

The Myth of Mathematical Neutrality and the Tripartite Teaching Blockade: Challenges to the Implementation of Law 10.639/03

O mito da neutralidade matemática e o tríplice bloqueio docente: desafios à implementação da Lei 10.639/03

El Mito de la Neutralidad Matemática y el Triple Bloqueo Docente: Desafíos para la Implementación de la Ley 10.639/03

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Abstract

The implementation of Law 10.639/03 in mathematics education remains limited, largely due to the persistence of the belief that the discipline is neutral and detached from sociocultural dimensions. This article analyzes how teachers' beliefs about mathematical neutrality, racism, and representation influence the integration of Afro-Brazilian and African themes into the curriculum, based on a reinterpretation of interviews conducted by Mendes (2025) with teachers from the state school system of Espírito Santo, Brazil. Adopting a qualitative approach, the study employed Content Analysis (Bardin, 2011) and identified three interdependent dimensions (epistemological, conceptual, and affective-formative) that constitute the tripartite teacher blockade. The results indicate that these blockades reinforce one another, hindering the effective implementation of the law, even when teachers recognize its importance. The study concludes that overcoming these barriers requires critical teacher education, curricular revision, and recognition of mathematics as a plural cultural practice.

Keywords: Mathematics Education. Ethnic-Racial Relations. Law 10.639/03. Tripartite Teacher Blockade. Teacher Education.

Resumo


A implementação da Lei 10.639/03 no ensino da Matemática permanece limitada, em grande parte, pela concepção de que a disciplina é neutra e desvinculada de dimensões socioculturais. Este artigo analisa como crenças docentes sobre neutralidade matemática, racismo e representatividade influenciam a integração da temática afro-brasileira e africana ao currículo, a partir da reinterpretação de entrevistas realizadas por Mendes (2025) com professores da rede estadual do Espírito Santo. A pesquisa, de abordagem qualitativa, utilizou a Análise de Conteúdo (Bardin, 2011) e identificou três dimensões interdependentes — epistemológica, conceitual e afetivo-formativa — que constituem o tríplice bloqueio docente. Os resultados indicam que esses bloqueios se reforçam mutuamente, dificultando a efetivação da Lei, mesmo quando os docentes reconhecem sua importância. Conclui-se que sua superação requer formação crítica, revisão curricular e reconhecimento da Matemática como prática cultural plural.

Palavras-chave: Educação Matemática. Relações étnico-raciais. Lei 10.639/03. Tríplice Bloqueio Docente. Formação docente.

Resumen

La implementación de la Ley 10.639/03 en la enseñanza de las Matemáticas sigue siendo limitada, en gran medida debido a la persistencia de la creencia de que la disciplina es neutral y desvinculada de las dimensiones socioculturales. Este artículo analiza cómo las creencias docentes sobre la neutralidad matemática, el racismo y la representatividad influyen en la integración de contenidos afrobrasileños y africanos en el currículo, a partir de la reinterpretación de entrevistas realizadas por Mendes (2025) con profesores de la red estatal de Espírito Santo, Brasil. Con un enfoque cualitativo, el estudio utilizó el Análisis de Contenido (Bardin, 2011) e identificó tres dimensiones interdependientes —epistemológica, conceptual y afectivo-formativa— que constituyen el triple bloqueo docente. Los resultados indican que estos bloqueos se refuerzan mutuamente, dificultando la implementación efectiva de la ley, incluso cuando los docentes reconocen su importancia. Se concluye que superar estas barreras requiere formación docente crítica, revisión curricular y el reconocimiento de las matemáticas como una práctica cultural plural.

Palabras clave: Educación Matemática. Relaciones Étnico-Raciales. Ley 10.639/03. Triple Bloqueo Docente. Formación Docente.

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1. Introduction

Law 10.639/03 represented a milestone in Brazilian educational policies by making the teaching of Afro-Brazilian and African history and culture mandatory at all levels of basic education. The legislation sought to address the structural racism present in school institutions and increase the visibility of the contributions of African and Afro-descendant peoples to the formation of Brazil. More than twenty years after its approval, however, several studies indicate that its implementation remains limited, fragmented, or confined to tribute dates, without effectively integrating into school curricula (Almeida, 2019).

