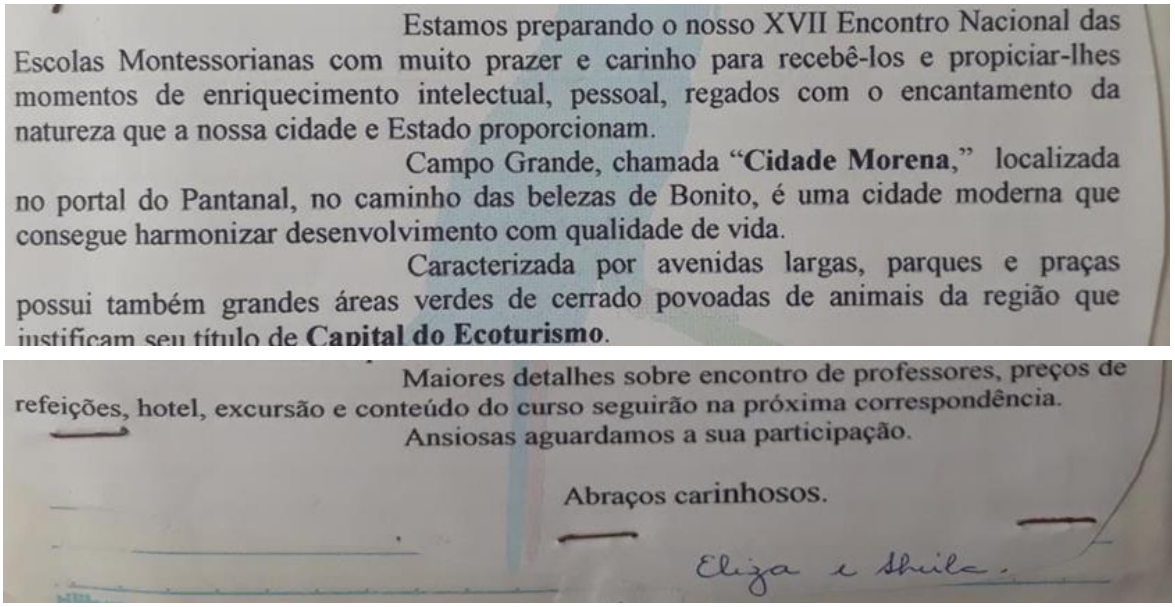
[12] While showing the first uniform of Colégio Maria Montessori, Maria Sheila told us that she made it by using geometric figures: circles, squares, triangles, and rectangles.

years. When we met her, she remembered that she had kept the founders' booklets and notebooks, with notes related to the participation in teachers' training courses. These sources point out a process of appropriation by Eliza and Sheila on when they sought new information about the Montessori education system, with the trips that Mignot and Gondra (2007) name the pedagogical trips: trips made by educators whose main objective is to seek education models to meet education demands.

We concluded that these pedagogical trips constituted a background so that Eliza Augusta and Maria Sheila could materialize their interpretation and apprehension of ideas during the courses promoted by reference institutions of the Montessori education (OMB, ABEM, and the Maria Montessori Pedagogical Institute) as representations of the Montessori philosophy and foment such philosophy at the Colégio Maria Montessori. But more than that: these trips were opportunities for them to think and produce materials that could train new teachers and keep the school alive.

We also discovered that Eliza Augusta and Maria Sheila started to welcome teachers from other Montessori schools to be trained and/or to update their knowledge at the Colégio Maria Montessori. We found a document from 2000 with information about the *XVII National Meeting of Montessori Schools*, held in Campo Grande, which the founders invited other teachers to participate in.

Figure 1 – Invitation for the XVII National Meeting of Montessori Schools, Campo Grande, June 14, 2000



Estamos preparando o nosso XVII Encontro Nacional das Escolas Montessorianas com muito prazer e carinho para recebê-los e propiciar-lhes momentos de enriquecimento intelectual, pessoal, regados com o encantamento da natureza que a nossa cidade e Estado proporcionam.

Campo Grande, chamada "**Cidade Morena**," localizada no portal do Pantanal, no caminho das belezas de Bonito, é uma cidade moderna que consegue harmonizar desenvolvimento com qualidade de vida.

Caracterizada por avenidas largas, parques e praças possui também grandes áreas verdes de cerrado povoadas de animais da região que justificam seu título de **Capital do Ecoturismo**.

Maiores detalhes sobre encontro de professores, preços de refeições, hotel, excursão e conteúdo do curso seguirão na próxima correspondência.

Ansiosas aguardamos a sua participação.

Abraços carinhosos.

Eliza e Sheila.

Source: Founders' personal archive (2000)

Maria Sheila and the coordinator Ângela informed us that they traveled to minister courses to train Montessori teachers in other states. Recently, in Bahia:

> ***Maria Sheila (2022):*** *We already went to the Northeast with luggage full of materials to give lessons.*
> ***Coordinator Ângela (2022)****: To teach a course in Jequié. We rented a car and we paid for everything. And then we went to Jequié, then we taught a course in Montessori Bahia, which is structuring itself now. And other institutions are appearing, which I think is very, very important.*

Such records point out a practice of spreading representations of the Montessori education system, which can be studied in another research. For now, we stay with what Eliza Augusta and Maria Sheila made at the Colégio Maria Montessori.

ELIZA AUGUSTA'S *MATHEMATICS* NOTEBOOK (1981)

Initially, the founders made available for us the books written by Maria Montessori, the support for their school. The books were: *The Child*, with no date; *Education and Peace*, 2004; *Education for a New World*, 2015; *Education for Human Development: understanding Montessori*, 1990 (this, in special, was written by Mario Montessori Jr., Montessori's grandson); *From childhood to adolescence*, 2006; *Absorbent mind*, no date; *What you need to know about your child*, no date; *To educate the human potential*, 2003.

The books allowed us to comprehend the elements of the Montessori philosophy[13]. However, we still lacked elements related to math teaching, thus we questioned the founders and Ângela whether they would have education materials produced for this. With this and by talking with Odete, we had access to the founders' materials, records of when they participated in courses, most of them taught by the Montessori Education Brazilian Association and the Brazil Montessori Organization. Their notes directed us to the works *Psychoarithmetic* (1934a) and *Scientific Pedagogy* (1965). In addition to these works, *Absorbent Mind* (s.d.) and *The Child* (s.d.) subsidized our analysis of the appropriations contained in the reference notebooks for teachers' teaching and training. We will discuss the clues found in these materials.

The notebook *Mathematics* by Eliza Augusta (1981) has 58 pages divided into: Great Vision of Numbering; Composition; Addition; Subtraction; Subtraction – 3 ideas: 1st subtractive, 2nd comparative, 3rd additive; Tablet of Pythagoras; Multiplication; Division; Chess board and Fraction board. It contains pages with mathematical problems and typed pages.

