


Gender as a Problem in Maths Textbooks: A Practical Handbook on How to be a Girl/Woman

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Received for publication 23 Dec 2020. Accepted after review 26 Apr. 2021.

Designated Editor: Claudia Lisete Oliveira Groenwald

ABSTRACT

Background: Gender issues have been guided recently in our country from a misogynistic and patriarchal bias. Apparently, school mathematics would have nothing to contribute or problematize in this sense. However, the exercise we propose calls into question the neutrality of this school subject and moves it from a perspective that allows us to investigate the theme of gender in contemporary times. **Objective:** in the excerpt made for this article, we examined the approaches of these two studies to gender issues and their connections with mathematics education. **Settings:** We analysed the 113 books that composed the corpus of the investigation, from where we selected 12 images that helped us compose what we called a “practical handbook on how to be a girl.” **Design:** this handbook was prepared as a fictional narrative from the theoretical-analytical exercise undertaken on the material through the discourse analysis. **Data collection and analysis:** by understanding images as pedagogical devices, we sought regularities that allowed us to elaborate the handbook. **Results:** from the analyses, we constructed the following sentences related to the subject girl/woman: (i) girls must be careful; (ii) girls must be selfless; (iii) girls must be delicate; (iv) women must mind the time, (vi) girls must be organised and efficient and, finally, (vii) girls must know how to cook. **Conclusion:** mathematics, as a non-neutral science, operates as a tool so that desirable values of an extremely conservative portion of the Brazilian population are taught and propagated.

Keywords: Curriculum; Gender; Maths textbooks; Practical handbook.

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Gênero como um problema nos livros didáticos de matemática: manual prático de como ser menina/mulher

RESUMO

Contexto: As questões de gênero têm sido pautadas recentemente em nosso país a partir de um viés misógino e patriarcal. Aparentemente, a matemática escolar nada teria a contribuir ou problematizar neste sentido. Todavia, o exercício que nos propomos coloca em xeque a neutralidade desta disciplina escolar e a movimentamos a partir de uma perspectiva que permite indagar a temática de gênero na contemporaneidade. **Objetivo:** no recorte feito para este artigo, analisamos as abordagens dadas por estes dois trabalhos em relação às questões de gênero e suas conexões com a educação matemática. **Cenário:** analisando os 113 livros que compuseram o corpus da investigação, selecionamos 12 imagens que nos ajudam a compor o que denominamos por “manual prático de como ser menina”. **Design:** este manual foi elaborado como uma narrativa ficcional a partir do exercício teórico-analítico empreendido sobre o material com o uso da Análise do Discurso. **Coleta e análise de dados:** ao entendermos as imagens como dispositivos pedagógicos, buscamos regularidades que nos permitiram elaborar o manual. **Resultados:** a partir das análises, construímos as seguintes frases relacionadas ao sujeito menina/mulher: (i) meninas precisam ser cuidadosas; (ii) meninas devem ser abnegadas; (iii) meninas devem ser delicadas; (iv) mulheres devem cuidar do tempo, (v) meninas devem ser organizadas e eficientes e, finalmente, (vi) meninas devem saber cozinhar. **Conclusão:** a matemática, como ciência não neutra, opera como instrumento para que valores desejáveis de uma parcela extremamente conservadora da população brasileira sejam ensinados e propagados.

Palavras-chave: currículo; gênero; livros didáticos de matemática; manual prático.

INTRODUCTION

During the 2018 election campaign, current President Jair Messias Bolsonaro presented his proposal for education in his government plan entitled “The Way to Prosperity.” In this material, we can read that “content and teaching method must be changed. More mathematics, science and Portuguese without indoctrination and early sexualisation (...)” (Author’s emphasis).

Even so, what seemed to be a breath of progressive hope emerged when, after being elected, the government of conservative affiliations of Jair Messias Bolsonaro created the Ministry of State for Women, the Family, and Human Rights. However (and then the “progressive hope” mentioned before proved unfounded), Damares Alves took office, leading this unprecedented ministry in the country. At the head of this ministry, Damares made clear, from

the beginning, her ultraconservative position, influenced by religious and far-right ideas. Some of her phrases, all pronounced between 2019 and 2020, became famous and revealed the morality and values defended by the government she is representing:

“Attention, attention. It is a new era in Brazil. Boys wear blue and girls wear pink.”

“Women were born to be mothers; it is the women’s most special role.”

“I worry about women being absent from home.”

“How I would like to be at home, all afternoon, rocking in a hammock, while my husband works really, really, really hard to support me and fill me with jewels and gifts. That would be the ideal standard of society.”

“The moment I say the girl is like the boy in school, the boy will think: she is like me so she can take a beating. No, girls are different from boys.”

“We will have to take care of the women’s childhood at school. The three-year-old boy will learn that the little girl deserves to get flowers. The little boy of seven will be able to bring chocolate to the girl because the girl is special.”