In the field of mathematics education, this situation is even more challenging. Mathematics is often conceived as a neutral discipline, universal and disconnected from sociocultural contexts. This perception, as discussed by D'Ambrosio (2019) e Knijnik (1999), , hinders the articulation between mathematical knowledge and issues related to identity, culture, and ethnic-racial relations. Thus, the implementation of Law 10.639/03 in school mathematics not only faces a lack of materials or training, but is also deeply rooted in conceptions about the nature of the subject itself.

This article analyzes this problem using data from Mendes Mendes (2025), who investigated the perceptions of four mathematics teachers from the state school network of Espírito Santo about Law 10.639/03. The interviews revealed participants' conceptions of disciplinary neutrality, limited understandings of racism and representativeness, and feelings of unpreparedness and insecurity, offering fertile ground for broader theoretical interpretation.

Although previous studies discuss challenges to the implementation of Law 10.639/03, few analyze how teachers' epistemological and identity beliefs are linked to its non-implementation in mathematics teaching. Therefore, there is an important gap in the literature: understanding obstacles not only as operational problems, but as structural phenomena that involve epistemological, conceptual, and formative disputes.

Therefore, this article seeks to answer the following question:

How do teaching beliefs about mathematical neutrality, racism, and representativeness influence the implementation of Law 10.639/03 in mathematics teaching?

To answer this question, we propose an original interpretative model, the tripartite teacher blockade, composed of three interdependent dimensions:

1. *Epistemological block*, supported by the belief in mathematical neutrality;
2. *Conceptual block*, related to limited understandings about racism, representativeness, and identity;
3. *Affective-formative block*, which involves feelings of insecurity, guilt, and impossibility in the face of institutional working conditions.

We argue that these blocks reinforce one another, creating a cycle that impedes the transformation of the curriculum and prevents teachers from recognizing mathematics as a legitimate space for anti-racist practices. Thus, the absence of implementation does not stem from explicit resistance to the law, but from epistemological and formative conditions that shape teaching.

In proposing and discussing this model, this article contributes to the debate on the decolonization of mathematics teaching and to the construction of pedagogical practices that respond critically to the demands of Law 10.639/03, valuing Afro-Brazilian and African knowledge as a legitimate part of the mathematical curriculum.

2. Theoretical framework

2.1 Structural racism and representativeness in education

The debate over the implementation of Law 10.639/03 in mathematics teaching requires understanding racism as a structural phenomenon. For Almeida (2019), racism is not a set of individual actions, but a system that organizes social institutions and practices, continuously producing inequalities. At school, this structure operates silently, naturalizing Eurocentered curricula and making Afro-Brazilian contributions invisible.

According to Munanga (2019), the traditional curriculum reinforces racial hierarchies by ignoring black epistemologies and treating black identity as marginal. Education, therefore, needs to take active responsibility for deconstructing these discourses.

In this sense, Gomes (2003) emphasizes that representativeness should not be understood solely as an aesthetic presence, but as an affirmation of identity, agency and belonging. This critical understanding is fundamental for teachers to understand the political character of Law 10.639/03.

Dos Santos Cavalleiro Cavalleiro (2001), analyzing everyday practices in Brazilian schools, shows how racism permeates speeches, expectations, and relationships, in manifestations often minimized as “just a joke”. This finding is directly reflected in the teachers’ statements, who recognize racist manifestations, but which they usually understand as individual, not structural, incidents.

Finally, CNE/CP Opinion No. 003/2004 highlights that confronting racism in the school context requires specific and continuing teacher education, since curriculum and pedagogical changes depend on the critical understanding of ethnic-racial relations (Brasil. Conselho Nacional de Educação. Conselho Pleno, 2004).

These theoretical contributions support the conceptual block identified in the study: the limitation of teaching conceptions about racism and representativeness prevents them from recognizing Law 10.639/03 as a legitimate part of their pedagogical practice.

2.2 Mathematical neutrality as an epistemological myth

School mathematics is often presented as a universal, objective, and neutral science. D’Ambrosio (2019), however, points out that this supposed neutrality is a construction linked to the history of colonization, which absolutizes certain forms of reasoning while delegitimizes others.

For Knijnik (1999), the discourse of neutrality supports epistemic hierarchies that marginalize knowledge produced by subalternized groups. His research on non-school mathematical practices demonstrates that mathematical universality is less a scientific truth than a political project.

In the Brazilian context, Forde (2008) demonstrated how African mathematics was historically rendered invisible or reinterpreted in Eurocentric terms, contributing to the belief that African peoples produced little or no “formal” mathematics.