Figure 2 – Eliza Augusta's Mathematics notebook cover

Source: Eliza Augusta's Mathematics notebook (1981)

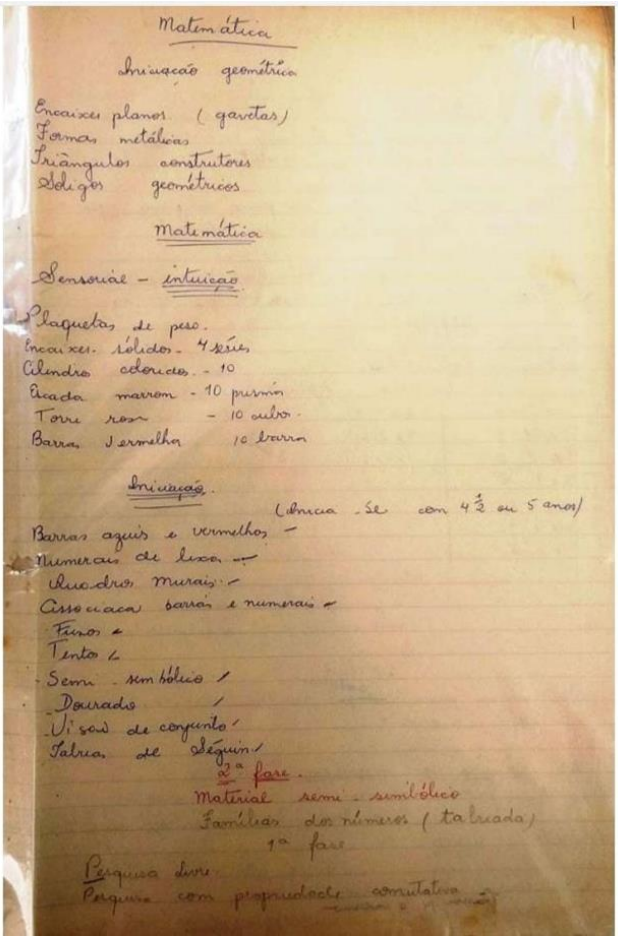
The notebook pages were organized into a catalog paste and involved in a plastic to preserve them. Some pages are already yellow, others kind of erased, with signs of natural

[13] To learn more, consult: https://periodicos.ufms.br/index.php/sesemat/article/view/16433

damages caused by time. It contains handwritten notes and typed sheets related to the course. The notes show a sort of drafty writing with abbreviations and quick words, which assembles something whose ideas could not be lost (so she drafted them), whereas in other passages they appear to be more elaborated, as if they had already gone through Eliza Augusta's appropriation process.

On the first pages, there is a list of Montessori materials divided into "Geometry initiation", "Sensorial – intuition", and "Initiation". It first seems to be a table of contents, but she does not go back to them throughout the notes, so it may be a list of materials for the Montessori education system to acquire. We observe that some of these materials are discussed in the work *Psychoarithmetic* (1934a), such as: the semi-symbolic, the golden, the joint vision, the Table of Séguin, as well as the chess board.

Figure 3 – The interior of the Math notebook

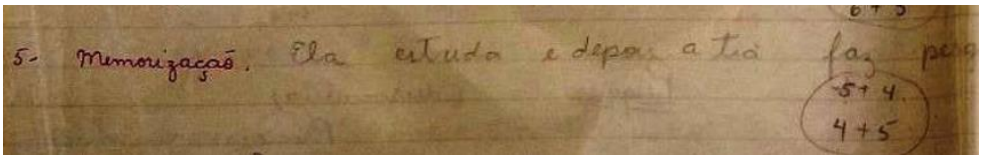


Source: Eliza Augusta's Math Notebook (1981, p. 1)

In the Mathematics notebook, we realize that Eliza wrote orientations for herself, but the way she did this also suggests that it would serve to guide the teachers they trained at the

school. An example: “The child studies then the teacher asks a question” – figure 4, referring to what the teacher should do after the child’s study.

Figure 4 – The interior of the Mathematics notebook

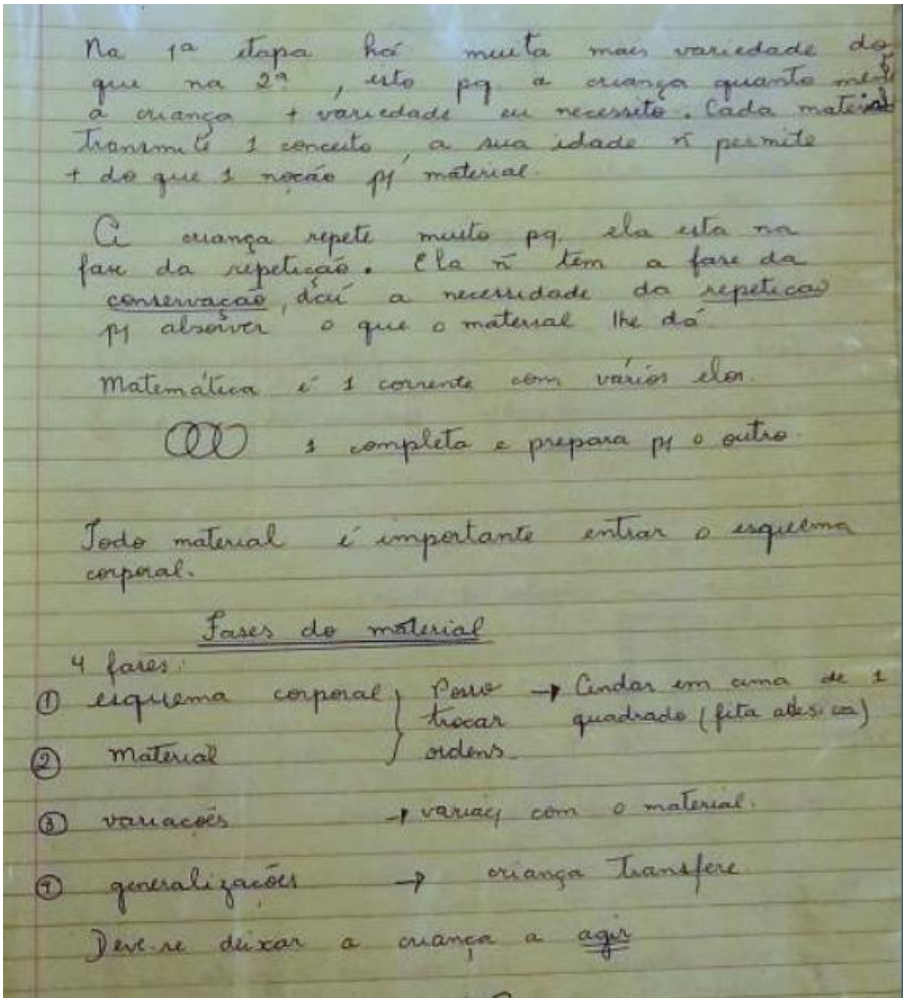


Source: Eliza Augusta’s Mathematics notebook (1981, p. 1)

Montessori (1965) makes clear that the teacher’s role, which she refers to as the “master”, is to be a guide “teaching how to use the material, the search for exact words, guiding every work [...]” (Montessori, 1965, p. 157, our translation). In another excerpt, she says: “It is a radical transfer of activity that existed before in the master and that now is trusted mostly to the child’s memory” (Montessori, 1965, p. 143, our translation). As we saw in Eliza Augusta’s orientations, “after the teacher asks a question”, she also suggests checking what the child studied by using memorization and then the teacher verifies it. By doing the tasks, the child would memorize what is intended by the teacher, who would check their apprehension after.