“Let us treat girls like princesses and boys like princes.”

From the scenario presented, it is evident that issues related to gender and sexuality are strategic from the perspective of the current (year 2020) Brazilian government and certainly find support in their voters. For them, the agenda of customs must be ubiquitous in the country’s news when it comes to “government matters.” No wonder some researchers have shown that the curriculum is being influenced by this neoconservative direction (Lima & Hypolito, 2019), through, for example, the construction of the National Common Curricular Base (Acosta & Gallo, 2020; Lopes, 2019; Macedo, 2017; Sússekind, 2019).

In the field of mathematics education, we have shown, in several research works (Godoy et al., 2020; Neto & Valero, 2020; Silva, Neto & Souza, 2020; Souza; Silva, 2017a, 2017b, 2018; Valero; Silva; Souza, 2019), that this conservative influence materialises in mathematics textbooks, producing power effects very similar to those produced by Damares Alves’ sentences and

received and acclaimed by a large part of the public with the same ideological political tendencies.

Given the above, in present-day Brazil, it is convenient to ask ourselves: when does an issue become a problem? Inspired by Butler (2003), we understand that for a problem to be social, it must be felt in the body, the body being materialised in social practices. This materiality is inseparable from the regulatory standards that govern its materialisation. Therefore, the body is never natural but always culturally inscribed. That said, in this article, we defend that the school mathematics curricula also operate in the discursive elaboration of this body, which is genderised.

Regarding the notion of gender, we are affiliated with Butler's (2003) understanding when she states that "Gender is the repeated stylisation of the body, a set of repeated acts within a highly rigid regulatory frame that congeal over time to produce the appearance of substance, of a natural sort of being" (p. 59). In this uninterrupted exercise of producing subjectivity, various instances of social life are in action for the elaboration and realisation of performative acts, including formal education, including school mathematics, including math textbooks. Therefore, we can see that the body and gender can be interpreted as historically situated performative actions, which Butler ratifies. For her, gender, body and sex are effects of discursive practices, understood as mechanisms that operate through government technologies that impact on "(...) immediate, everyday life, which categorises the individuals, marks them by their individuality, attaches them to their own identity, imposes on them a law of truth that they must recognise and that others must recognise in them" (Foucault, 2014, p. 123).

In this sense, if there is in this article a well-established understanding that we are not born a woman, but we have become one (or many), paraphrasing Beauvoir (1980), is it convenient to ask about what practices make us respond, act, perform to and in the world as women? Margaret Mead (1971), an anthropologist who investigated the constitution of the notions of what defines being a man and being a woman, after interacting with and researching fourteen communities in various locations of the world, especially in Asia, published some interesting results. From these studies, the researcher concluded that those identity constructions vary considerably in different societies. Even so, and this is what interests us to highlight here, she states that there are regularities that can be found in the cultures she studied, such as "[...] the man's need for achievement" (Mead, 1971, p. 131). This result shows a strong relationship between pride and masculinity in several cultures and localities. From this

conclusion, the author makes explicit how the activities attributed to the bodies that perform the masculine are repeatedly classified as more valued in the societies studied. So, being a woman would be to relegate this body that performs the feminine to occupy a secondary position in activities, attributions, functions, and practices in several different societies? This sheds light, again, on the “second sex” (emphasis added), an inferior position, so debated by Beauvoir (1980), for whom women would never be defined by themselves, but rather, always, in relation to men, the parameter.

The exercise we propose in this article will be to elaborate a practical handbook on how to be a girl. This study will be based on some results of two doctoral works carried out within the Research Group Curriculum and Mathematics Education (GPCEM) of the Postgraduate Programme in Mathematics Education of the Federal University of Mato Grosso do Sul: one completed (Neto, 2019), by the first author of this article, which analysed ten maths textbooks of the early years of elementary school for field education; the other, not completed, conducted by Deise Souza, which analysed 103 maths textbooks for the initial years of elementary school of regular education. Both deal with the theme “gender” in different contexts but defending the same argumentative line: images and texts of the mathematics curriculum are not used in a perspective that seeks only to teach mathematical knowledge. The images and texts move a seductive scenario of the mathematics curriculum to capture children’s attention, charming them for learning. These artefacts operate as pedagogical devices (Friedrich, 2010) through a supposed contextualisation that has, at least hypothetically, a direct relationship with everyday activities, games, social interactions, among others. Importantly, as a pedagogical device, we are affiliated with the definition discussed in Friedrich (2010):

the production of an object within the particular rules and ordering principles of pedagogical discourses. Pedagogical devices work in education as part of the regime of truth that dictates what is real and what is not, what is true and what is false, in the process of intentional transmission of sets of values, know-how and behaviours among subjects, called education. (p. 661)

The next topic will discuss better the theoretical-methodological tools, data analysis, and production elements that served as the basis for elaborating the handbook.