This theoretical construction explains why, in Mendes (2025), teachers claim not to be able to “see a relationship” between mathematics and Law 10.639/03: it is the direct effect of the epistemological block: neutrality as an imaginary and ideological barrier that prevents recognizing mathematics as a cultural practice.

2.3 Ethnomathematics and decolonization of knowledge systems

The paradigm of ethnomathematics, formulated by D’Ambrosio (1996, 2019), proposes the valorization of the multiple mathematical traditions produced by different peoples. This approach breaks with monocultural views and claims that mathematics is a product of human creativity in specific historical contexts.

Ethnomathematics operates as a project of decolonization of knowledge, displacing mathematics from the position of neutral, universal science to recognize it as plural, situated, and culturally marked.

Authors such as Gerdes (1999) demonstrate the mathematical depth in African patterns, games, architecture, and art, revealing sophisticated reasoning in geometry, combinatorics, and symmetry. In turn, Forde (2008) shows how many of these knowledge systems were erased in colonial processes.

This debate directly relates to Law 10.639/03, which mandates the inclusion of Afro-Brazilian and African history and culture in school curricula. In mathematics teaching, this means recognizing African mathematical practices as legitimate content rather than as mere curiosity or parallel activity.

Mendes (2025) shows, however, that such understanding remains distant for the interviewed teachers, who are mostly unaware of ethnomathematical possibilities and perceive mathematics as a subject detached from culture, reinforcing the epistemological and conceptual block.

2.4 Teaching, professional identity and sense of (dis)preparation

The feeling of powerlessness expressed by teachers — “I know it is important, but I don’t know how to do it” — is based on Nóvoa (1995), analysis, in which tensions between social responsibility and the lack of institutional conditions cross teaching. The teacher, placed at the center of the demands, lives with feelings of professional vulnerability.

According to Tardif (2012), teaching practice is conditioned by institutional knowledge, curriculum prescriptions and the work structure. In contexts marked by external assessments, such as the Basic Education Assessment Program of Espírito Santo (Programa de Avaliação da Educação Básica do Espírito Santo — PAEBES), teachers have limited autonomy, as evidenced in the interviews we analyzed.

Contreras (2002) also states that teacher autonomy depends on critical education and reflective conditions. When such conditions do not exist, a cycle of insecurity, guilt, and immobility is generated, precisely the affective-formative block identified in the study.

Thus, the fact that Law 10.639/03 is not implemented cannot be understood as a problem of individual will, but an outcome of working conditions, the education the teacher received, and the epistemologies that shape mathematics teaching.

3. Methodology

3.1 Characterization of qualitative research

The research presented in this article adopts a qualitative approach, seeking to understand the meanings, perceptions, and interpretations that teachers attribute to the implementation of Law 10.639/03 in mathematics teaching. According to [Minayo \(1992\)](#), qualitative research is particularly appropriate when the objective is to understand complex social phenomena, taking into account participants' values, beliefs, and subjectivities.

Thus, the focus of this study is not on measuring variables but on interpreting teaching conceptions, their relations with pedagogical practices, and the epistemological, conceptual, and affective-formative components that influence mathematics teaching.

The study uses as its empirical basis the data from [Mendes \(2025\)](#), which investigated perceptions of teachers in the state school network of Espírito Santo. These data are reinterpreted here in light of the article's research question and its specific theoretical contribution: the analytical model of the tripartite teacher blockade.

The data analyzed in this article were originally produced in the research developed by [Mendes \(2025\)](#), whose objective was to investigate perceptions of mathematics teachers from the state school network of Espírito Santo regarding the implementation of Law 10.639/03. In the original study, the analytical focus was on describing teachers' perceptions and school experiences. This article performs an interpretative reanalysis of this corpus, guided by a distinct theoretical framework and a new research question, seeking to understand how epistemological, conceptual, and formative beliefs are articulated in the constitution of what we call the tripartite teacher blockade. It is, therefore, a secondary analysis of qualitative data, a procedure recognized in the methodological literature for enabling new theoretical interpretations of empirical materials already produced.

3.2 Collection instrument and procedures: semi-structured interviews

The data analyzed were produced through semi-structured interviews, an instrument that, according to [Boni e Quaresma \(2005\)](#), combines structure and flexibility, enabling the interviewer to explore answers, deepen meanings, and capture nuances of the discourse.

