

**Analysis of narratives/scenes on screen: intersectionalities with mathematics lesson plans that problematize genders and sexualities based on streaming**

**Análisis de narrativas/escenas en pantalla: interseccionalidades con planes didácticos de matemáticas que problematizan géneros y sexualidades a partir del *streaming***

**Analyse des récits/scènes à l'écran: intersectionnalités avec les plans de cours de mathématiques qui problématisent les genres et les sexualités à partir du streaming**

**Análise de narrativas/cenas em tela: interseccionalidades com planos de aula de matemática que problematizam gêneros e sexualidades com base no *streaming***

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**Abstract**

This article investigates how the scene analysis process and the construction of mathematics lesson plans on gender and sexuality (by mathematics teachers participating in a postgraduate course that dealt with themes of exclusion/inclusion with cinematographic products) can contribute to the understanding/constitution of the social responsibility of these participants in the face of these aspects. Through Queer Theory, intersectionality, and decoloniality of gender, we analyzed the discussion process of the scenes and the mathematics lesson plans developed by the teachers. Thus, we understand that the propositions of mathematics classes on themes related to gender and sexualities, based on the analysis of cinematographic works, establish the understanding/constitution of the social responsibility of the analyzed teachers, sometimes, in an initial and still fearful way about trans issues, sometimes from a queer perspective of estrangement and provocation of fruitful reflections on the mathematics class.

**Keywords:** Mathematics education, Cinema, Trans women, Travesties, Queer theory.

**Resumen**

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Este artículo investiga cómo el proceso de análisis de escena y la construcción de planes de estudio de matemáticas sobre género y sexualidad (por profesores de matemáticas participantes de un curso de posgrado, que trató temas de exclusión/inclusión con productos cinematográficos) pueden contribuir a la comprensión/constitución de la responsabilidad social de estos participantes frente a estos aspectos. A través de la Teoría Queer, la interseccionalidad y la decolonialidad de género, analizamos el proceso de discusión de las escenas y los planes de clase de matemáticas desarrollados por los docentes. Así, entendemos que las proposiciones de clases de matemáticas sobre temas relacionados con el género y las sexualidades, a partir del análisis de obras cinematográficas, establecen la comprensión/constitución de la responsabilidad social de los docentes analizados, a veces, de manera inicial y aún temerosa en relación con las cuestiones trans, a veces desde una perspectiva queer de extrañamiento y provocación de reflexiones fecundas en la clase de matemáticas.

**Palabras clave:** Educación matemática, Cine, Mujeres trans, Travestis, Teoría queer.

### **Résumé**

Cet article étudie comment le processus d'analyse de scène et la construction de plans de cours de mathématiques sur le genre et la sexualité (par des professeurs de mathématiques participant à un cours de troisième cycle, qui traitait des thèmes de l'exclusion/inclusion avec des produits cinématographiques) peuvent contribuer à la compréhension/constitution de la responsabilité sociale de ces acteurs face à ces aspects. À travers la théorie queer, l'intersectionnalité et la décolonialité du genre, nous avons analysé le processus de discussion des scènes et les plans de cours de mathématiques élaborés par les enseignants. Ainsi, on comprend que les propositions de cours de mathématiques sur des thématiques liées au genre et aux sexualités, basées sur l'analyse d'œuvres cinématographiques, établissent la compréhension/constitution de la responsabilité sociale des enseignants analysés, parfois, de manière initiale et encore craintive dans rapport à la question trans, parfois dans une perspective queer d'éloignement et de provocation de réflexions fructueuses en classe de mathématiques.

**Mots-clés :** Enseignement des mathématiques, Cinéma, Femmes trans, Travestis, Théorie queer.

## Resumo

Esse artigo investiga como o processo de análise de cenas e a construção de planos de aula de matemática sobre gêneros e sexualidades por parte de professoras/ies<sup>3</sup>/es de matemática (participantes de em uma disciplina de pós-graduação, que tratou de temáticas de exclusão/inclusão com produtos cinematográficos) pode contribuir para a compreensão/constituição da responsabilidade social dessas/us/es participantes diante dessas questões. Por meio da Teoria Queer, interseccionalidade e decolonialidade de gênero analisamos o processo de discussão das cenas e os planos de aula de matemática desenvolvidos pelas/peles/pelos professoras/ies/es. Assim, entendemos que as proposições de aulas de matemática sobre temáticas ligadas a gêneros e sexualidades partindo da análise de obras cinematográficas estabelecem a compreensão/constituição da responsabilidade social das/des/dos professoras/ies/es analisadas/es/os, por vezes, de forma inicial e ainda temerosa em relação à temática trans, por vezes, sob uma perspectiva queer de estranhamento e provocação de reflexões profícuas sobre a aula de matemática.

**Palavras-chave:** Educação matemática, Cinema, Mulheres trans; Travestis, Teoria queer.

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<sup>3</sup> This text deals with a political stance against gender discrimination and "compulsory heterosexuality" (BUTLER, 2020), i.e., the social conception that heterosexuality can be adopted regardless of each person's possible sexual orientation, and those who differ from this adoption are considered deviants and deprived. Therefore, the text is already a landmark of political positioning by also using the neutral gender, according to Cassiano (2019), in its writing, as it empowers all deviants and deviants. It is not an easy task to write with a neutral gender, but I have to start.

## **Analysis of narratives/scenes on screen: intersectionalities with mathematics lesson plans that problematize genders and sexualities based on streaming**

During the COVID-19 pandemic, one of the ways out of the possible neurosis of confinement (which was strictly necessary) was to watch movies and series on different streaming<sup>4</sup> channels. This movement, combined with the other sources of information and communication via social networks and the internet, has shown a strong negative side about science, the vaccine, etc. (Marques & Raimundo, 2021) and a strong relationship with fake news and racist, homophobic and transphobic posts (Lopes & Santos, 2020), made us rethink our political position and our responsibility as trainers of math teachers. This stance was taken in the face of the aggression, violence, and complete disrespect that was evident during the pandemic. In the meantime, our move was to discuss how Cinema can be a formative resource (Pires & Silva, 2014) and how to understand/constitute social responsibility in the face of various social exclusions (Rosa, 2023a). Specifically, understanding/comprising social responsibility concerning racism, homophobia, and transphobia enables the manifestation of political hexes (Rosa, 2021; Rosa, 2022b) on the part of the teachers we train and their respective students.