Before that, it is necessary to inform that since the beginning of 2015, GPCEM has developed the research project “redes discursivas construídas em livros didáticos de matemática do Ensino Médio/discursive networks built in high school mathematics textbooks,” assuming that there are several influences on the construction of discourses present in high school mathematics textbooks. In the metaphor we chose to use, those influences constitute threads that will weave a discursive network that will materialise in the textbook (Silva, 2016).

Therefore, in this article, we selected some results from these doctoral studies to analyse and describe how gender, when treated as a problem, is a subject that emerges in the materials reviewed. For this, we will build a fictional narrative, creating a “practical handbook for girls,” about how to be and behave in the world, especially in Brazil after 2018, i.e., after the election of Jair Messias Bolsonaro.

THEORETICAL-METHODOLOGICAL TOOLS

In this article, textbooks are understood as part of a power device that moderates and organises schooling processes (Peñaloza & Valero, 2016), at the same time as it operates forms of contemporary government that regulate one’s way of life and of others through the management “(...) of wealth, health, and happiness of the population” (Rose & Miller, 1992, p. 174), producing subjectivities to dispose of and enhance the functions of the individual in society.

It is essential to elucidate that we understand the device in its function of organising and validating the different discourses moved to govern living beings in constructing a given social order, being a concrete way of power relations, but not only that, as Agostinho (2017) warns. Aiming to understand better the concept, we seek Jørgensen (2017), who outlines a systematic description of the notion of device:

- It is prescriptive.
- It is where power becomes concrete.
- It is made for guidance, management, and/or control.
- It is directed to living beings.
- It is a heterogeneous network of devices and practical guidelines and institutions and agencies that govern their use.
- It is always immersed in power relations, which means that it is always inserted in a field of forces that define its relevance. (p. 25)

Based on each of these statements, we could understand how heterogeneous practices, the different statements, their rearrangements, besides the repetition, recombination, and contradiction, happen in the didactic materials analysed and materialise a set of forces that allows creating the subjectivation processes that affect the gendered body, as well as the action of the didactic material, in all its activities, images, and practices that operate as power devices. The same author also conceptualises: “device is where power becomes concrete” (ibid., p. 25). Therefore, the device is a place, a place of event and production, and, in this sense, the mathematics textbook is believed to function as a device of strategic power to regulate the behaviour of gendered bodies.

In addition to the notion of device, both studies operated the Foucaultian concept of discourse analysis (Foucault, 1987, 1996, 1999) as a theoretical and methodological tool.

For Foucault, discourse analysis

[...] consists of no longer treating discourses as sets of signs (significant elements that refer to content or representations), but as practices that systematically form the objects of which they speak. Certainly, the discourses are made of signs; but what they do is more than use these signs to designate things. It is this “more” that makes them irreducible to the language and the act of speech. It is this “more” that we need to make appear and that we need to describe. (Foucault, 1987, p. 56)

This “more” described by Foucault is to overcome the simple reference and description of “things,” it is to envision the possibility of defining own conceptual networks (Fischer, 2012).

These conceptual networks and the discourses that form them are immersed in power games and socially constituted truths. About this, Foucault states:

[...] truth does not exist out of power or without power (it is not - despite a myth, that it would be necessary to clarify the history and functions - the reward of free spirits, the son of long

loneliness, the privilege of those who knew how to free themselves). The truth is of this world; it is produced in it by multiple coercions and produces regulated effects of power in it. Each society has its regime of truth, its “general policy” of truth: i.e., the types of discourse it welcomes and makes work as true; the mechanisms and instances that allow distinguishing true from false statements, the way it sanctions one and the other; the techniques and procedures that are valued to obtain the truth; the status of those who have the task of saying what works as true. (Foucault, 1998, p. 12)

Thus, this handbook was constructed as a kind of policy of what is understood as a truth in the present. It was developed to make appear what operates as a criterion of validation of truth about gendered practices nowadays, through mathematical knowledge, as expected.

In the process of constructing the research material of the two studies mentioned, which resulted in the construction of the handbook presented here, the images, which organise meanings about the production of subjectivities, drew attention and constituted themselves as one of the main data sources that the readings presented throughout this article provided. These sources are very powerful, as Gallo (2016) highlights, for example, when he states that an image can be understood as a “command” (p. 18). Supported by the Deleuzian thought about language, the author also argues that “thinking in the context of an image of thought is to repeat what has already been thought, it is not to think the new, the different” (p. 20). In this sense, would the image be a fixed representation that restricts the possibilities of production of thought?