The interviews were conducted with four mathematics teachers from the state school network of Espírito Santo, identified by letters (A, B, C and D), preserving anonymity. Participants have different ages, trajectories, and work histories, including the presence of a Black teacher (Teacher D), which adds diversity to the perceptions and experiences analyzed.

The script used in the interview, which was reproduced in full in [Mendes \(2025\)](#), was organized into three main thematic categories that guided both the collection and subsequent data analysis:

(1) *Experiences and perceptions about racism in the school context* This category investigated understanding of race and racism, teachers' experiences with racist incidents in the school environment, the actions taken by the school on Black Consciousness Day, and the conceptions of representativeness in teachers' speeches. This category allows us to identify the *conceptual block* by revealing how teachers understand structural phenomena related to Law 10.639/03.

(2) *Afro-Brazilian education and culture: teaching knowledge and practices* This category investigated teachers' knowledge of Law 10.639/03, the presence of the theme in their initial and continuing education, their perceptions of the curriculum, pedagogical practices related to Afro-Brazilian culture, and the difficulties encountered in implementing such practices. This category contributes to identifying both the *conceptual block* and the *affective-formative block*.

(3) *Mathematics and curriculum decolonization* This category investigated teachers' perceptions of the disciplinary neutrality of mathematics, their understanding of the idea of decolonization of knowledge systems and the possible relationships between mathematics teaching and cultural themes. The answers in this category are fundamental to characterize the *epistemological block* related to the myth of mathematical neutrality.

The interviews were conducted remotely (audio recording or written messages), due to participants' availability. Each interview was later transcribed and organized for analysis.

3.3 Data analysis procedure: content analysis

Data analysis followed the content analysis technique proposed by Bardin (2011), widely used in qualitative research in education.

The analytical process comprised three main stages: a) pre-analysis, which consisted of float-reading the interviews, organizing the corpus, and identifying important themes related to the research question; b) exploring the material, in which the speeches were categorized according to the tripartite teacher blockade model, encompassed the epistemological, conceptual, and affective-formative dimensions; and c) treating, inferring and interpreting the results, relating them to the theories by D'Ambrosio, Knijnik, Almeida, Munanga, Nóvoa, and Tardif and Contreras, among others, and articulating teaching speeches with theoretical arguments and with Law 10.639/03.

This technique proved especially appropriate because it allowed us to reinterpret the data already produced through a new theoretical-analytical perspective, identifying elements that had not been originally deepened, for example, the epistemological role of mathematical neutrality.

3.4 Ethical considerations

The research is linked to Mendes (2025), who strictly adhered to the ethical procedures required for studies involving human subjects. The original research was submitted to and approved by the Human Research Ethics Committee (CEP) under opinion No. 7.465.827. All participants received clear information about the research objectives, were informed about the academic use of the interviews, and were guaranteed the anonymity and confidentiality of their responses, and signed the Informed Consent Form.

This article, by reinterpreting these data, fully respects these ethical commitments and does not introduce new collection procedures, operating exclusively on the corpus already authorized for academic purposes.

The use of data from previous research also has limitations. As the empirical corpus was derived from an interview script prepared for another investigative objective, some dimensions discussed in this article could not be directly explored with the participants. Thus, the interpretations presented here should be understood as theoretical inferences based on the available discursive material and do not replace future investigations with data collection specifically oriented to the proposed analytical model.

4. Results and Discussion

Unlike the original study, which had a predominantly descriptive character in its analysis of teaching perceptions, this article seeks to develop a more comprehensive theoretical interpretation of these statements, proposing the analytical model of the triple teacher block as an explanatory key to understanding the limits of implementing Law 10.639/03 in mathematics teaching.

4.1 Epistemological block: the myth of mathematical neutrality

One of the central dimensions identified in the interviews refers to the belief that mathematics is a neutral discipline, disconnected from historical, cultural, or political factors. This perception, as discussed in the theoretical framework, constitutes the *epistemological block* that prevents teachers from recognizing links between Law 10.639/03 and mathematics teaching. One of the central dimensions identified in the interviews refers to the belief that mathematics is a neutral discipline, disconnected from historical, cultural, or political factors. This perception, as discussed in the theoretical framework, constitutes the epistemological block that prevents teachers from recognizing links between Law 10.639/03 and mathematics teaching.