The first author of this study then planned a postgraduate course in Mathematics Teaching that was taught using the Emergency Remote Teaching (ERE) model in two editions during the years 2021 and 2022. This course was based on the discussion of exclusions/inclusions through the analysis of scenes from movies selected for the activities by the participants and the production of mathematics lesson plans on the themes involved. Each synchronous course meeting was used to debate the movie and texts indicated for that meeting, which was used to analyze the chosen scenes and the math lesson plans developed on each week's theme. Therefore, in this article, we will look at two lesson plans developed in the first edition of this subject by a teacher and a teacher, which, in particular, had gender and sexuality issues as their theme.

We, therefore, want to answer the following research question: *"What is the understanding/constitution of social responsibility about the debate on sexualities and genders (especially transphobia) on the part of mathematics teachers when they analyze movie products and produce lessons on these themes?"*

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<sup>4</sup> "[...] the online content transmission technology that allows us to consume movies, series, and music" (Gogoni, 2019).

We then move on to the theoretical framework, which will address the concept of social responsibility, which we assume, is the meaning of transphobia, an academic movement that can currently be made to oppose it; aspects of the concept of intersectionality that are also presented in this study and the dialogue with Queer Cinema as a means of revelation. We continue with the research methodology used in this investigation, the constitution of the discipline, the series and texts proposed and that emerged in the meetings, and the data that is brought back and debated. In addition, we present two analyses of scenes and their respective lesson plans as evidence of the teacher's understanding/constitution of social responsibility.

### **Our theoretical focus**

When we examine how the process of understanding/constituting the social responsibility of mathematics teachers is shown in the face of the debate on gender and sexuality, we must present our conception of social responsibility beforehand. We assume, like Rosa (2022a), that the possibility of predicting the effects of our behavior on all people, taking into account their ways of life or conditions, and correcting this behavior in favor of respecting and welcoming everyone whenever necessary, preserving lives and respecting memories, histories, and experiences is, in itself, having social responsibility.

Social responsibility also has to do with political hexis itself, that is, a disposition to freedom (subjective and collective) (Rosa, 2021; Rosa, 2022b) whose actions are aimed at improving the quality of life of citizens, thought out and updated by ethical principles of responsibility towards one's neighbor and society in general.

In this sense, countless people take social responsibility and a political stance on their bodies, their experiences, relationships, desires, and ways of loving, which intrinsically involve constant struggle and resistance against the current cis-heteronormativity. Some privileged people do not need to be constantly in a state of (re)existence, of justifying and convincing themselves of their value. So, ethically, humanly, and consciously, we need to unite and assume our responsibility in the face of the atrocities, violence, and abandonment that LGBTQIAP+ people (particularly trans people who just want to live and love) face.

For example, transphobia, according to Podestá (2018, p.95),

[...] refers to harmful behaviors (hatred, disgust, anger, or indignation) against transgender people because of their transgenerity; such behaviors range from verbal insults to physical assaults and murder (BETTCHEER, 2013). In the context of her work, the author states that genital exposure as a form of gender verification is a form of transphobic violence.

In other words, there is a need for humanitarian recognition of these behaviors and subjective and collective accountability that become part of a people's education.

Nevertheless, mathematics education, as an educational field, also needs to/should take on this social responsibility. It must assume a feeling arising from its reading of the world and, in the case of Brazil, a historical understanding of the marginalization of subjects. In Germany, for example, there is a specific word called "Schuldgefühl," which, according to the German psychology encyclopedia Spektrum (2023, s/p), is a subjective and collective moral feeling that arises when ethical norms or duties are violated or when socially undesirable actions are committed. Thus, it is a feeling of guilt, although not guilt itself, which will bring about punishment.

Regardless of the threat of external punishment, this feeling is crucial in social awareness and responsibility. This experience of guilt consists of the uncomfortable feeling that someone is wrong, that something is not "right," whether concerning others or oneself. It is associated with different tension levels, often sadness, and fear, and is strongly associated with the desire for reparation.

Therefore, we assume that when we see any transphobic action or situation, for example, we need to experience a certain *Schuldgefühl*, just as the Germans did about the Holocaust. In other words, even if we have not been transphobic, the feeling of guilt must be present, always remembered, bothering us and mobilizing us to make amends.

Transphobia is,

[...] a heterogeneous set of forms of violence against trans people, such as moral, sexual, physical, discursive, and symbolic violence, etc. The concept of transphobia also refers to particular violence that affects trans people, such as genital exposure to verify gender, violence correlated with generalization (forced imposition of gender), and disrespect for the social name chosen by the trans person. Like homophobia, the concept of transphobia refers to violent processes at mass or collective levels, not just referring to individual behaviors or the literalness of the suffix "phobia," and also refers to specific ways of doing and thinking science, such as feminism that calls itself transphobic radical, the epitome of epistemic transphobia (Podestá, 2018, p. 96).

Furthermore, the interruption of trans people from using public toilets, the strange looks at bodies and genitalia, the constant prostitution of these bodies as the only way to survive, and so many other examples mobilize us and should continue to mobilize us to feel this guilt, so that, many times, even if we do not act directly in the aggressions/violence, we are responsible as humanity, as a civil society in the face of these atrocities.

In educational terms, we can and must move towards understanding/constituting our individual and collective social responsibility. We can also educate towards this understanding/constitution in math classes. Thus, we are anchored in Queer Theory, and consequently in Queer Pedagogy, and perhaps in queer math education.

Queer Theory began with a movement to re-signify the term queer by academics who found the normativity (im)posed by the "CIStheme" strange, analogous to the system, but with the insertion of "cis" as an indication of non-transgender people (Hilton, 2020). According to Louro (2021), the term queer initially took on a pejorative meaning that could be loosely translated into Portuguese as "strange," "bizarre," perhaps "ridiculous," "eccentric," "rare," and "or extraordinary." This term (queer) is used to refer to people from the LGBTQIAP+ community (Lesbian, Gay, Bisexual, Transgender, Transsexual, Transvestite, Queer, Intersex, Asexual, Pansexual, and other gender identities and sexual orientations). However, this queer movement has taken on a new perspective and a new meaning to the term itself. Almeida (2004, p. 92), for example, reveals that:

[...] the idea of queer appears as not being aligned with any specific category of identity. This position is immediately presented as antagonistic to more stable and recognizable categories, such as 'lesbian' or 'gay.' Gay and lesbian studies would be subject to a process of "queering," a process that is presented to us as constituting a violent debate between those who say that this process erodes the last traces of an oppressive gender coherence and those who criticize queer as reactionary and even non-feminist.