Many of Eliza’s records appear in the notebook as if they were points to be remembered, with paragraphs and/or loose sentences that do not follow logic but are orientations related to math teaching – figure 5. For example, in one of the pages, she first describes that every Montessori material transmits a concept, that is, they confer their own knowledge to the material. According to Rezende (2021), this means that the Montessori materials condense knowledge. She continues saying that the child, by repeating a task, will absorb what the “material gives” – figure 5.

Figure 5 – Records of Eliza Augusta in the Mathematics notebook



Source: Eliza Augusta's Mathematics Notebook (1981, p. 5)

In 1981, the Colégio Maria Montessori attended only Child Education, thus the notebooks notes regarded math teaching for young children. So, there are excerpts that relate child development to math teaching, in which Eliza Augusta explained that the child will repeat because they are in the repetition phase and still do not have the conservation phase.

Such characteristic has its roots in the math teaching proposed by Montessori, as she systematized in her psychodidactic works (Psychoarithmetic, 1934a; Psychogeometry, 1934b Psychogrammar, 1934c). The prefix *psycho* refers to the studies that Montessori made on child psychology, and the suffix means her works in different areas of education. According to her (s.d., p. 29), the first stage of the child's development would last up to 6 years of age.

> From zero to six years of age, there are two different sub-phases: the first starts at zero and lasts up to three years of age, showing a kind of mentality to which the adult cannot come close, that is, on which the adult cannot have a direct influence and, indeed, there are no schools for these children. The other sub-

> phase is from three years to six years of age, in which the mind kind is the same, but the child starts to become influenceable in a special way. This period is characterized by big transformations that happen to the individual (Montessori, s.d., p. 29, our translation).

In the second part of the same page 5, Eliza Augusta adds an ingredient of the Montessori philosophy, which is the building by phases, defining that mathematics is a current with several links, where a link prepares the other – figure 5. This would seem to be a parameter for Montessori, since her recommendations directed towards an education by phases, four of them: corporal scheme, material scheme, variations, and generalizations. These phases constitute a scheme of construction for children to acquire knowledge, "through the ordering of activities with gradually growing difficulties" (OMB, 2023, our translation), a sequencing.

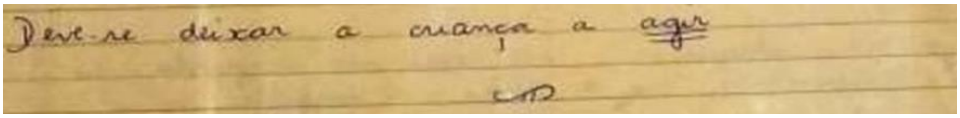
In Figure 5, Eliza Augusta writes about the corporal scheme: "walk above a square (Scotch tape)". Montessori (1965) talks about exercises that put the body into movement, from practical life: "roll up a rug, clean shoes, clean a bowl or the floor, set the table, open and close doors [...]" (Montessori, 1965, p. 84, our translation). The exercises aim at developing motor skills. With a line, Montessori suggests, for example: "Having drawn a line in the form of a long ellipse, on the pavement (you can draw it with chalk; or also with varnish, so that it doesn't disappear so quickly), you walk with your foot entirely on the line" (Montessori, 1965, p. 92, our translation). In place of the line, Eliza Augusta proposes an adhesive tape, showing that she appropriates Montessori and adapts the activity, including teaching another geometric figure: the square.

Still using Eliza Augusta's example, we have the second phase, called "material", that can be presented before or after the body scheme. As Figure 5 shows: "I can exchange orders". The material can be presented first, but it is necessary to make variations with it. The variations in Montessori materials make it possible to understand the same concept through different proposals. Variations can also help with abstraction, when "the child transfers", that is, the knowledge is not limited to the material object, it is applied to life situations in which the acquired knowledge is tested. By analyzing the Math notebook, we observe Eliza's appropriations that are close to Montessori. Eliza writes: "The child transfers". Montessori wrote on the study of the child: "The job, then, will be to apply all that the child learned before to the several circumstances of life" (Montessori, 1965, p. 96).

We noted a third point, a clue of Eliza Augusta's appropriation of Montessori philosophy, which comes from the note: "The child should be left to act". Montessori (1965, p. 57, our translation) says: "From the biological point of view, the concept of freedom in early

childhood education must be considered as the most favorable condition for both physiological and psychic development". According to this principle, the child should be free to act. Philosophy itself has been advocating the union of the principle of freedom with that of self-education, cosmic education, that of peace, of autonomy, among others.

Figure 6 – **Should let the child act**



Source: Eliza Augusta's Math notebook (1981, p. 5)

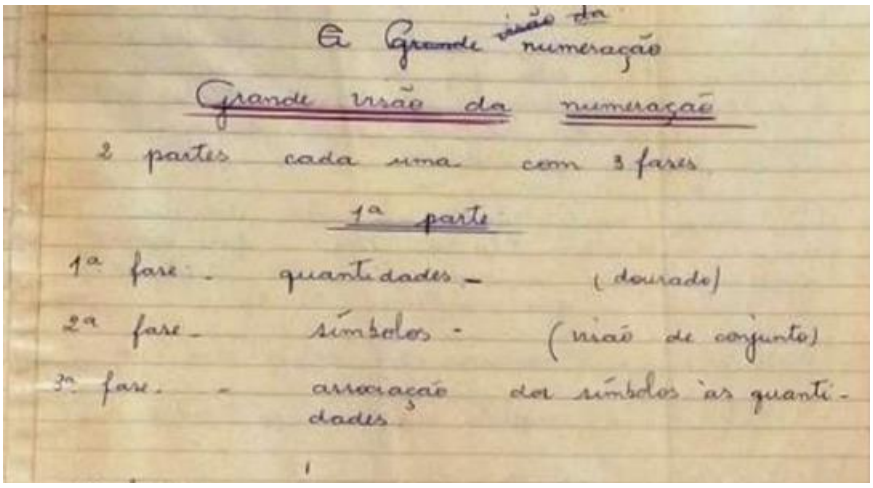
In all these excerpts, we verify the appropriations by Eliza Augusta of the Montessori education system (relationship between philosophy and method), and they illustrate points she saw as important, which were selected to guide math teaching, both of her own and of teachers who taught and were trained at the Colégio Maria Montessori. From these clues, we can infer that Eliza sought support in Montessori. However, other traces can still tell us more. Below, we present clues on the guidance for teaching the Great Vision of Numbering, and specifically on the guidance for the golden material.

4 GOLDEN MATERIAL AND THE GREAT VISION OF NUMBERING

According to our interpretation, Montessori's works show a system based on what she called the Montessori Method. Because it is a system, it establishes a set of organized elements that can be read as a sequence for education. As Montessori materials carry a concept in themselves, they follow a sequence or "a chain of several links" that also drives education.

This idea of sequencing proposed by Montessori, such as that of a "chain of several links" (for math teaching) found in Eliza's notebook, were the first clues on the founder's approximations with Maria Montessori's works. We will comment on this appropriation and others related to the golden material.

Figure 7 – Great Vision of Numbering



Source: Eliza Augusta's Math notebook (1981, p. 6)

In Eliza's notebook, the golden material is proposed with the study of Great Vision of Numbering. The Great Vision is divided into two parts, each with three phases. In Figure 7, the first part is divided into three phases: quantities, symbols, and association of symbols with quantities. The golden material and the overall vision are used in the presentation. According to Montessori (1934a), the golden material refers to the material of the decimal system. It is composed of cubes, squares, sticks, and pearls, which respectively correspond to the unit of thousand, hundred, ten, and unit.