The teachers' speeches exemplify this phenomenon. Although they do not always explicitly mention mathematical neutrality, its presence appears as an imagined impossibility, as when Teacher A states:

"In my daily life, where I need to work on areas, perimeters, and several other contents that are requested from me, I do not find it easy, and for me it is not as natural as it should be to address these issues."

This excerpt reveals the rigid separation between "mathematical contents" and "cultural issues," reinforcing the idea that mathematics cannot engage in a legitimate dialogue with ethnic-racial themes. This separation is exactly what D'Ambrosio (2019) and Knijnik (1999) describe as the myth of mathematical neutrality: a discourse that constructs the subject as universal and timeless, erasing its cultural bases.

In another passage, the teacher reinforces this imaginary limit:

"I just feel an extreme difficulty in working on these issues [...] I am not yet prepared to take this step, how and what to address the themes."

The difficulty expressed is not technical, but epistemological: the impossibility is perceived because Afro-Brazilian culture is not recognized as a legitimate source of mathematics.

Teacher B reinforces this block by stating:

“The curriculum is very focused on mathematical content descriptors, and there is no clear guidance on the subject.”

In this case, neutrality operates as an institutional device, as the descriptors, centered on abstract skills, reinforce the view that mathematics must be “pure” and disconnected from contexts.

Epistemological block produces direct effects on teaching practice. First, it contributes to the erasure of African and Afro-Brazilian mathematical traditions in the school curriculum, as discussed by Forde (2008). In addition, it creates a sense of imagined impossibility, in which teachers do not recognize ways to integrate the theme into mathematics classes. As a consequence, there is an absence of pedagogical practices related to Law 10.639/03, not necessarily due to teachers’ lack of interest, but due to the lack of epistemological legitimacy attributed to the theme. Thus, the myth of neutrality functions as the first structuring pillar of the low implementation of Law 10.639/03 in mathematics teaching.

4.2 Conceptual block: racism, representativeness, and identity

The second interpretative axis concerns teaching conceptions of racism, representativeness, and racial identity. In Mendes (2025), partial, superficial or strictly individual definitions of these concepts are observed, in line with what Almeida (2019) describes as the reduction of racism to the moral, not structural, field.

For example, Teacher A states:

“Race is used to classify people by physical characteristics [...] racism is to hierarchize these groups.”

Although not mistaken, the explanation remains at the descriptive level, without reference to the phenomenon’s structural dimension, which is essential to understanding the rationale behind policies such as Law 10.639/03.

Teacher B, in turn, states:

“Racism is a form of prejudice and discrimination of one race to the detriment of the other.”

Again, the definition operates at an interindividual level. Nothing is said about institutions, curriculum, and knowledge production, which are central to understanding school racism.

This limited understanding also appears in the way teachers perceive “representativeness”. Teacher A declares:

“Representativeness is the visible and active presence of these people in society.”

Although valid, this conception does not address the epistemological dimension of representativeness, as discussed by Gomes (2003): the presence of black references in the production of knowledge, including in mathematics.

Restricted understanding is reflected in school practices. An emblematic example is Teacher A's reflection on the November 20 parade:

“Anyone who could prove they had a black relative in the family could attend the parade.”

Although the teacher critically questions the activity, the episode highlights important limitations in the understanding of race relations in the school context. People confuse race as a social category and the idea of biological ancestry, and there is a lack of a reasoned discussion about the political meaning of the data and the policies for valuing Black identity.

These limited understandings have a direct impact on teaching practice. Although teachers recognize the importance of Law 10.639/03, it tends to be treated as a peripheral, cross-cutting theme, often restricted to conversation circles, commemorative activities, or one-off statistical analysis, without effective integration with mathematical content.

This set of evidence characterizes the *conceptual block*, the second pillar of the model. This set of evidence characterizes the conceptual block, the second pillar of the model.

4.3 Affective-formative block: “I know it is important, but I don't know how to do it”

The third block identified is affective-formative, composed of feelings of insecurity, unpreparedness, guilt, and institutional pressure.

Teacher A's speech is emblematic:

“The difficulty [...] lies in actually admitting this unpreparedness. That admission seems laden with guilt.”

This feeling agrees with what Nóvoa (1995) calls “teacher vulnerability”, produced when social demands overcome the real conditions of work and education.

The teacher also relates unpreparedness to material conditions:

“I have six large classes [...] and the pedagogical routines provide for what should be worked on week by week, preparing for PAEBES.”