Thus, the queer perspective assumes the idea of estrangement, that is, estranging what is said to be expected, natural. The naturalization (or normalization, in the sense of placing under a norm) of people in a rigid and pre-defined structure causes a valuation of positions, generates a glimpse of the "us" (people who fit into the system/structure) and the "others" (those who are outside this condition of what would be "normal"). In the meantime, Queer Theory opposes and questions this structuring and structural historical-cultural perspective. Britzman (1995, p. 152) reveals:

"I think of Queer Theory as provoking terms of engagement that work both to recuperate and to exceed the stereotypes that contain and dismiss gay and lesbian subjects. But as a doubled gesture, Queer Theory signifies improper subjects and improper theories, even as it questions the very grounds of identity and theory. Queer Theory occupies a difficult space between the signifier and the signified, where something queer happens to the signified - to history and bodies - and something queer happens to the signifier - to language and representation. Whether one hears Queer Theory as symbolic or as literal, as a provision or as a condition may depend on what can be imagined when "queer" is brought to bear upon "theory" and when "theory" is brought to bear upon "queer." The term is defiant but can be heard as accusatory. But the "queer," like the

“theory” in Queer Theory, does not depend on the identity of the theorist or the one who engages with it. Rather the queer in Queer Theory anticipates the precariousness of the signified: the limits within its conventions and rules and how these various conventions and rules incite subversive performances, citations, and inconveniences”.

Experiencing the limits of conventions, norms, and rules and staying on the borders where these conventions, standards, and regulations encourage subversiveness is at the heart of the theory itself. This is because,

[...] the return of the queer was the result, in the domain of sexuality, of the postmodern encounter - and subsequent rejection - with the notions of the Enlightenment concerning the role, in social change, of the notions of the conceptual, the rational, the systematic, the normative, the progressive, the liberatory and the revolutionary (Almeida, 2004, p. 94).

Queer Theory's intended revolution was not to place the so-called LGBTQIA+ community within the "us" group, ceasing to be "others." On the contrary, it questions whether this population wants to be "included" because who does it belong to, and where does this model that being in this group is the "right" thing to do come from? The very groups that make up the LGBTQIA+ acronym that subject themselves to reproducing the stereotypes of "accepted gays," for example, those who are not visibly gay in what they understand to be feminine attitudes, are criticized because they end up reinforcing the posture of domination and exclusion of those who do not fit in terms of attitudes and bodily representation. Thus,

Suppose it is expected to think that queer functions above all as a fad to distinguish old-style gays from new-style gays; it is true that the term can be used to describe an open population whose shared characteristics are not identity but an anti-normative position about sexuality. As at the beginning of gay liberationism, queer confuses the categories that license sexual normativity; but it differs from "gay" because it avoids the illusion that its project is to invent or unveil any free, natural, or primordial sexuality (Almeida, 2004, p. 95).

The queer stance is disruptive about ideas of identity, group, stereotype, label, community, and politics and problematizes the normativity of sex, gender, and sexuality. In this way, it criticizes the idea of "natural" evolution through the estrangement of any hegemonic consolidation. Despite this, this stance has still been contested as a way of erasing identity or even as a way of "exchanging six for half a dozen"; that is, by being against hegemony, it is argued that it subverts its cause by consolidating another hegemonic culture. To avoid this misunderstanding, it is essential to point out that there are queer movements that degrade precisely the neoliberal bourgeois phenomena of specific queer communities and their commitment to a civil rights agenda that assimilates cis-heteronormative rules and norms, as



well as overvaluing aesthetics and eroticism whose models are based on youth and certain body types, but they in no way defend the institution of another hegemonic culture.

In the meantime, thinking about various confrontations of power/knowing/being relations is necessary for all queer mobilizations, including educational ones. From this perspective, Louro (2021) asks: how can a stance of strangeness and eccentricity be articulated with education, traditionally seen as disciplinary, regulating spaces of adjustment, rules, and norms? She then seeks answers herself, stating that "queer theory allows us to think about the ambiguity, multiplicity, and fluidity of sexual and gender identities, but it also suggests new ways of thinking about culture, knowledge, power and education" (Louro, 2021, p. 44).

Thus, by suggesting different ways of thinking about what is (im)posed as traditional, queer theory is also propositional, although it does not put itself in that position. It is propositional, in our view, in the same way as the movement to re-signify the term queer because instead of proposing nothing, they offered a new meaning, i.e., that of struggle, resistance, empowerment, etc., even if by consequence.

In this sense, education from a queer perspective needs to do the same, i.e., problematize, question, inquire, and re-signify by proposing different meanings to what is commonly accepted without reflection, or that reflection itself is based on arguments with no social, human, and/or ethical basis. Thus,

A queer pedagogy and curriculum would distinguish itself from well-intentioned multicultural programs where differences (gender, sexual or ethnic) are tolerated or appreciated as exotic curiosities. A queer pedagogy and curriculum would focus on the process of producing differences and would work centrally with the instability and precariousness of all identities. By discussing how the "other" is constituted, they would question the close relationship between the self and the other. The difference would no longer be out there, on the other side, alien to the subject but would be understood as indispensable to the existence of the subject itself [...] (Louro, 2021, p. 45).

Pedagogy from a queer perspective, and thus mathematics education in this movement, would be in line with differences in gender, sexuality, and ethnicity, among other social markers. Therefore, we draw on the connections between this pedagogical way of educating mathematics and mathematics with the concept of intersectionality.

According to Akotirene (2020, p.18), the concept of intersectionality "[...] is an analytical sensibility, thought up by black feminists whose experiences and intellectual demands were unobserved by both white feminism and the anti-racist movement, strictly speaking, focused on black men". So, it is up to us to draw attention to this concept, which black women created. Politically, giving value to this theoretical movement on the part of black

women is essential since we have already adopted, in the meantime, a queer stance of estranging knowledge, mostly stigmatized as something that comes from white men.

Furthermore, it is essential to reflect on the accumulation of exclusions that these women suffered and still suffer even from the groups to which they belong. Being excluded from feminist groups because they are black and also from anti-racist groups because they are women makes up the idea of intersection, in this case, "[...] the structural inseparability of racism, capitalism, and cis-heteropatriarchy - producers of identity avenues in which black women are repeatedly affected by the intersection and overlapping of gender, race, and class, modern colonial apparatuses" (Akotirene, 2020, p.19).