Despite referring to the material systematized by Montessori, Eliza Augusta's material has another setting. This is made up of cubes, squares, bars, and small cubes. The difference, in fact, is the raw material that is used. The first was composed of pearls connected by wires, whereas the second was made of wood[14]. Despite the difference, the goal is the same: to learn the decimal numbering system. We suppose that Eliza became acquainted with the wooden material from sources other than Montessori ones.

The golden material, as well as the other Montessori materials, are manipulated by the child. As Montessori (1965, p. 49) writes, when referring to the role of the master: "It is necessary for the master to understand and live their role as an observer" (our translation). Still, she says that "the material does not constitute a new means placed in the hands of the former active teacher to help them in their mission as an instructor and educator" (Montessori, 1965, p. 143, our translation), but a means for the child's development.

The Montessori material is not only a manipulative resource, but contains in itself

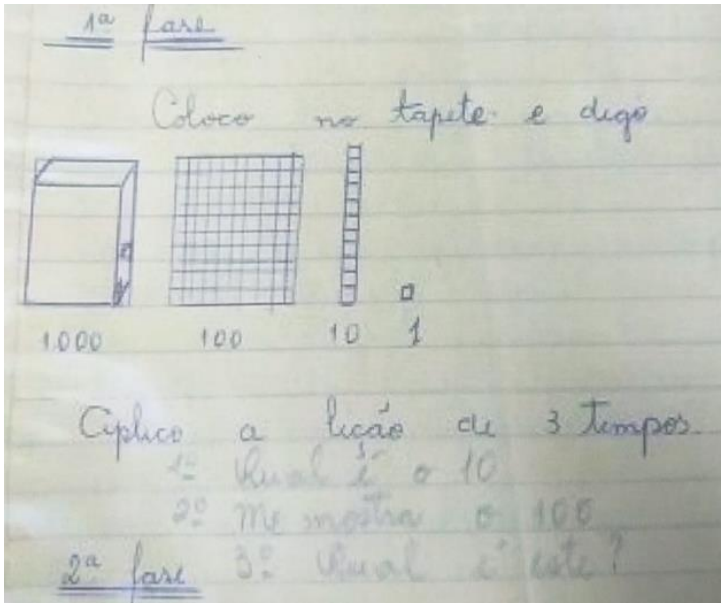
[14] The material of the decimal system was modified by Lubienska de Lenval (1895-1972), a disciple and friend of Maria Montessori, and built with wood.

knowledge (Rezende, 2021) and possibilities for the child to build their knowledge. At this point, based on the Montessori philosophy, the teacher must also understand their role in this education system. As the coordinator Ângela informs us in an interview, the teacher needs to internalize the philosophy:

> ***Coordinator Angela (2022):*** Coordinator Angela (2022): Then I'm going to work on color box, what's the goal, how is it... Can I make it out of paper? I can make it out of paper, because it's nothing more than gradation. But what is the difference? How do I present it? The first presentation, the variation, what is its purpose? If the teacher has not internalized the philosophical background, they become a material for manipulation.

In Eliza Augusta's Math notebook, for example, there are guidelines that begin with presenting the golden material, proposing how the child would get to know it, as if it were a first contact. The orientation is for the teacher to place the material on the mat and show each of the pieces that represent a certain value.

Figure 8 – 1rt phase of Great Vision of Numbering



Source: Eliza Augusta's Math notebook (1981, p. 6)

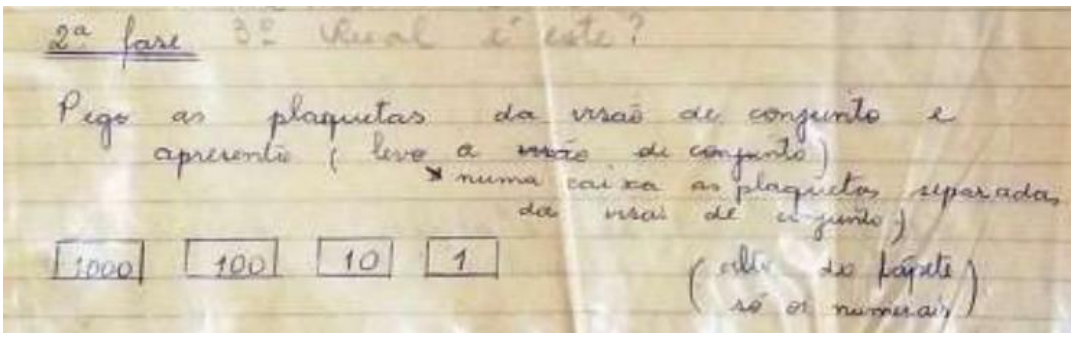
Then, Eliza comments: "I apply the 3-period lesson", referring to the Montessori technique (1965, p. 150), with guidelines that the teacher should internalize in order to teach the lesson. The 3-period lesson consists of precepts laid down by Séguin: 1st period – the adult/teacher must name a given object clearly to the child, making her try to know it through sensory perception; 2nd period – the adult/teacher will say the name of the object and the child

will indicate what it is, trying to associate the name with the object, showing she recognizes it; 3rd period – the child herself should show and name the object, evidencing her recollection of what she observed (Perry; Fedorowicz, 2006; Santos, 2015; Domenico, 1988; Montessori, 1965).

In the Math notebook, the 3-period lesson is represented as a lesson for teaching math. In the first half: "What's the 10". In the second: "Show me 100". And, in the third: "What is this?" It is a sequential lesson to check if the child has understood the pieces of the golden material, which continues with an open question in the last phase, generalizing about any quantity to ask.

In the second phase of the 3-period lesson, when dealing with symbols, Eliza presents the material *vision of the whole*, which was not found in Montessori's works by this name. As shown in the illustrated drawing, figure 9, the overall view is composed of 1000, 100, 10, and 1 platelets.

Figure 9 – 2nd phase of the golden material

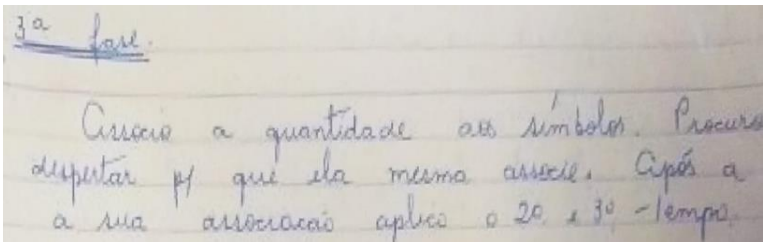


Source: Eliza Augusta's Math notebook (1981, p. 6)

We believe that the overall view may be Eliza joining the material "series of ciphers" to the golden material, approaching the description found in Psychoarithmetic: "Attached to the material of pearls is the material of numbers. It consists of a series of cards, the dimensions of which are proportional to the hierarchy of numbers and, for the different hierarchies, the numbers have different colors" (Montessori, 1934a, p. 20, our translation).

We found that in the same way the activities were first presented for the golden material, Eliza also did it for activities with the overall vision. The activities with these materials were articulated only in the third and last phase, thus relating the quantities to the symbols - figure 10. The overall vision seems to derive from Eliza's creation or from a process of appropriation according to courses and pedagogical trips she undertook.