Although we cannot explore this issue at the level of its demand, we clarified that we do not consider here that this restriction is violence against the individual, against the students who will have access to this material, something that necessarily sterilises or even makes it impossible to create practices, but rather that organises or directs the space for the production of meaning by the individual, building a field of interpretative possibilities, while noting, however, that in the textbook, images are also used for pedagogical purposes; we understand, therefore, that images are producers of meanings.

In fact, images are one of the main sources in the composition of a scenario in which it is possible to talk about a supposed way of being a girl and/or woman. The imagery sources are configured in a rich and potential material for the production of narratives, especially for the children’s audience, to which all the materials analysed in the research mentioned are directed. They,

the images, are interpreted here as agents that synthesise concepts, ideas, human practices, and, therefore, addressing, as stated by Collange, Almeida, and Amorim (2014):

We understand the materiality of images as the sum of different classification systems and discursive formations to which language resorts to give meaning to things. In other words, when didactic materials based on images mean science, they do this as a practice of cultural production, creating hybrid, heterogeneous meanings taken from different contexts. However, they need to resort to an existing language structure, and it is in this aspect specifically that the categories we choose operate in search of understanding the role of political action. (p. 830).

Thus, the images are interpreted as producing meanings that could not or would not reach the dimension of a text, for example. The same authors analyse the relationships between “image and representation of truth” (ibid., p. 826) through research on photographs in science textbooks and conclude that

[the images] are promoters of cut-out ‘truths’, ‘decontextualisations’ or a vision directed to aspects previously considered more important to teaching, to the detriment of the various possible meanings that could add or bring, even from the point of view of objectivity and portrayal of the real. (ibid., 836)

This statement gains more power when considering the audience to which the material analysed is intended: children! We understand that the authors of the collections seek in the images chosen to portray an understanding of everyday life and act in a supposed process of objectification through the teaching of the contents of school mathematics. What happens, however, is what we understand as subjectivation processes. After an investigation also undertaken on textbooks, Amorim (2016) states that “(...) the images act on the students’ singularities in a double fold, which passes through the cracks of meaning of their position as apprentice subjects and through a movement of self-regulation driven socio-culturally” (p. 98), i.e., the images teach children to be and act like girls and/or women, simultaneously ending up teaching about being boys and/or men.

Images, therefore, are fundamental elements in the analytical process, as will be seen in the exposition of the handbook.

PRACTICAL HANDBOOK OF HOW TO BE A GIRL

In this handbook, whose titles we purposely wrote in pink, we learn about the functions, attributions, and (why not?) obligations that girls must perform in domestic chores and in social life. For this, we will present twelve examples that accurately illustrate seven characteristics of how girls should behave according to what is currently understood by “femininity” in their daily activities. It is important to note that in preparing this handbook, we consider the terms “girl,” “feminine,” and “femininity” as synonyms, after all, a girl should always be feminine, according to the order of the current discourse. It is noteworthy that this notion of practices that define what a female body is, despite being considered natural, pre-existing to the body, is not thus understood in this article. We assume that the -gendered- body is inscribed culturally and historically. Therefore, the notions of gender themselves name and make exist what is meant by a feminine woman and/or a manly man.

In this sense, when developing this handbook, we built the examples so that they function as a pedagogical device (Friedrich, 2010) by articulating mathematical knowledge as alchemy (Popkewitz, 2004) with norms, habits, and desired moralities that must be assimilated and repeated by bodies that perform the feminine.

1. Girls should be careful and caregivers, mainly:

In the ten mathematics textbooks analysed in Neto (2019), 111 excerpts were catalogued associated with girls and women in roles of care and dedication to each other, especially this other representing a male body, as can be seen in figure 1 below.

Figure 1

Activity of measurement (Bonjorno, Bonjorno & Gusmão 2014c, p. 16)

1. Na casa de Júlio, há um pomar de acerola. Depois de um dia inteiro de trabalho, sua mãe fez um suco para eles se refrescarem. Veja como ela pode repartir igualmente todo o conteúdo de 1 jarra do suco de acerola.



Acerola é uma fruta rica em vitamina C, vitamina A, ferro, cálcio e vitaminas do complexo B. A aceroleira é uma planta originária das Antilhas.



OU



Ricardo Dutra
Ilustração digital

Desenhe abaixo quantas  e quantos  ela deve usar para repartir igualmente o conteúdo do suco de acerola de duas jarras.



In Figure 1, Julio's mother, even tired after a long working day, with her son, prepares a refreshment in a second part of her daily assignments. In this activity, she must share the juice equally. In this way, her mathematical knowledge will enable her to be fair, which is expected of a mother, who was once a girl and learned such behaviours and practices, even in math textbooks, as we see.

Learn from Julio's mother to always be willing, without neglecting accuracy. It must be borne in mind that, by having the basic notions of division, "Júlio's mother" can exercise her intrinsic function of guaranteeing justice and, thus, harmony in the home, despite her physical affections caused by the newly initiated second (perhaps third) activity/journey of the day: the mother is a just and tireless being, a being who performs the feminine, always ready to meet

the needs of her family effectively and accurately, especially in possession of notions of magnitudes and arithmetic.