The overlap of gender, race, and class also falls on LGBTQIA+ people, who suffer from cis-heteronormativity and add even more suffering, resistance, and struggle when they are black and of low socioeconomic status. Therefore, these issues need to be debated as an orientation towards a stance of estrangement from the stigmas of these intersections and overlaps to lay the foundations for decolonial mobilization in educational and mathematical terms. In the case of queer pedagogy, in particular, gender decoloniality.

Decoloniality advocates that there is no null state of coloniality (colonial way of being); in other words, there is no invalid state of permanence of attitudes and values that have remained since colonialism. Colonialism continues to perpetuate itself in (im)posed social relations, even after the official end of colonialism. However, this end only refers to a date because, structurally, it endures in terms of postures of power, knowledge, and being. Thus, decoloniality instigates other postures, positions, horizons, and projects to objectify resistance, transgression, intervention, insurgency, creation, and incidence as a way of assuming "[...] a continuous path of struggle in which 'places' of exteriority and alter-(n)active constructions can be identified, enabled and encouraged"<sup>5</sup> (Walsh, 2013, p. 25, footnote).

In this sense, the path of struggle and resistance that we defend in mathematics education seeks to understand the numerical and qualitative differences in opportunities between the various genders and sexualities, looking for a comparative analysis of the possibilities presented to these multiple genders and sexualities. Therefore, we need to understand that there is no equity and to fight humanely and ethically for it. We must fight for equality of conditions and opportunities, along with recognition, acceptance, and respect for all bodies.

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<sup>5</sup>"[...] a path of continuous struggle in which 'places' of exteriority and alternatives constructions can be identified, made visible and encouraged".

We also need to aim for historical reparation by experiencing *Schuldgefühl* in the face of our history and reality. Educationally, as a people made up of diversity, we need to measure, analyze, and equate the differences in social life as ways of intertwining and balancing (at the very least) material, emotional, and affective opportunities, for example, for black and LGBTQIAP+ people. This is a mathematical educational commitment that we must make to these people, especially those who overlap these two social roles, given that historically, they have been, and still are today, rejected, excluded, and invisibilized in terms of the coloniality of being, power, knowledge, and gender. In terms of gender decoloniality in particular, "Hermaphrodites, sodomites, viragos and the colonized were all understood as aberrations from male perfection" (Lugones, 2014, p. 937). Also, transgender women, transsexuals, and transvestites are stigmatized by the very presumption of female inferiority, presented through their bodies and attitudes, with a stereotype of humiliation. In this sense,

What has been understood as the "feminization" of colonized "men" seems more like a gesture of humiliation, attributing to them sexual passivity under threat of rape. This tension between hypersexuality and sexual passivity defines one of the domains of male subjection of the colonized (Lugones, 2014, p. 937).

Thus, as a pedagogical means of reference to the subalternized realities of LGBTQIAP+ people, we understand that Queer Cinema can destabilize understandings based on (historically constituted) common sense and problematize situations that have never been the object of reflection for many people, sometimes not even for people who recognize themselves as LGBTQIAP+, because they are people who are not situated at different intersections of race, purchasing power, non-passability of bodies, etc. Furthermore,

Cinematic narratives exert tremendous power over the public since they convey and construct gender relations and sexualities, which makes it extremely important to investigate the discourses/practices/effects of cinema in the constitution of values and social representations that contribute to delimiting the dichotomous roles between man/woman, male/female, hetero/homo, active/passive, as well as investigating approaches that problematize sexualities in an intersectional way. (Barros, 2016, p.52)

The intersectionality that can come from cinema is one that we need to explore in math classes; it is the same one that requires debate and reflection for an understanding/constitution of individual and collective social responsibility. In intersectional terms, Queer Cinema can become

[...] the window that gives visibility to the crossroads of multiple components of subjectivities that are agencied both by fixed models of sexuality, with their processes

of standardization and surveillance, and also by the desire to become, of personal choices of one's own body and gender self-reference (Nepomuceno, 2009, p.2).

However, not all mobilization from a queer perspective in the cinema or the classroom manages to deconstruct the idea of gender binarity (im)posed by compulsory heterosexuality in line with the "[...] heteronormative regulatory model of human sexuality or opposes the patriarchal state or even arrives at an assembly free of 'masculinist,' sexist and heteronormative meanings" (Barros, 2016, p.52). Also, not all the mobilization of pedagogical estrangement manages to undo the roots of *habitus* (Bourdieu, 2011) of reproducing the conception of mathematics class already constituted.

In this sense, we moved towards an attempt at estrangement. We analyzed how the understanding/constitution of social responsibility in the face of the debate on sexualities and genders, on the part of mathematics teachers, is shown when movie products are analyzed and lessons on these themes are produced.

### **Methodological and analytical frameworks**

Bringing in Cinema as a means of thinking about math classes becomes a formative and pedagogical action with inclusive potential and understanding this technology as a cultural, political, and enchanting technology (Rosa 2023a, 2023b). It also considers Cinema as a means of revealing (Rosa, 2020) different epistemologies, which are not based on the conception of minorities as being "other" but as subjects who deserve social reparation and need recognition, acceptance, and respect through equity of possibilities, among other factors.

In our opinion, changing the classic *modus operandi* of a math class, or even a class that discusses how to teach math, is already an act of technological creativity (Rosa & Dantas, 2020), subversive and possibly reparative; in other words, a queer act. In this sense, the updating of the mathematical educational process with Cinema, as a medium that goes beyond the internal organizational structure of the discipline of Mathematics (which aims to apprehend content, perform exercises and specific modes of sequencing and demonstration) serves to reveal and bring out problematizations based on mathematics. Our intentionality is manifested in going beyond what is subjectively recognized as Mathematics, Pedagogy, and Technology's structure; in other words, we mobilize ourselves for a queer pedagogical process.

We say this because the very production of the lesson seeks to subvert the strict cancellation of rules based on logic, organization, and the chaining of axioms, definitions, theorems, and demonstrations. In other words, it becomes a (re)invention in (dis)orders of what is commonly understood as a math class. In this way, we position ourselves in favor of this

movement of creating and creating again (recreating, reinventing) the teaching of mathematics, giving and producing meanings to the possible mathematics, in different ways, from different perspectives, be they decolonial, queer, anti-racist, anti-LGBTQIAP+phobic, whose problems are *a priori* and do not require a resolution in themselves, but focus on problematizing, questioning and reflecting.