Figure 10 – 3rd phase of Great Vision of Numbering

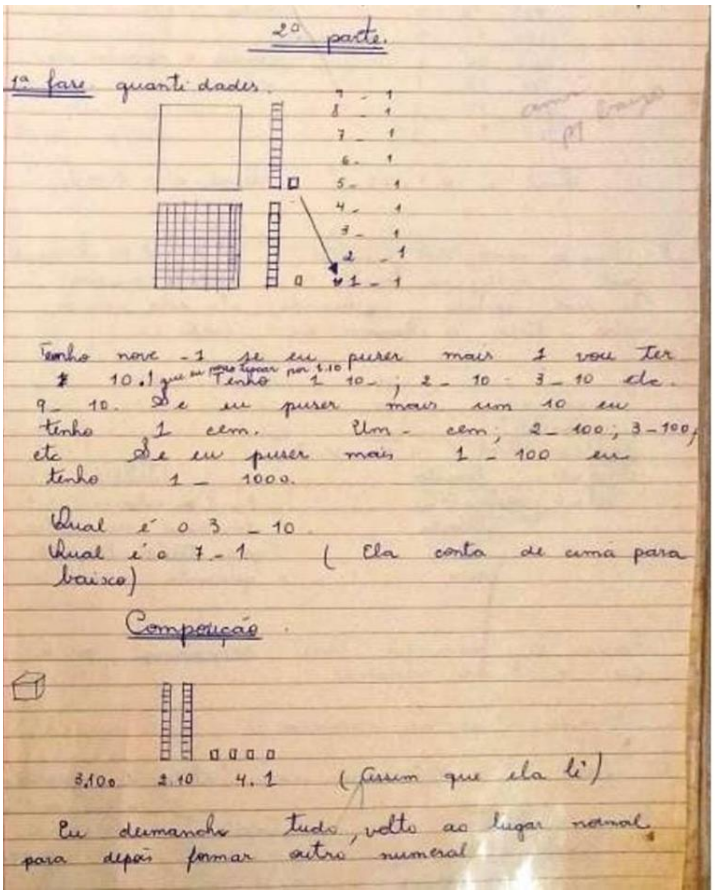


Source: Eliza Augusta's Math notebook (1981, p. 7)

However, even though she supposedly appropriated other sources, Eliza maintained her premises in Montessori. Let's look at another example: she recommends the teacher that they should not give the answers to the child, but rather "try to awaken the child so she associates". According to Eliza's guidance, the teacher should assume a position of observer and lead the child through every phase. Montessori (1965, p. 145) also pointed out the importance of the teacher – whom she called master – who knows the material even if it is the child who manipulates it: "It is therefore advisable that the teacher knows the material perfectly, has it continuously present to the mind, and learns, with exactness, both the technique of its presentation and the way to treat the child in order to be able to more efficiently guide her" (our translation).

This way, Eliza closes the first part of the Great Vision of Numbering, showing us clues of her Montessori appropriations, going through philosophy, knowledge of materials, the 3-period lesson, the development of child psychology, and how teachers should act and let students act. The second part of the Great Vision of Numbering, also divided into three phases, will deal with composition.

Figure 11 – 2nd phase of orientation of Great Vision of Numbering



Source: Eliza Augusta's Math notebook (1981)

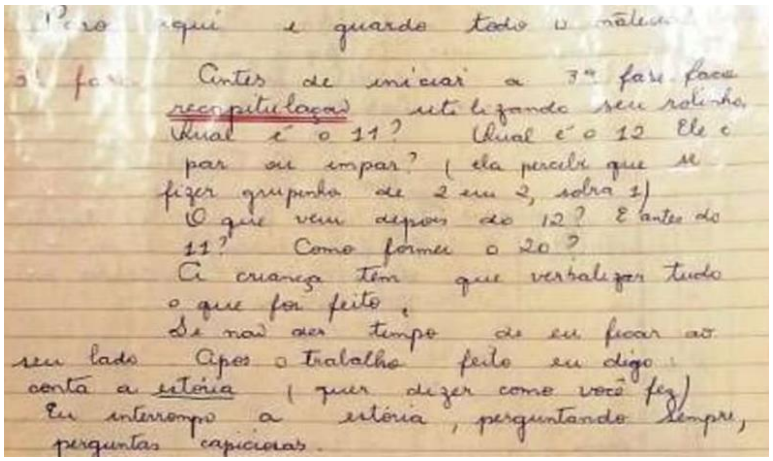
In Figure 11, after the golden material' drawing, we observe the writing: "I have nine - 1, if I put one more 1, I'll have 10.1 which I have to change to 1.10. I have 1-10; 2-10 3-10 etc. 9-10. If I put one more 10, I have 1 hundred. One hundred, 2-100; 3-100; etc. If I put one more 1-100, I have 1-1000". Next: "Which is the 3-10? Which is the 7-1 (she counts from top to bottom)". In these excerpts, Eliza Augusta explains the changes made in the decimal numbering system. When the child has more than 9 ones, "10-1", he needs to exchange for a ten, that is, "1-10". And so on, until you have 9 tens: "9-10". These exchanges are represented in the gold material with the cube, the square, the bars, and the small cubes. After that, she presents this composition with the golden material: "3.100 2.10 4.1" and writes "As soon as the child reads".

We analyzed from Eliza's writing that the construction of her sentences indicated a way for her to teach, with the dialogues to be said with children. However, some sentences describe how the child would think/learn. Based on this writing and the talks we had with the teacher Odete, we were able to infer that these sentences were not only Eliza's tips for herself, but her representations for other teachers at Colégio Maria Montessori to access and be trained.

In the same way, we interpret her drawings: now sketched (Figure 4), perhaps bringing an idea to herself; sometimes detailed didactically (Figure 11), resembling a drawing to instruct another person.

Next, she writes about the 3rd phase of the second part of the Great Vision of Numbering. Although it does not describe the 2nd phase, it seems that it was written in conjunction with the third, as she recommends: "Before starting the 3rd phase, do a recap using your roll" – Figure 12.

Figure 12 – 3rd phase of the second phase of the Great Vision of Numbering



Source: Eliza's Math notebook (1981, p. 9)

We did not find guidance about the "roll" in Maria Montessori's works, so we questioned Odete about this material. According to her, the roll is a didactic resource for working with content from diverse subjects, including mathematics. The child records the numbers, in the case of mathematics, and the teacher can instruct the child to resume the previous lesson or recapitulate through the records in the "roll". It is a resource used to resume the previous lesson.

We located the roll in Eliza Augusta's Math notebook, but Odete informed us that, to this day, it is used in the training of teachers at Colégio Maria Montessori. In other words, although it is not present in Maria Montessori's works, it represents what has been appropriated and consists of an artifact the school used for math teaching.