A similar situation was also evidenced in the books investigated by Deise Souza during her doctoral research. When she analysed 103 maths textbooks of the early years, she described a very interesting regularity: in 83 situations in which girls interacted with dolls, no boy figure playing with dolls was found. In those interactions, in general, girls cared for the dolls as if they were their daughters, producing learning for adult life, in which the woman should take care of her own family. In addition to this care with the future offspring, the books present other situations depicting the women's care: taking responsibility for the household purchases, not forgetting food items, but also furniture for the home; taking responsibility for meals, serving the husband and children efficiently, as Julio's mother well performs (Figure 1).

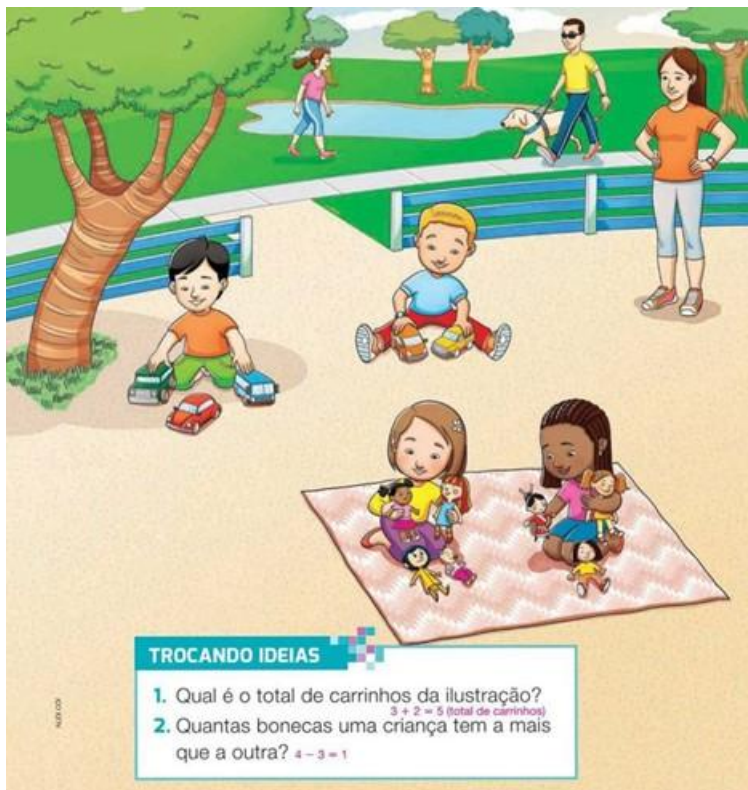
To expose the recurrence of this instruction in textbooks, we selected the following figure, catalogued by Deise as a notorious example of this situation:

In figure 2, we see at least two types of care: (i) the mother who takes care of the children or, who knows, other parents' children. Note that this care is even more significant with girls. They are playing on a mat while boys play on the floor, without protection, learning that they are strong; (ii) the care of girls with dolls, putting them to "sleep," "dressing them," and putting the dolls to socialise with each other. Note that the mathematical context is very simple: counting carts and dolls. However, the curriculum teaches more than counting: it teaches norms of conduct through supposedly mathematical counting activities. So, where is the mathematics?

Therefore, watch out! Learn to care efficiently and fairly, in possession of some knowledge of mathematics content, for your future sons and daughters, but mainly learn to take care of your daughters because boys do not require so much care, they must be strong. Learn to care attentively, within well-defined rules. Learn to take care of the house, the husband. Learn also to take care of food, specifying what needs to be bought and going shopping, but only buying what is necessary so that the house is always stocked. Then, at night, the whole family gathers at the dinner table for you to serve your children and husband, fulfilling your role as a caregiver of the home.

Figure 2

Activity of counting and care (Silveira, 2014, v.2, p. 35)



2. Girls should be selfless

Although it is also linked to the idea of care, self-abnegation implies renouncing, a behaviour that must be intrinsically associated with the feminine. In the activity expressed in figure 3, we can learn from Gabriela, a delicate, mild-tempered, sweet, gentle, and fair girl. To give her friends some gifts, she decides to use the division content to distribute apples from her orchard, as shown in Figure 3.