In the meantime, the research presented in this article is qualitative and based on a decolonial worldview, which seeks to "alter(n)active" paths of struggle and resistance that promote pedagogical actions that foster social responsibility and political hexes. Nevertheless, our research is based on the vision of knowledge supported by the experience with Digital Technologies (in this case, Cinema via streaming) to enhance the constitution of knowledge, encompassing situations and experiences with the screen.

Our data, then, was produced in a postgraduate course in Mathematics Teaching called **(we will present the name of the course in the final version of the article, if approved, to preserve the authors' identities)**. This course took place entirely at a distance during the so-called Emergency Remote Teaching (ERE) in two editions, 2021 and 2022. It promoted possibilities for discussion that could take place in the math class itself on the themes of exclusion/inclusion that ran through certain movies and series episodes proposed during the training process in question. The idea of inclusion explored in this subject is an "encounter between differences," according to Skovsmose (2019). In pedagogical/training terms, the course suggested in both editions that the participants watch the cinematographic products indicated beforehand for each theme, choose a scene from the work, analyze it based on texts that were also recommended, and plan mathematics lessons related to the themes of debate.

In this article, in particular, we share the analysis of scenes and two lesson plans, one developed by a teacher and the other by a teacher. Both took part in the first edition of the course in 2021. The analyses and plans concerned the Week 9 meeting, which took place synchronously on April 12, 2021, and had as its theme "Mathematics Education, Queer Theory and Gender Exclusion/Inclusion - transphobia." Before the synchronous meeting, the asynchronous activities related to the theme asked each participant to watch Episode 6 - Season 1 of the series "Pose" (2018) - "Love is the Way," in addition to reading the text by Neto, Barbosa and Giraldo (2018), entitled "Initial Training of Mathematics Teachers: beliefs about teaching and empowerment with the LGBTQI population" to support the analysis of the scene from the episode that each person should choose.

Neto, Barbosa, and Giraldo (2018) discuss the beliefs about teaching mathematics of two undergraduate mathematics students who participated as scholarship holders in an

extension project that offered a course aimed at pre-university education for LGBTQIA+ people living in the favelas of Rio de Janeiro. The study shows that the experiences with this group of people led the participants to recognize that traditional teaching models do not meet the demands of building a school that breaks with the process of subalternation and that it is necessary to deconstruct the idea of hierarchization of knowledge, promoting the appropriation of the school space by the students. From this perspective, this text served as an initial theoretical basis since each participant was free to use other texts already read in previous meetings or even texts they knew, bringing up discussions and theoretical foundations consistent with the theme.

Nevertheless, the episode entitled "Love is the Way" from the series "Pose," which deals with the African-American and Latin-American LGBTQIA+ universe in the 1980s, discusses the issue of transsexuality in particular. The poster for the series is shown in Figure 1.



In Pose, people experience a lifestyle never seen before in the history of New York: the rise of luxury culture at the end of the 80s. Paradoxically, the part of society that benefits from the increase in consumption and privilege conflicts with the other segment, which faces the decline of the social and literary scene downtown.

Season 1 - Episode 6 - "Love is the Way"

Figure 1.

*Pose (2018) - (Rosa, 2022b, p. 228)*

This brings us to the analysis and lesson plans of one of the participants in the course. These were posted on Moodle (a distance communication platform provided by the University) at the end of the Week 9 meeting. The first excerpt of this article analyzes the scene chosen and the plan produced by participant/teacher Ryan Jamaal Swain<sup>6</sup>. This analysis is essential

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<sup>6</sup>The names of the participants that will be presented in this text (pseudonyms) were chosen by them on the condition that they were public queer people with some social, cultural, artistic, scientific, or intellectual contribution. Ryan Jamaal Swain was chosen as a pseudonym by the teacher participating in the research. He "[...] is an American actor and dancer. He is known for his role as Damon Richards-Evangelist, a dancer, homeless LGBTQIA+ person, in the Fox television series Pose" (WIKIPEDIA, 2021a). "[...] is an American actor and dancer. He is known for his role as Damon Richards-Evangelista, a homeless LGBTQ+ dancer, in the FX television series Pose"

because, although the episode indicated was number 6 from the first season, Ryan watched more than the one stated, highlighting at his discretion a scene from another episode and bringing other theoretical bases to his analysis, which, for the discipline and this article, already indicates freedom of thought and not conditioning of any kind. In this sense, the course provided an organization/systematization of meetings, texts, and cinematographic products. Still, it also clarified that participants were free to think regarding freedom of choice, etc.

Ryan's analysis and plan for week nine are shown in Figure 2.

|   |
|---|
| <p>Pose and Transphobia</p> <p>Scene from the second episode of the first season:<br/>         Blanca and Lulu meet in a bar where all the regulars are men.<br/>         [20:55] Blanca: This is the Village Voice, the best gay bar in Manhattan for two years in a row. I wanted a nice place to celebrate winning my first trophy.<br/>         [20:59] Lulu: They don't serve people like us here.<br/>         Blanca argues that she wants to be served and paid like everyone else.<br/>         One of the men intimidates her by saying: "Happy Halloween, girls."<br/>         Lulu threatens to leave, but Blanca insists on staying. They talk for a while and order drinks.<br/>         [22:35] Waiter: Those are on my bill, but then you have to leave. I have 10 guys asking me if it's drag night.<br/>         [22:37] Blanca: Sorry, we're not drags, we're women.<br/>         [22:43] Waiter: Even better, we don't like women, this is a gay bar.<br/>         [22:45] Blanca: Then I want to talk to the manager.<br/>         The manager appears and invites them to talk outside.<br/>         [23:07] Blanca: How can you do this to us in our own environment?<br/>         [23:11] Manager: The name of this bar is "boy lounge", we have a specific clientele: gay, under 35...<br/>         [23:18] Blanca: White people!<br/>         [23:20] Manager: That's right, New York has a very segregated nightlife.<br/>         The manager offers to buy them drinks at another bar. Blanca refuses and he leaves saying that tonight is not the night for the masquerade costume ball.<br/>         [23:40] Lulu: We lost before we even started, everyone needs someone to feel superior to. The bottom is us, everything here is downhill, from women, Latinos, blacks, gays, until they reach the bottom and touch us.</p> |
| <p>ENEM-type question</p> <p>The concept of intersectionality is used to explain how the interactions of different social markers - gender, class, race, among others - influence the experiences of each individual in society. Intersectionality helps us understand that the inequalities experienced by women are structured by racism, patriarchy, class oppression, and other discriminatory systems that place women in different social positions depending on their intersections. This concept was developed by Kimberlé Crenshaw, an American lawyer and civil rights activist, and helps us understand the history of struggle of various black women throughout history. According to the theory, black women suffer from both sexism and racism because they are at the intersection of two subaltern groups. What mathematical symbol represents intersection?</p> <p>a) <math>\cup</math><br/> <b>b) <math>\cap</math></b><br/>         c) <math>\emptyset</math><br/>         d) <math>\subset</math><br/>         e) <math>\in</math></p> <p>The Porto Alegre City Council has 36 seats, distributed among 18 different parties. If we look at the composition of the chamber by gender, we have 24 male councillors and 12 female councillors. If we look at skin color, there are 5 black councillors, 4 women and 1 man. Even with the low percentage of black councillors, this is the largest black caucus in the history of Porto Alegre.</p> <p>(Source: <a href="https://www.extraclasse.org.br/opiniao/2020/11/a-maior-bancada-negra-da-historia-de-porto-alegre/">https://www.extraclasse.org.br/opiniao/2020/11/a-maior-bancada-negra-da-historia-de-porto-alegre/</a>)</p>  |