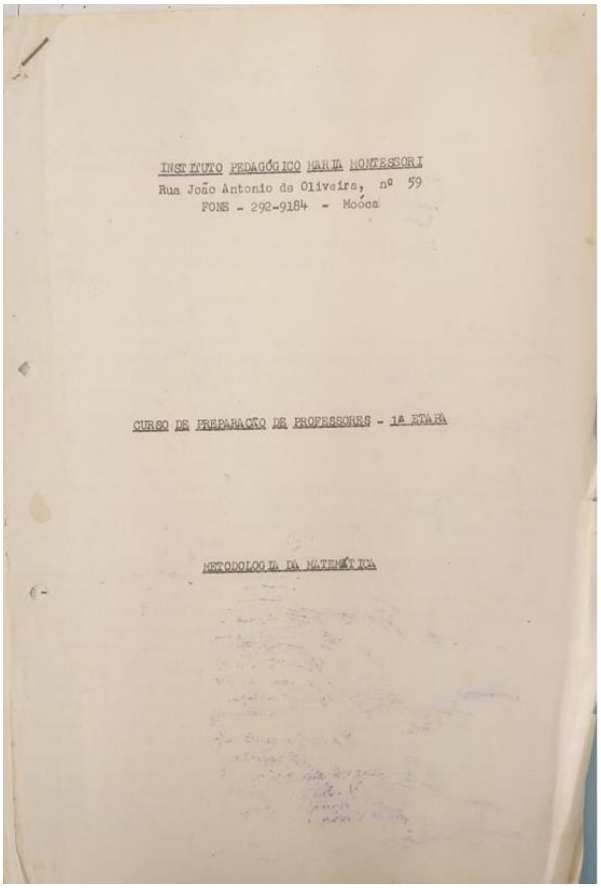
Finally, in this part of the analysis of the notebook and the golden material, we did not aim to determine what is Montessori's or not, but to tell a little about Eliza's appropriation process and point out what these appropriations were, mainly of Montessori philosophy for math teaching. This includes new uses and meanings that have historically been attributed to this philosophy and how the founders represented it in the math teaching at the Colégio Maria

Montessori. In the next section, we present the book Teacher Training Course – 1st stage: Mathematics Methodology (1981), another appropriation material by Eliza Augusta to substantiate the Colégio Maria Montessori's history and continue the legacy of the Italian educator.

5 BOOK TEACHERS TRAINING COURSE – 1ST PHASE: MATHEMATICS METHODOLOGY (1981)

The book Teachers Training Course – 1st Phase: Mathematics Methodology (1981), to which we will refer only as the book of Mathematics Methodology is a document of a course Eliza participated in, in Mooca, São Paulo, in 1981, shortly after the foundation of Colégio Maria Montessori, when she and Maria Sheila were looking for subsidies to continue the classes that were opening up in the institution.

Figure 13 – Cover of the Mathematics Methodology book



Source: Math Methodology book (1981)

The book is typed and has 9 pages with orientations on how to teach Math by using the

Beginning of Numbering in Three phases. The following table shows every phase.

Table 1 – Math Methodology - Beginning of numbering in 3 phases

Phase	Description
1srt phase	Oral numbering - quantities
2nd phase	Written numbering - symbols
3rd phase	Relationship of symbols to their respective quantities

Source: Authors (2023)

The materials presented during the Math Methodology course were: blue and red bars; sandpaper numerals; murals; spindles and the tricks. The presentation of each material consists of three phases, subdivided into six stages: 1 – Objectives; 2 – Analysis of the material and its characteristics; 3 – Presentation; 4 – 3-period lesson; 5 – Variations; 6 – Generalizations.

The six stages also have elements located in Eliza Augusta's Math notebook: objectives, material, presentation strength, 3-period lessons, variations, and generalizations. Eliza Augusta's readings and the participation in the course certainly had an influence on the understanding of the Montessori education.

Among the materials cited in the book, we deepen the discussion on the analysis of *Spindles*, specifically articulated to the 3-period lesson, regarding teaching from scratch. The Spindles material consists of two wooden boxes, each with five compartments. In the first box, the symbols from 0 to 4 are written in orange, and in the second, from 5 to 9. In a smaller box, 45 spindles are placed, in the shape of a stick, as well as 8 elastic bands.

> [...] Spindles offer the number signs from zero to nine in order of succession and the units that make up the numbers. The child places in each space, counting one by one, the amount corresponding to the number written in that space. Since you are going to count the ones, you should do it one by one for each number. When working with the number 4, for example, you should not place the 4 spindles in the respective space simultaneously, even if this is noticeable by the eye. You should also not put 3 spindles and one more, or any other combination. Rather, you must put them one by one, counting one, two, three, four. The slashes draw attention to the question of the quantity relative to each number, and the spindles to the units that compose them. With the bars, the child checks and compares quantity; With the spindles, he counts the quantities within the first ten, relating them to the signs that represent them, confirming the numerical succession, previously conceived (Domenico, 1988, p. 114, our translation).

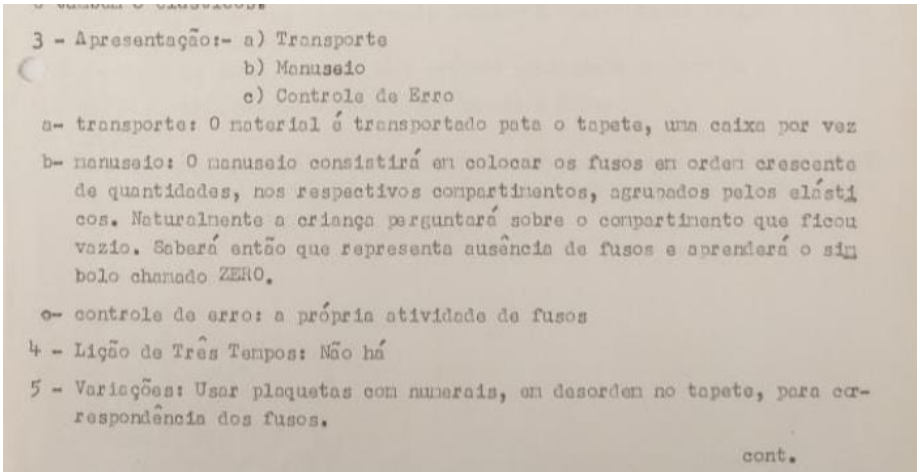
The spindles draw attention to the counting of the numerals from 0 to 9, relating the symbols to their respective quantities. At first, the teacher presents the material to the child, so that she can manipulate it. Thus, the child observes that one cannot place, for example, three

spindles in the compartment, but must count them one by one until one reaches three, four, five, and so on, until nine. Whereas, when removing the spindles, do the same, counting aloud, one by one. And repeat this exercise. Naturally, when manipulating the material, the child will notice the zero and question its absence. This way the teacher would fulfill the 3-period lesson.

How the child manipulates the material is related to Montessori philosophy when that philosophy precedes principles of freedom. Maria Montessori "had imposed a new Philosophy of Education based on the concept of freedom, generating a School that allowed the free development of the child's activity" (Domenico, 1988, p. 27, our translation). And why did we notice the relationship between the 3-period lesson and teaching from scratch?

In Montessori (1965), the teaching of zero is aided in a different way from the one that appears in the booklet that crosses the appropriations made by Eliza Augusta. We observed that the 3-period lesson, the lesson that guides teaching, did not appear in the booklet Mathematics Methodology when it referred to the use of the Spindles material, which was used for teaching from scratch. However, the relationship of other materials with the 3-period lesson appears in the book.