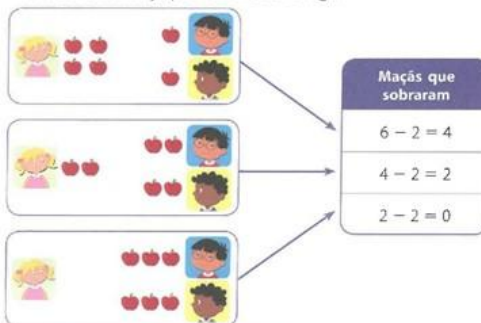
Figure 3

Activity of division and equity (Bonjorno, Bonjorno & Gusmão, 2014b, p. 3)

3. Gabriela colheu 6 maçãs de seu pomar e distribuiu igualmente em 2 amigos.
Quantas maçãs recebeu cada amigo?



Gabriela deu uma maçã por vez a cada amigo.



Esta atividade trabalha a ideia de repartir em partes iguais da divisão.

Cada amigo de Gabriela recebeu

$\frac{3}{2}$ maçãs.

6 dividido por 2 é igual a 3.

$$6 : \underline{2} = \underline{3}$$



We do not know whether Gabriela had more fruit in her orchard. The fact is that, altruistically, no apples remain to the girl, after all, her main goal is to share the fruits equally between her two friends. This activity was designed to be worked with students of the 3rd grade of elementary school. Note that for this stage of education, the division could be between the three characters since we would maintain the division in equal parts (in this case, two apples for each of the characters of the activity). However, apparently, it does not matter, only the boys receive all the fruits, and we highlight: equally! After all, Gabriela is fair, and the division of natural numbers (multiple of itself) ensures this: she does not need to have apples for herself, too.

In the materials analysed, self-abnegation, tenderness, and care are practices associated with the performance of the feminine, as we can see in figure 4 below:

Figure 4

Activity of subtraction and calculation of one third, involving giving (Silveira, 2014, v.1, p.98 and v.2, p.244)



Figure 4 is a composition of two images present in the same collection, in the first and second grades, respectively. The same characters repeat the rite of giving. Ana donates part of her dolls, and, in the context proposed by the book, the situations aim to teach subtraction and calculation of one-third of a quantity, respectively. There is no similar context involving boys, who, in general, display toys such as balls and cars and calculate the new value after increasing their collections. Feminine self-abnegation is linked to the subtraction of naturals. The masculine collections operate by addition, presenting increasing totals.

3. Girls should be delicate

In figure 5, we show the character “Maria Sol,” an anthropomorphised flower, notably performing attributions of the feminine.

Figure 5

Characters (Bonjorno, Bonjorno & Gusmão, 2014a, p. 3)



In five of the ten books analysed in Neto (2019), the character's role is to be attuned so that the activities are carried out in the most appropriate way possible, assisting and guiding students, always "at their side," taking care of them.

This occupation contrasts with that of another character, also anthropomorphised, who takes the position of a partner of "Maria Sol."

This character, "Zé Sabiá," which can be seen in Figure 5, plays a diametrically opposite role in the textbooks analysed: as a character who performs the masculine, Zé Sabiá is experienced, explorer of other environments, cosmopolitan, free, and, as his name suggests, wise. Its function is to tell students about his adventures around the world and about everything he learned in his travels, which does not seem to be a "girl's thing."

Performing another function, Maria Sol, a delicate, passive, attuned, pretty, and fragile flower, exercises the fundamental feminine activity of caring for the other, a recurrent maternal attribution in the materials analysed.

We assumed that both characters put the pedagogical device into function by operating “(...) as part of the regime of truth that dictates what is real and what is not, what is true and what is false, in the process of intentional transmission of sets of values, knowledge and behaviours among subjects that is called education” (Friedrich, 2010, p. 661): they capture the students’ attention and affection, transmit convenient messages related to the contents provided for in the curriculum while disseminating a broad and interested set of attributes and attributions culturally produced and directed to bodies to perform the feminine and masculine, each with its well-defined assignments and functions.

In short, after these five examples, we can affirm that more than careful, selfless, and delicate, girls need to be fair, attuned, and passive, among others that are expected from the feminine, always, of course, taking mathematical knowledge with a criterion of validation of truth, i.e., as a reference to perform in the way the world expects them to perform.

But the focus of the handbook is on how to be a girl, so now, we are going to instruct them about time management.

4. Women must manage time

The theme “time” is highly valued in mathematics curricula, within the block of content magnitudes and measures. From the early years, this idea is addressed and presented to students: the units of time, for example.

From this supposedly neutral and even simple theme, who could have imagined that moral and behavioural notions would sprout?

For example:


Figure 6

Using mental calculus to play more (Longen, 2014, p. 151)

Raul é um menino que adora brincar. Seu esporte favorito é o futebol. Na escola, ele utiliza um truque bem simples para efetuar mentalmente algumas adições.

Veja a seguir o truque de Raul.

Quando uma das parcelas termina em 9:



$39 + 54 = ?$

↓ Raul adiciona 1 ao 39 → $1 + 39 = 40$

$40 + 54 = 94$ (adiciona 40 ao 54)

↓ diminui 1 do total

$94 - 1 = 93$

Logo, $39 + 54 = 93$.