This report shows two central elements of the affective-formative block. On the one hand, institutional pressures associated with external assessments and compliance with curriculum descriptors appear, which reduce teacher autonomy and limit the time available for pedagogical planning. On the other hand, a formative insecurity emerges related to the absence of initial and continuing education on anti-racist curriculum, accompanied by the fear of addressing the topic inappropriately.

These factors are repeated in Professor B's speech:

“During my two years of experience, I had no objective opportunity to work on the theme.”

The speech reveals that:

- teachers do not reject the law,
- however, they do not identify concrete ways to insert it into mathematics.

According to Tardif (2012), working conditions, curriculum pressure, and scarce training create professional paralysis, as observed in the interviews.

As a consequence, there is a lack of consistent practices regarding Law 10.639/03 in mathematics teaching. Teachers tend to rely on ready-made materials – often nonexistent – or shift the theme to other subjects considered more appropriate. This scenario also produces feelings of anxiety and professional self-criticism among teachers.

This blockage is the third component of the proposed model: it explains why even well-intentioned teachers do not advance.

5. The tripartite teacher blockade and its articulation

The analysis of the interviews allowed us to identify three interdependent dimensions that explain the low implementation of Law 10.639/03 in mathematics teaching: the epistemological block, the conceptual block, and the affective-formative block. Although each of these elements has been presented separately, it is in their articulation that the most powerful mechanism for understanding the (unintentional) resistance to integrating Afro-Brazilian and African themes into teaching practices is found.

This interpretative model, here called the tripartite teacher blockade, constitutes the original contribution of this article, as it allows us to visualize not only isolated difficulties but also a system of mutually reinforcing impediments.

5.1 Epistemological block as a structural origin

The epistemological block, based on the belief in mathematical neutrality, occupies a central position in the model. When the teacher conceives of mathematics as a pure, abstract, and culturally detached subject, a space is opened for the naturalization of the idea that content related to Afro-Brazilian culture is not “mathematical enough” to integrate the curriculum.

This belief, which echoes Eurocentric traditions discussed by D’Ambrosio (2019) and Knijnik (1999), produces a first symbolic frontier: that mathematics and culture belong to different spheres. Thus, even before evaluating the relevance of Law 10.639/03, teachers already operate within an epistemological framework that does not recognize the mathematical legitimacy of African and Afro-Brazilian knowledge systems (Forde, 2008).

This blockage is structural because it reorganizes and conditions others.

5.2 The conceptual block reinforces and is reinforced by the epistemological

If teachers understand racism only as interpersonal violence (Almeida, 2019), they do not realize that the mathematical curriculum can reproduce structural inequalities by making Black epistemologies invisible.

If representation is understood merely as the visible presence of Black people in schools, rather than as participation in the production of knowledge, it becomes difficult to recognize African mathematics as legitimate curricular content.

When racism is understood only as interpersonal violence, the structural dimension of the phenomenon is lost, and it becomes difficult to recognize that the curriculum also participates in the production of inequalities. Likewise, when representation is understood merely as the symbolic presence of Black people in schools, rather than as participation in the production of knowledge, African mathematics is no longer perceived as legitimate curricular content. From this perspective, Law 10.639/03 is typically interpreted as a commemorative initiative rather than a policy of curriculum reorganization.

On the other hand, the belief in the neutrality of mathematics reinforces these restricted interpretations. By conceiving the subject as universal and disconnected from historical and cultural contexts, it becomes difficult to relate it to discussions of racism, identity, and the decolonization of knowledge. Thus, epistemological and conceptual blocks begin to reinforce each other.

5.3 Affective-formative block emerges as a consequence and, simultaneously, as a maintenance mechanism

There is a feeling of unpreparedness, insecurity, guilt, and paralysis, observed in speeches such as:

“The admission of this unpreparedness seems laden with guilt.”
 “I do not find it easy, it is not natural for me to work on these issues.”

It is not only a reflection of the lack of education, but a direct consequence of the two previous blockages.

If teachers do not recognize mathematics as plural knowledge and do not understand Law 10.639/03 as a structural policy, their feeling of not knowing how to act becomes understandable.

In addition, as Nóvoa (1995) and Tardif (2012), argue, institutional pressure, including descriptors, PAEBES, and rigid pedagogical routines, amplifies perceptions of disability, as teachers no longer feel authorized to innovate in their own curriculum.