If you call the set of female councillors F and the set of black councillors P, what is the probability that, if you randomly choose one of the members of the Porto Alegre City Council, she belongs to the set  $F \cap P$ ?  $1/3$

- a)  $1/3$
- b)  $1/9$**
- c)  $1/36$
- d)  $4/5$
- e)  $5/12$

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Figure 2.

#### *Ryan Jamaal Swain's analysis and lesson plan - Pose and transphobia*

Ryan then chooses a scene from another episode of the season, indicated in the document sent (Scene from the second episode of the first season: Blanca and Lulu meet in a bar, all the patrons are men), which suggests that Ryan did not set out to watch only the episode indicated as the activity to be carried out in week 9. Although Nepomuceno (2009) talks about Queer Cinema as a window that gives visibility to different subjectivities about genders and sexualities, we extend this meaning to the desire to become of Ryan's own personal choices in terms of identification with the series *Pose*, in other words, a window of subjectivities that was certainly opened to him in a way that made him watch not only the episode indicated.

Cinema, in our opinion, made Ryan connect; in other words, there was a movement to reflect on his class and the characters in their experiences. Ryan, for example, in his analysis of the scene he chose, highlights the presence of two trans women who go to a gay bar. In addition, he analyzes that "In the scene, Lulu's outburst highlights the overlapping prejudices they were suffering at the time," since the character Lulu, in the scene chosen by Ryan, reveals "[20:59] They do not serve people like us here". In other words, two trans women being in a gay bar with white gay men does not mean they will be welcomed.



Even though they are from the same (illusory) community (LGBTQIA+), they often suffer exclusion in the same way. In this sense, Ryan himself discusses intersectionality, bringing up Akotirene (2020) (in Ryan's case, the edition of the book he had was from 2019) to expose the structural inseparability of cis-heteropatriarchy and capitalism, assumed by Ryan as having "[...] a case in which there is the overlap of several systemic oppressions, such as machismo, racism, and transphobia. This diversity of discrimination perceived by those at the intersection between two or more so-called 'subaltern' groups is called intersectionality (Akotirene, 2019)."

By analyzing and understanding what was exposed in the scene, we know that Professor Ryan understands the social responsibility he has as a teacher, as he states that "Decolonial Pedagogy, whose practice requires teacher training focused on this, 'implies the denunciation and construction of new social conditions' (NETO, BARBOSA, GIRALDO, 2018)". In other words, the teacher foresees the effects of a decolonial education, which he, under the framework presented at this meeting, experienced as requiring denunciation and the construction of new social conditions. Ryan then proposes his lesson plan, seeking to build these social conditions, trying to debate the ways of life or conditions of women through the questions presented because, he reveals, "The ENEM exam and its question model focused on text interpretation, offer opportunities to discuss social issues in their resolutions." In the meantime, even though he works on a preparatory course for the National High School Exam (ENEM) aimed at trans people, Ryan develops questions that deal only with feminist reality and overlapping oppressions. Both questions are "for possible application in a pre-university entrance exam, or even in high school since the ENEM exam casts a shadow over basic education" and due to his work in a preparatory course for this exam. However, Ryan doesn't develop/debate the trans issue in his lesson plan; he only addresses the problem of the oppression of black women without addressing this other social marker discussed in the movie.

As we see it, Ryan ends up doing this because not all mobilization from a queer perspective, with or without Cinema, or even a perspective of estrangement in math class, manages to deconstruct the idea of gender binarity (im)posed by compulsory heterosexuality in line with the "[...] heteronormative model regulating human sexuality, nor [...] [be] free of

'masculinist,' sexist and heteronormative meanings" (Barros, 2016, p. 52) or even have difficulties articulating what the exam itself (im)requires in terms of mathematical knowledge. Ryan's first question in her lesson plan, for example, involves the concept of **intersectionality**, which "helps us understand the history of the struggle of various black women throughout history. According to the theory, black women suffer from sexism and racism concurrently" and thus manages to give context to the concept of the "intersection of two subaltern groups," but does not touch on the trans issue. In addition, although Ryan has developed a beautiful introductory text that can be the trigger for an excellent discussion in math class, he goes against the grain by simply asking the question, "What mathematical symbol symbolizes intersection?" giving the alternatives to be chosen "a)  $\cup$  b)  $\cap$  c)  $\emptyset$  d)  $\subset$  e)  $\in$ ," because it ends up referring us to the structural condition of Mathematics itself. This condition is concerned with questioning which symbol represents the intersection set rather than debating people's reality in mathematical, historical, and cultural terms in this intersection.

It is also possible to reflect on this proposed question from the point of view that mathematics is neutral and apolitical and does not deal with social issues (Reis & Esquinalha, 2022), so Ryan, even though he wrote a powerful introduction, stopped reflecting to "fit mathematics in." However, this research does not question the quality of the question but rather the understanding/constitution of this teacher's social responsibility. Therefore, we understand that the analysis of the movie and Ryan's mobilization show that, by bringing the discussion of the oppressions suffered by black women, in overlap, to the mathematics classroom, including for a preparatory course for the ENEM, Ryan is beginning to understand his social responsibility towards specific issues, even if his lesson plan does not yet discuss the trans issue.