Professor, procure verificar se os alunos compreenderam que, ao acrescentar 1 unidade a uma das parcelas, é necessário, depois, tirar 1 unidade de soma para não alterar o resultado.

Raul garante que, usando esse truque, sobra mais tempo para brincar!

In figure 6, Raul performs a mathematical trick to perform a mental calculation and ensure that there is more time left to play. Maths is his ally to buy time, to have fun. Raul also performs outdoor activities with great joy.

So different from Renata (Figure 7), who seems to be hostage to time: counts the time left for break, calculates the time left for her to play. Maths no longer operates to benefit and calm her for leisure activities, on the contrary, it operates to make her worry, to build a routine, a discipline, an organisation necessary to her life and the lives of those she will care for in the future.

Note that, unlike Raul's situation (figure 6), in which we do not know exactly what the time of day is, except for the fact that there is sunlight, for Renata (figure 7), there is always a well-defined agenda that rules her actions: snack time, playtime, dinner time. The figure also reproduces the care, already mentioned in another rule of the handbook, expressed in "playing" with dolls,

where, in fact, she plays being an adult, taking care of a doll, including the organisation of a pan, a coffeepot, cup, and saucers. Raul kicks the ball outdoors. Renata takes care of a mini family, in an apparent simulation of her fateful future.

Figure 7

Digital clocks and worrying about time (Nani, 2014, p. 227)

2 Renata estuda no período da tarde e gosta de brincar com suas bonecas antes do jantar. Veja como ela lê as horas no relógio digital.



Figure 8

Commitments and time control (Gomes et al., 2014c, p. 109)

Horas

1. Diga qual das crianças abaixo está falando o horário de forma correta:
Todas as crianças falam corretamente.



books, appears only to women. In four guidelines for teachers, the book's authors mention that it would be advisable to talk "with students about appropriate ages to marry and have children." If we had to choose which main theme is being taught with this activity, we would certainly say that it is the right age for the woman to marry and have children; however, for the book, this is just a context to teach children "time" magnitude and the "year" unit. These recommendations could be in a religious booklet, but they are in mathematics books.

In short, the woman must take care of her time, because time is an enemy. Years, months, weeks, hours, minutes, and seconds are units of measurement loaded with responsibilities, concerns, routines, duties, and multitasking. The woman learns it very early. As if that were not enough, the books recommended that women marry and have children. And then, even in the issue of motherhood, time operates as a countdown that registers how long it takes for a woman to become infertile, unable to reproduce. Therefore, it is not enough to marry and have children. You must do it on time.

5. Girls should be organised and efficient

In the counting activities that follow the example of figure 10, Nívea and Carlos are invited to count their pencils to deduce who has the most. As in a series of other presentations of characters performing the feminine, Nívea counts with the material all organised, lined up inside a crayon box. Her method seems to be more productive. While Carlos, disorderly spreads his material on the table to check the number of pencils. Carlos' attitude does not seem to be very efficient, especially in the face of the activity proposed: by randomly distributing them on the table, counting does not tend to get easier, rather the opposite. From this, we can conclude that efficiency is also a characteristic that girls are expected to perform.

Figure 10

Counting activity (Gomes et al., 2014b, p. 91)

8. Carlos e Nívea vão para a aula de Artes.



a. Quem tem mais lápis de cor?

Carlos.

b. Quantos lápis a mais?

$$\underline{6} - \underline{3} = \underline{3} \rightarrow \underline{3} \text{ lápis a mais.}$$

c. Quantos lápis de cor têm os dois no total?

$$\underline{6} + \underline{3} = \underline{9} \rightarrow \underline{9} \text{ lápis no total.}$$

Picture 11

Activity of division by 2 (Pessoa et al., 2014, p. 176)

Dividindo por 2

Oriente os alunos a utilizarem material de contagem como tampinhas, palitos ou feijões, por exemplo, para realizar as divisões apresentadas nesta e nas próximas páginas.

3. Liliana vai guardar seus brinquedos em duas caixas. Em cada caixa ela vai colocar a mesma quantidade de brinquedos.



In Figure 11, Liliana is represented with a sad face when she sees the toys she must stow. The division by two is the content that motivates the presentation of this situation linked to the equal quantity that must be placed in each box. It is not enough to organise or stow. She must know how to divide by two.

6. Girls should know how to cook

Picture 12

Testing the recipe (Gomes et al., 2014a, p. 145)

TESTANDO A RECEITA



Veja se será necessário dobrar a receita. Os alunos de nível mais avançado podem realizar o cálculo dos ingredientes para o dobro da receita.

TENTE CONVENCER SEU PROFESSOR A FAZER A RECEITA COM VOCÊS EM SALA DE AULA. UM BOM ARGUMENTO PARA CONVECÊ-LO É DIZER QUE TODO MUNDO FICOU COM ÁGUA NA BOCA!