Figure 14 – Spindles material – 3-period lesson



3 - Apresentação:- a) Transporte
b) Manuseio
c) Controle de Erro

a- transporte: O material é transportado pata o tapete, uma caixa por vez

b- manuseio: O manuseio consistirá em colocar os fusos em ordem crescente de quantidades, nos respectivos compartimentos, agrupados pelos elásticos. Naturalmente a criança perguntará sobre o compartimento que ficou vazio. Saberá então que representa ausência de fusos e aprenderá o símbolo chamado ZERO.

c- controle de erro: a própria atividade de fusos

4 - Lição de Três Tempos: Não há

5 - Variações: Usar plaquetas com numerais, em desordem no tapete, para correspondência dos fusos.

cont.

Source: Math Methodology (1981, p. 5)

In Montessori (1965, p. 247), there is the following excerpt on using the spindles material:

> The exercise is easy: it is a matter of depositing in each compartment a number of spindles corresponding to the designated digit. [...] Once a group of these objects has been placed near the child, she should arrange them, each in its place, i.e., a checker stone or two spindles in compartment 2, etc. When she believes she has finished, it will be good for her to call the teacher to check if the exercise has been done well (our translation).

Then she indicates the *lesson on zero*: “We wait for the child to ask us, showing the compartment of the number 0: ‘And here, what should we put in?’, to answer, ‘Nothing: zero means nothing’ (Montessori, 1965, p. 248, our translation). In Scientific Pedagogy (1965, p. 251), Montessori also says: “It is not enough, however; It is still necessary to make what is nothing felt. To do this, we use exercises that are very entertaining for the children” (our translation). Thus, it would not be enough to explain the absence of zero, but to make the child feel what zero is with exercises. She recommended exercises to be performed with the child so that she could understand zero:

> For example, I place myself in the middle of them, sitting in one of their car seats; I turn to one of them, who has already practiced the exercises of numbers, and I say to her: “Come, my dear; Come to me zero time.” The child almost always comes to me and then returns to her seat. “You came once, and I told you to come again!” Admiration begins: “But, then, what am I supposed to do?” - “Nothing! Zero means nothing!” (Montessori, 1965, p. 251, our translation)

Such exercises are not mentioned in the booklet Mathematics Methodology, nor are they related to the guidelines for the 3-period lesson. The lessons aim at questions asked by the teacher with the following purposes: that the *first period* refers to the word’s accuracy and the association of sensory perception with the name; the *second period* refers to the distinction of the object corresponding to the name, in which the teacher must “prove” that the child has learned the lesson; the *third period* is the phase for remembering the name corresponding to the object, as a recap of previous lessons.

Thus, the absence of the 3-period lesson in the book can be justified by the fact that it would be the child who would ask questions when manipulating the spindles, that is, the teacher would not need to ask 3-period lesson’s questions that were usually asked. Apparently, for Eliza, as the child would run her hand over the compartment of the spindle material and ask her own questions, she would already understand the notion of absence, the notion to understand zero. Therefore, the way how Montessori and Eliza recommend the spindles point that there is a certain distance between the two, although the common purpose (between them) of instigating the child’s autonomy (principle of Montessori philosophy) remains, making her manipulate the Spindles on her own.

The teaching from scratch is just one of the appropriations by Eliza Augusta, and it has clues that the uses and meanings of the Montessori philosophy for math teaching were being constructed from other sources besides the ones written by Montessori. Their appropriations

were also constituted through teachers' training courses that Eliza Augusta and Maria Sheila participated in as well as books, which influenced their interpretation of Montessori's works. This way they developed their own representations of the Montessori philosophy for math teaching, disseminated in teachers' training courses and in the math teaching at the school Colégio Maria Montessori of Campo Grande, Mato Grosso do Sul.

6 CONCLUSIONS

Our objective sought results of appropriations by founders of the Colégio Maria Montessori of Campo Grande, Mato Grosso do Sul, of the Montessori's philosophy for math teaching. It was also our intention to analyze whether the appropriations would have developed a professional knowledge. To do this, we analyzed the Mathematics notebook (1981) of Eliza Augusta, with clues on the collaboration of Maria Sheila, as well as a book of the Teachers Training Course - 1^{srt} Phase: Mathematics Methodology (1981), related to a course that Eliza Augusta participated in as a student. Besides written records, we had oral sources that allowed us to complement the historiographical operation.

From the results, we infer that the appropriations that Eliza Augusta and Maria Sheila made started a movement of teaching and training the teachers that made a course at the Colégio Maria Montessori, such as the training of the teacher Odete and the coordinator Ângela, who stayed at the school, helping, teaching, and continuing Montessori's philosophy. To achieve this, Eliza Augusta and Maria Sheila trailed a path marked by participation in courses offered by Montessori institutions, such as ABEM, OMB, and the Instituto Pedagógico Maria Montessori, materializing uncountable pedagogical trips (Mignot, Gondra, 2007).

The teacher Odete and the coordinator Ângela were also important figures throughout the investigation as they helped us build and support the history we narrated. Besides, this research showed not only the appropriations by Eliza Augusta and Maria Sheila of the Montessori philosophy for math teaching, but also indicated possible appropriations by other teachers that worked at the school, such as Odete and Ângela.

The possibilities about appropriation, both of Eliza Augusta and Maria Sheila, or Odete and Ângela, sparked some reflections, such as the approximation and distancing in the appropriation process. Throughout the research, the appropriation showed to be a process of "immersion" of the subject, through which they capture information about several needs/situations/conditions/documents etc. that are not necessarily imbued in the same source or only in primary sources, but that aim at enlarging their knowledge about a topic. The appropriations carried marks of approximations related to the representation of the Montessori

philosophy for math teaching, representations that are read in Montessori's works. However, as the appropriation is a particular construction of the subject, the representation can distance itself from it, as it happened with Eliza.

On the notion of appropriation and representation, we also questioned during the analysis: an appropriation could be a representation? In this case, we understand that yes, since the founders' appropriations were systematized into representations that became elements to be appropriated by the teachers trained at the Colégio Maria Montessori, both internal and external to the school. As everything indicates, the representations equipped the teachers' practices mobilized by them. This way, our historiography has been pointing out a process of appropriation of the founders, as well as the constitution of representations to serve other teacher subjects. The movement of the constitution of appropriation created representations, which were interpreted, in our analysis, as professional knowledge.

In turn, these representations subsidized practices of production of meaning.

What does that mean? It means that when Eliza Augusta and Maria Sheila recorded their notes in notebooks and books. They could have kept their writings for them or, at most, for some colleagues. However, when these records started to support the training courses for the teachers at the Maria Montessori and support the training of teachers external to the school, the appropriations gained another status, becoming representations. And the appropriations in the form of representations circulated.

We also investigated that the appropriation Eliza Augusta and Maria Sheila made of the Montessori Philosophy for the teaching of Math did not come only from Maria Montessori's view, but from the courses the founders participated in as well as books written by other people who, despite following the philosophy of the Italian doctor and educator, probably distanced themselves from her premises according to certain aspects. Thus, the founders' appropriations and representations indicated marks of representations that came from different contexts (courses of the pedagogical trips, other books, etc.).

That is why we verified in the sources new uses assigned to the Montessori materials, specifically to the orientations to train teachers. The orientations showed a step-by-step of how to present the material and follow the teaching of math, the 3-period lesson, the stages, and phases, with clues that assume the founders used other sources. Although we observed in the Math notebook (1981) and the Mathematics Methodology booklet (1981) the approximation to the Montessori philosophy to keep it alive at the school – as the founders and the coordinator told us –, there are elements that distance themselves from Montessori's works.