Developing these questions with the movie in mind, with the overlaps, and with a theoretical basis already indicates a certain strangeness about what should be discussed in math class, however simple. The same happens with Ryan's second question, which focuses only on the black women in the city council, without dealing with transgenderism, discussing the probability, in the random choice of an element, of it belonging to the sample space made up of the intersection between the set of women and the set of black city councilors, which leads to a movement in favor of the intersectionality of oppressions of black women, but does not

definitively touch on the trans issue of the proposed series when it could, for example, question the absence of trans people in legislative chambers. Thus, how Ryan thought up his math lesson plan still carries many marks and barriers to the trans issue. However, we can see a particular mobilization about this issue when Ryan presents his arguments in his analysis of the scene from Pose that he chose. He raises the issue of overlapping oppressions also experienced by trans women and transvestites when referring to the scene he decided on. This shows slight signs of understanding their experiences.

The analysis of the chosen scene and the lesson plan of participant/teacher Rita Von Hunty<sup>7</sup> is shown in Figure 3 and was also delivered via the Moodle platform.

**Scene analysis of Pose - Love is the only way**

49:24 Patty: *What were you doing in that salon with all those gays and drag queens?*

49:22 Angel: *That's my home.*

49:20 Patty: *Do you live there?*

49:17 Angel: *No, dear. My community. Mi familia.*

49:12 Patty: *But how can a woman be a drag queen?*

49:06 Angel: *(Laughs) I'm transsexual.*

49:02 Patty: *No, I... I don't believe you.*

48:57 Angel: *Well, thank you. It's a compliment, you know?*

48:52 Patty: *No, it's not possible. I mean, Stan would never... He'd never do that. You're a woman.*

48:46 Angel: *Totally.*

48:43 Patty: *Prove it.*

48:41 Angel: *Do you want to see my cock?*

48:39 Patty: *Yes.*

48:30 Angel: *I'm sorry for what I did to you, and I came here to talk... but I have limits. It's the only part of my body that bothers me. Everything I can't have in this world is because of that... little thing down there. If you want to see who I am, it's the last place you should look.*

In the dialogue above, Patty calls Angel to talk after discovering that she and her husband were lovers. During the conversation, Patty asks Angel what she was doing "in that salon with those gays and drag queens," because for her, that was not a place where cis and straight women would be. Angel then tells her that this is the place where she feels at home, where her family is, because this is where she belongs, being a trans woman. I understand that for Angel, the hall where the dances take place literally functions as "Homi Bhabha's third space, as a proposal for understanding subjects that transcend fixed positions of identity, in the 'in-between places' that provide the ground for the elaboration of subjectivation strategies - singular or collective - that initiate new signs of identity and innovative positions of collaboration and contestation (Bhabha, 1998:21) (BELIZÁRIO, 2016, p. 387)". From the diversity of gender, class and racial variants, "overlaps and displacements are produced that are expressed in a performative language of negotiation, sometimes resorting to difference, sometimes to forms of assimilation" (BELIZÁRIO, 2016, p. 387).

Not only does the salon make some underserved groups (homosexuals, transsexuals, blacks, Latinos, among others) feel like they belong there, but it also gives them the opportunity to feel like protagonists in society and provides them with resources to reflect on and challenge their marginalized positions.

Furthermore, Patty doesn't believe that Angel is a trans woman, perhaps because she believes the widespread discourses and arguments that transsexuals are abnormal and have an "unnatural relationship between genitalia and gender identity" (BELIZÁRIO, 2016, p. 390), mainly because she can't imagine her heterosexual husband being interested in a trans woman, saying "Stan never.... You're a woman."

<sup>7</sup> The pseudonym chosen by the teacher/participant was Rita Von Hunty, who is the drag queen constituted by "Guilherme Tererê Lima Pereira, [...] is a Brazilian teacher, actor, YouTuber, comedian and drag queen, best known for participating in the first season of Academia de Drags" (WIKIPÉDIA, 2021b, emphasis added). Rita has a YouTube channel called Tempero Drag, where she discusses broad-spectrum philosophical and political issues with great depth and didacticism.

When Patty tells Angel that she wants proof of her transsexuality, Angel gets upset and says that her sexual organ was the only part of her body that bothered her, that it was because of it that she was seen as inferior, as abnormal. By giving her voice, her story about the experience of being a transsexual, she highlights "a relationship between the discourses that construct plausible stories - coming from the devices that seek to normalize the transsexual wrong body - and the personal experiences that make transsexual subjectivity emerge, which is much greater than the body/gender conflict enshrined in academic and medical literature [...]" (BELIZÁRIO, 2016, p. 390).

This scene makes me think about the activity proposed in the analysis of the film *Prayers for Bobby*. In the film in question we were talking about homosexuals, and in the series *Pose* the focus is on transsexuals, who at the time of the series were also excluded from the homosexual community itself, as we can see in episode 3, where the character Blanca is repeatedly thrown out of a bar whose audience is made up of gay men. We see an exclusion among the excluded themselves.

For the proposed activity, we would discuss different ways of solving or mathematically expressing the solution to a problem. Questions such as Why do we think a formulaic solution is better or more correct than an oral solution? Who said (or established) that this way was correct? What do we feel when we express ourselves mathematically through dance or music rather than through calculations and formulas? What do we produce differently? Which way do we identify with more? Why? Is your choice and identification better or worse than your colleague's? Why?

Again, these are some questions that can get students thinking critically about how and what mathematics we produce, but especially about the differences that exist in society (gender, race, color, sex, among others).

Figure 3.

### *Analysis and lesson plan of participant/teacher Rita Von Runty*

Rita also makes a move to look for references that crossed her mind during the training process, as well as launching herself into the cinematographic narrative of *Pose*, which, in our opinion, exerted power over her. We say this because when she talks about the character Patty, saying that "Patty does not believe that Angel is a trans woman, probably because she believes in the widely publicized discourses and arguments that transsexuals are abnormal," she reflects on these widely publicized discourses, saying that it is a belief because Patty believes in them, and not a universal truth. Rita, therefore, constructs gender relations and sexualities while experiencing the experiences of trans women with the *Pose* series, which makes it essential to recognize the discourses, practices, and effects of the constitution of social values and representations (Barros, 2016). In addition, Rita reaffirms that the character Patty "mainly because she could not conceive of the idea that her heterosexual husband would be interested in a trans woman, saying that 'Stan would never...'. You are a woman'" reveals her reflection, as a teacher in training, on the delimitation of "[...] dichotomous roles between man/woman, male/female, hetero/homo, active/passive, as well as [on the importance of] investigating approaches that problematize sexualities" (Barros, 2016, p. 52).