APROVEITE PARA VERIFICAR SE SUA ESCRITA ESTÁ COMPREENSÍVEL E SE, SEGUINDO A RECEITA, O DOCE SAI CERTINHO.

BOM APETITE!

In Neto (2019), characters performing activities related to food were mostly feminine (31 women appeared cooking in the ten books analysed, while there were only seven men described in a similar function).

Note that in Figure 12, when testing the recipe, there is an explicit message about who should say whether the chocolate ball is good or not: the boys appear licking their fingers in delight with the delicious candy. Looking at them, it does look delicious! The girls, who prepare and roll the dessert, seem to be very pleased that they have been approved in their task. They are once again complying with the behaviours of care and selflessness already described in this handbook.

In the ten books produced for the initial years of elementary school analysed, women are repeatedly and continuously described cooking for their children, grandchildren, school friends, i.e., repeatedly exercising their role of subservience.

In another excerpt from Deise Souza's research, involving 103 books for the initial years of regular education, approved by the PNLD 2016, she analysed 152 images or contexts involving men or women in activities aimed to teach magnitudes and measures or operations with fractions. Of those 152 images or contexts, 148 were women, and only four were men. Of the 148 images of women, 109 presented them in the kitchen. Besides cooking being clearly linked to the performance of the feminine, the books presented situations in which women taught their daughters to cook and often appeared serving men and sons. On the other hand, in the few figures that portrayed men in the kitchen, in general, they appeared in relaxed situations, clearly as a sporadic action performed to interact and get close to their children. Masculine cuisine is a hobby. The feminine cuisine is an obligation: girls should know how to cook!

FINAL CONSIDERATIONS

In this article, we present some excerpts from two doctoral studies that had a common point to describe discourses on social, cultural, and historically defined ways to perform the gender that also appear in mathematics textbooks for the early years for field regular education.

We sought discursive regularities that could be grouped in terms of "girls' and women's duties," regarding what is expected of them, both in everyday actions and in the most important and decisive choices of their lives.

From this perspective, we constructed the following sentences related to the subject girl/woman: (i) girls must be careful; (ii) girls must be selfless; (iii) girls must be delicate; (iv) women must mind the time, (vi) girls must be organised and efficient, and, finally, (vii) girls must know how to cook.

These are just some of the possible discursive formations that emerge from the analysis of empirical material, strengthening a device that operates by conducting the girls' and women's behaviour through relationships of know-how and power, effectively constituting a gender problem, since it inscribes specific bodies in those discursive practices.

Those relations of know-how and power are established in the same way as know-how of school mathematics is articulated, such as divisions in equal parts, units of measurement, counting and powers, such as the women's place in society, the girls' desirable actions, among others mentioned in this chapter.

Mathematics and moralities articulate and teach many things. The union of those two elements seems to enhance the teaching of values because, socially, they are ignored in the face of overvalued mathematical content. Thus, apparently, mathematics continues to operate as a neutral discipline, which naively teaches children to count and measure, among other activities considered essential to the exercise of citizenship today and devoid of "ideologisation". With this chapter, we hope we have shown that mathematics is not neutral. On the contrary, it is a powerful tool for teaching and propagating values craved by a highly conservative portion of the Brazilian population. In other words, it can operate so that the far-right reactionary government plan of the president-elect in 2018, as well as his supporters, can be successfully implemented nationwide. Unfortunately, we have lived times of backlash and scientific denialism well into the 21st century due to the present situation.

If you, reader, whether performing the masculine or the feminine, ever come across this handbook and feel that you have learned to be a man/boy or a woman/girl through several "educational" sources, including when you were learning mathematics, and this has in some way made you uncomfortable, we warn you that you need to engage in the problematisation of this type of practice. It is up to those against this type of (im)posture to express discontent and vehemently criticise public policies and technologies that are moved to maintain those conservative ideals. This is one of the objectives of the authors of this chapter. A chapter of resistance and denunciation.

ACKNOWLEDGEMENTS

This article is the product of the first author's doctoral thesis and the researcher DS, who unfortunately died with the research in progress. The second author coordinates the research group in which these investigations are inserted. This work was held with the support of the Coordination for the Improvement of Higher Education Personnel – Brazil (CAPES) – Financing Code 001. Our special appreciation to this entity.

AUTHORSHIP CONTRIBUTION STATEMENT

VFN and MAS conceived the idea presented. VFN and MAS mobilised the theory. VFN and MAS adapted the methodology to this context, created the models and collected the data. VFN and MAS analysed the documentary data. All authors actively discussed the results, reviewed, and approved the final version of the work.

DATA AVAILABILITY STATEMENT

The data supporting the results of this study will be made available by the corresponding authors, VFN and MAS, upon reasonable request.

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