This affective-formative block also contributes to the maintenance of the others. The insecurity in working on the theme tends to lead teachers to remain within the traditional teaching model, often marked by a Eurocentric, supposedly neutral view of mathematics. At the same time, the practical difficulty of implementation can reduce Law 10.639/03 to occasional or commemorative activities, reinforcing limited conceptual understandings about its curriculum sense.

This movement creates a form of pedagogical accommodation, in which teachers internalize that they “cannot” implement the law, and, with that, the non-implementation is perpetuated without explicit conflict.

5.4 The tripartite blockade cycle

The articulation between the three blocks forms a self-powered cycle. The belief in the neutrality of mathematics initially establishes a rigid separation between mathematical contents and cultural issues. This separation contributes to Law 10.639/03 not being perceived as a legitimate part of the subject’s curriculum. Then, restricted conceptual understandings of racism and representativeness reinforce this perception, limiting the possibility of recognizing the epistemological disputes present in the curriculum. Finally, feelings of insecurity and unpreparedness lead to practical paralysis, reinforcing the initial impression that mathematics is not related to the theme.

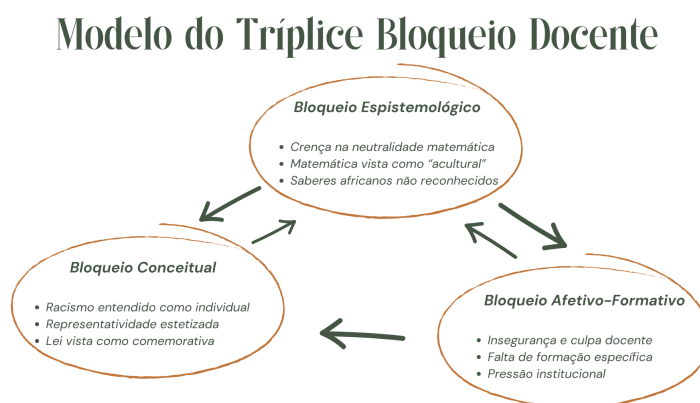
This cycle helps explain why the implementation of Law 10.639/03 does not depend only on didactic materials or good intentions, but on an epistemological, conceptual, and formative transformation in mathematics education.

5.5 Model contributions

The analytical model of the *tripartite blockade*: shifts the debate from the lack of practice to the structure that prevents practice, shows that teachers do not consciously resist that law, but are immersed in formative and epistemological conditions that limit their action, and contributes to the literature by demonstrating that mathematical neutrality is not only an abstract myth, but a concrete mechanism of production of pedagogical impossibilities.

The model also shows that breaking only one of the blocks is not enough: it is necessary to act simultaneously on epistemology, teacher education, and curriculum design.

figure 1 – Model of the tripartite teacher blockade.



Source: EAuthors, based on Mendes (2025)

The diagram summarizes the three dimensions identified in the analysis: the epistemological block (belief in the neutrality of mathematics), the conceptual block (restricted understandings of racism, representativeness, and identity), and the affective-formative block (feelings of unpreparedness,

guilt, and institutional pressure). The arrows indicate that these blocks reinforce each other, producing a cycle that hinders the implementation of Law 10.639/03 in mathematics teaching.

Table 1 – Summary of the model of the tripartite teacher blockade

Dimension	Description	Effects on teaching practice
Epistemological block	Belief in the neutrality and universality of mathematics; delegitimization of African epistemologies.	Imagined impossibility; absence of curriculum integration; perception that Law 10.639/03 “does not apply” to mathematics.
Conceptual block	Restricted understandings about racism (individual), representativeness (aesthetic) and the meaning of that act.	Reduction of the theme to commemorative events; absence of a link with the mathematical content.
Affective-formative block	Insecurity, guilt, fear of making mistakes; lack of education; institutional pressure (PAEBES, routine).	Practical paralysis; transfer of the theme to other subjects; maintenance of the traditional curriculum.

Source: Authors, based on Mendes (2025).

6. Final considerations

The analysis of teaching perceptions about the implementation of Law 10.639/03 in mathematics teaching, based on the data collected in Mendes (2025), study, allowed us to identify that the absence of consistent practices does not result from simple ignorance of the legislation or lack of pedagogical materials, but from a system of impediments deeply rooted in teachers’ education, epistemological conceptions, and working conditions.