Rita also states that the character Angel expresses that "By giving her voice, her story about the experience of a transsexual, she [Angel] highlights a relationship between the

discourses that construct plausible stories - coming from the devices that seek to normalize the transsexual wrong body - and the personal experiences that make transsexual subjectivity emerge, which is much greater than the body/gender conflict enshrined in academic and medical literature [...] (BELIZÁRIO, 2016, p. 390)". This shows that the text by Belizário (2016), read the previous week, which covered the theme "Mathematics Education, Queer Theory and Gender Exclusion/Inclusion - Homophobia" also crossed over and demarcated teacher Rita's understanding of social responsibility, as she cites this text when discussing the Pose scene she chose.

In addition, this fact reveals the broadening of Rita's reflection on the overlapping oppressions suffered by trans women when she re-signifies her lesson plan from the previous week when she says, "This scene [Patty and Angel's] makes me think in more detail about the proposed activity when analyzing the movie Prayers for Bobby. In the movie in question, we were talking about homosexuals. In the series Pose, the focus is on transsexuals, who at the time of the series were also excluded from the homosexual community itself, as we can see in episode 3, in which the character Blanca is expelled several times from a bar whose audience is made up of gay men." In other words, Rita shows that she did not just watch the episode indicated but watched other episodes, as did Professor Ryan, highlighting the same scene as him.

Thus, we also draw attention to the issue of intersectionality (Akotirene, 2020) and transphobia demonstrated in different scenes of the series since transphobia is "[...] a heterogeneous set of violence against trans people, such as moral, sexual, physical, discursive, symbolic violence, etc." (Podestá, 2018, p. 96). Specifically, in the scene chosen by teacher Rita, which shows the dialogue between Patty and Angel, there is specific violence "[...] that affects trans people, such as genital exposure to verify gender, a violence correlated to generalization (forced imposition of gender)" (Podestá, 2018, p. 96).

In the meantime, teacher Rita reveals: "For the proposed activity, we would discuss different ways of solving or mathematically expressing the solution to a problem. Questions such as: Why do we consider a formulaic solution better or more correct than one presented orally? Who said (or established) that this way would be correct? What do we feel when we

express ourselves mathematically through dance or music rather than calculations and formulas? What do we produce differently? Which way do each of us identify with more? Why? Is your choice and identification better or worse than your colleague's? Why?" Moreover, this, for us, is articulated with questions, expressions, terms, and provocative engagement that can work both to recover and to overcome the stereotypes that contain and reject trans people because their stories and their bodies, by themselves, make an (im)posed "truth" strange. Rita brings the "queer" into her math class, queering it, just as she brings her math class into the "queer" (Britzman, 1995).

To state that we can express ourselves mathematically through dance or music and question what we feel is queer because it compares and estranges the mathematics of calculations and formulas, which is different. Implicitly, it presents additional mathematics (in the plural). Also, intrinsically, in her questioning, Rita brings up differences as identities, as identification, so that differences are appreciated, produced, and unstable, and reveal the precariousness of identity itself, which is assumed to be rigid and fixed. In this case, the differences questioned by Rita are no longer there outside the math class; on the other side, they are alien to the subject and begin to be understood as indispensable for the existence of the subject itself (Louro, 2021). This can be seen in particular when Rita asks: "Which way do each of us identify with the most? Why? Is your choice and identification better or worse than your colleague's? Why?".

In this regard, Rita predicts what might happen in class, saying, "Again, these are some questions that can make students think critically about how and what mathematics we produce." However, she goes further because she is understanding/constituting her predictability about her class about the behavior of her students concerning all people when she says, "but mainly about the differences that exist in society (gender, race, color, sex, among others)," because she has in mind the ways of life or conditions, and tries to make the students in class reflect on the possible corrections of behavior in favor of respect and acceptance of all.

### **The end - toward new episodes**

Ao buscarmos entender como se mostra a compreensão/constituição da responsabilidade social frente ao debate sobre sexualidades e gêneros, por parte de professoras/es/ies de matemática, quando análises de produtos cinematográficos e a produção de aulas sobre essas temáticas são realizadas, assumimos a posição que o professor e a professora aqui analisados dão indícios dessa compreensão/constituição de sua responsabilidade social em se posicionar diante dessas temáticas e levá-las à sala de aula de matemática. Destarte, percebemos que embora haja uma compreensão da sobreposição de opressões existentes nas vivências de pessoas transgêneres por parte de cada participante, explicitadas pelo conceito de interseccionalidade, a forma de tratar isso na aula de matemática ainda sofre entraves historicamente constituídos.

As for Ryan, we assume his experiences in a preparatory course for the ENEM explicitly aimed at transgender people and the extent to which, during the formative meetings, he demonstrated his social responsibility about the issue of gender and sexuality. However, nevertheless, it seems complicated for this teacher to articulate this issue with the math class, presenting the problem in the question but disconnecting it from what is requested in mathematical terms per se. The strangeness of the mathematics lesson itself, of what should be required, debated, and problematized, is still far removed from this teacher's reality and the constitution of his social responsibility as a mathematics teacher. In our view, this is common in the face of the coloniality of knowledge that runs through us historically and culturally. However, when we analyze teacher Rita, our interpretation suggests that she takes this social commitment further in her planning. There is an estrangement from that structural "mathematics" recognized by calculations and formulas to involve this estrangement in the debate on the theme of genders and sexualities.

Our aim here is not to judge what each person has done, nor to make value judgments about classroom practices, but to alert people to the need to debate the issue of gender and sexuality in the math classroom. To alert us to the understanding/constitution of our social responsibility as math educators by questioning the norms and rules of the subject and what we "should" teach. Our creativity may fall short of what is needed, but the fact that we put ourselves

into reflection, suggesting cinema as a basis, could lead to the emergence of new attitudes. Therefore, it is with this perspective that although there are differences in didactic-pedagogical positions, which we take as positive since it already assumes the difference in the queer perspective, our movements flow towards a responsible perspective of mathematics classes that promote debate in some way and that other research towards new orientations will take place.

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