A third matter: when Eliza Augusta and Maria Sheila started to use their notes to guide

and train the teachers of the Colégio Maria Montessori, these notes constituted professional knowledge, being systematized. This is because the teaching experiences needed to help with the school's systematic and follow the Montessori philosophy, but most of all it needed to train teachers. There was a growing demand for more teachers as the school expanded. This was one of the reasons that possibly led both of them to register their appropriations and use them in later courses. The writing we found shows a detailing of drawings and explanations so that other teachers could be trained. Thus, we understand that the representations ended up becoming professional knowledge, generated from appropriations that crossed this local worry.

Finally, a last consideration: recognizing and valuing the history of women teachers. From the founders' archive, we were able to understand that the teaching experiences are not only those that happen locally at the school in which you work, that generate knowledge for one's self. There are teaching experiences being thought by several agents with the aim to maintain a school and/or a philosophy, or even improve education. There are people willing to make an effort and endeavor to continue the legacy of a certain pedagogical perspective and others who worked for it. Others, still, went beyond because they wanted to keep a life's philosophy alive. This observation is a motto for us to continue the studies on the knowledge produced by different agents, especially those who even under adverse conditions (who needed to travel or lived with obstacles) still maintained the purpose of helping and, today, give us elements to discuss the history of teachers' education, of a school, of training courses, and many students' training.

This is the story of Eliza Augusta and Maria Sheila.

7 ACKNOWLEDGMENTS

We thank the support of the Institution of Support to the Development of Teaching, Science and Technology of Mato Grosso do Sul (Fundação de Apoio ao Desenvolvimento do Ensino, Ciência e Tecnologia do Estado de Mato Grosso do Sul – Fundect), of the University of Grande Dourados of the Federal University of Mato Grosso do Sul, especially the Colégio Maria Montessori, as in Eliza Augusta, Maria Sheila, Ângela, and Odete.

8 REFERENCES

BARROS, José D'Assunção. A história cultural e a contribuição de Roger Chartier. Revista Diálogos, v. 9, n. 1, p. 125-141, 2005.

BURKE, Peter. **O que é história do conhecimento**. São Paulo: Editora Unesp, 2016.

CAMPOS, Simone Ballmann. **A institucionalização do Método Montessori no campo educacional brasileiro (1914-1952)**. Tese (Doutorado em Educação). Universidade Federal de Santa Catarina, Florianópolis. Santa Catarina, 2017

CERTEAU, Michel de. A operação historiográfica. In: **A escrita da história**. Rio de Janeiro: Forense Universitária, 1982, p.56-104.

CHARTIER, Roger. **A história cultural**: entre práticas e representações. Rio de Janeiro: Bertrand, 1990.

CHARTIER, Roger. **O mundo como representação**. Revista de Estudos Avançados, São Paulo, v. 11, n. 5, p. 173-191, 1991. Disponível em: https://www.revistas.usp.br/eav/article/view/8601/10152. Acesso em: 23 maio 2022.

DOMENICO, Ettiéne Cordeiro Guérios de. **Metodologia de Ensino para a Iniciação Matemática Fundamentada na Pedagogia Montessoriana**. 1988. Disponível em: https://acervodigital.ufpr.br/bitstream/handle/1884/74062/D%20-%20D%20-%20ETTIENE%20CORDEIRO%20GUERIOS%20DE%20DOMENICO.pdf?sequence=1&isAllowed=y.

JULIA, Dominique. **A cultura escolar como objeto histórico**. Revista brasileira de história da educação, v. 1, n. 1, p. 9-43, 2001.

MIGNOT, Ana Chrystina Venancio; GONDRA, José Gonçalves. **Viagens pedagógicas**. São Paulo: Cortez, 2007.

MONTESSORI, Maria. **A criança**. 3.ed. Rio de Janeiro, RJ: Portugália, s.d.

MONTESSORI, Maria. **A educação e a paz**. Campinas, SP: Editora Papirus, 2004.

MONTESSORI JR., Mario. **Educação para o desenvolvimento humano**: para entender Montessori. Editora Obrape, 1990.

MONTESSORI, Maria. **Educação para um novo mundo**. Editora Comenius, 2015.

MONTESSORI, Maria. **Da infância à adolescência**. Editora ZTG. 2006.

MONTESSORI, Maria. **Mente absorvente**. Rio de Janeiro: Portugália. s.d.

MONTESSORI, Maria. **O que você precisa saber sobre seu filho**. Rio de Janeiro: Portugália. s.d.

MONTESSORI, Maria. **Para educar o potencial humano**. Campinas, SP: Papirus, 2003.

MONTESSORI, Maria. **Pedagogia científica**: a descoberta da criança. Tradução: Aury Azélio Brunetti. São Paulo: Editora Flamboyant, 1965. Disponível em: https://repositorio.ufsc.br/handle/123456789/196416.

MONTESSORI, Maria. **Psicoaritmética**. Barcelona: Araluce, 1934a. Disponível em: https://repositorio.ufsc.br/handle/123456789/191604.

MONTESSORI, Maria. **Psico Geometria**: el estúdio de la geometria basado em la psicologia infantil. Barcelona: Casa Editorial Araluce, 1934b. Disponível em: //repositorio.ufsc.br/handle/123456789/159258.

PERRY, Celma Pinho; FEDOROWICZ, Meg. **O currículo do mundo**: apresentando o universo às crianças pequenas. Tradução Gabriel Roy. Rio de Janeiro, Centro de Estudos Montessori do Rio de Janeiro: 2006. [Original: Cosmic Approach, a Montessori Curriculum 0 – 6 years old. Meca-Seton].

REZENDE, Alan Marcos Silva. **Maria Montessori e os materiais didáticos: condensando saberes profissionais da docência em matemática (1900-1930)**. Tese (Doutorado em Educação e Saúde). Universidade Federal de São Paulo, Guarulhos, 2021. Disponível em:https://repositorio.ufsc.br/handle/123456789/227665.

SANTOS, Evelaine Cruz dos. **Formação de professores no contexto das propostas pedagógicas de Rudolf Steiner (Pedagogia Waldorf), Maria Montessori e da experiência da escola da ponte**. 2015. Disponível em: https://repositorio.unesp.br/handle/11449/132194.

SILVA, Angela Regina da. **Apropriações da filosofia montessoriana para o ensino de matemática nos cadernos do Colégio Maria Montessori de Campo Grande MS (1980-1999)**. 2023. 189 f. Dissertação (Mestrado) – Programa de Pós-Graduação em Educação Matemática, Universidade Federal de Mato Grosso do Sul, Campo Grande, 2023.

VALENTE, Wagner Rodrigues. **Processos de investigação histórica da constituição do saber profissional do professor que ensina matemática**. Acta Scientiae, v. 20, n. 3, 2018. Disponível em: https://repositorio.ufsc.br/handle/123456789/189543.

VALENTE, Wagner Rodrigues; BERTINI, Luciane de Fatima (Orgs.). **A matemática do ensino: uma história do saber profissional - 1870-1960**. V. 1. São Paulo, SP: UNIFESP. Coleção Educação & Sociedade, 2022.