The tripartite teacher blockade model proposed in this article shows that the difficulties in implementing Law 10.639/03 stem from the articulation of three interdependent dimensions. The first refers to the epistemological block, associated with the belief in the neutrality of mathematics, which tends to exclude African epistemologies from the field of legitimate academic content. The second corresponds to the conceptual block, characterized by limited understandings of racism, representativeness, and racial identity. The third dimension is the affective-formative block, marked by feelings of insecurity, guilt, and teacher paralysis in the face of institutional conditions and the absence of critical education.

The articulation of these three elements generates a cycle of maintenance of non-implementation: neutrality imagines the impossibility; conceptual limitation reinforces this perception; and the feeling of unpreparedness prevents disruptive movements. Thus, even teachers who recognize the importance of the law encounter both objective and subjective difficulties in incorporating it into their classes.

These findings dialogue with both the authors of critical mathematics education, such as D’Ambrosio (2019), Knijnik (1999) and Forde (2008) –and with scholars of ethnic-racial relations, such as Munanga (2019), Gomes (2003) e Almeida (2019). The convergence between these fields demonstrates that school mathematics cannot be treated as an isolated discipline, but as a cultural practice that participates in the epistemological and political dispute present in the Brazilian school.

Similar results have been identified in mathematics education research investigating the relationships between curriculum, identity, and ethnic-racial relations. Studies such as Forde (2008) point

to the historical erasure of African contributions in mathematics teaching, while investigations inspired by ethnomathematics have demonstrated the difficulties of integrating cultural knowledge into the school curriculum. In this sense, the results of this study align with a broader body of research that shows how epistemological conceptions of mathematics influence pedagogical practices and curriculum decisions.

From a pedagogical and formative perspective, the results of this article indicate that isolated interventions, such as specific workshops or individual materials, are insufficient. Overcoming the tripartite teacher blockade requires articulated actions at different levels. Among them, we highlight the expansion of continuing teacher education focused on African epistemologies, a review of the curriculum that recognizes epistemic diversity as part of the mathematical content, the creation of institutional conditions that expand teacher autonomy, and the production of didactic materials that value Afro-Brazilian and African practices.

From an academic point of view, this work contributes by proposing an original interpretive model capable of explaining, in an integrated way, the limits and tensions in the implementation of Law 10.639/03 in mathematics teaching. The tripartite teacher blockade can be explored as an analytical category in future research, applied to other disciplinary contexts and education networks, or investigated in depth across its specific dimensions.

Like all qualitative research with a small number of participants, this study has limitations, particularly regarding the generalizability of its results. However, this limitation does not compromise the consistency of the analytical model, since the patterns found align with the national literature and widely recognized problems in the fields of mathematics education and ethnic-racial relations.

Finally, we conclude that the implementation of Law 10.639/03 in mathematics teaching depends on epistemological, conceptual, and formative transformations. It is not just about adding content, but reconfiguring one's own understanding of what mathematics is and for whom it exists. By facing the three identified blocks, the possibility of building an anti-racist, plural, and socially committed school mathematics opens up, capable of recognizing and valuing Afro-Brazilian and African knowledge in the education of all students.

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References

ALMEIDA, Silvio Luiz de. **Racismo estrutural**. São Paulo: Pólen Produção Editorial LTDA, 2019. Citado 5 vezes nas páginas 2, 3, 8, 11, 13.

BARDIN, Laurence. **Análise de conteúdo**. São Paulo: Edições 70, 2011. Citado 4 vezes nas páginas 1, 6.

BONI, Valdete; QUARESMA, Silvia Jurema. Aprendendo a entrevistar: como fazer entrevistas em Ciências Sociais. **Em Tese**, v. 2, n. 1, p. 68–80, 2005. Citado 1 vez na página 5.

BRASIL. CONSELHO NACIONAL DE EDUCAÇÃO. CONSELHO PLENO. **Parecer CNE/CP nº 003/2004: Diretrizes Curriculares Nacionais para a Educação das Relações Étnico-Raciais e para o Ensino de História e Cultura Afro-Brasileira e Africana**. Brasília, DF, 2004. Citado 1 vez na página 3.

CAVALLEIRO, Eliane dos Santos (ed.). **Racismo e antirracismo na educação: repensando nossa escola**. Selo Negro, 2001. Citado 1 vez na página 3.

CONTRERAS, José. **A autonomia de professores**. Cortez, 2002. Citado 1 vez na página 4.

D'AMBROSIO, Ubiratan. **Educação Matemática: da teoria à prática**. Papirus Editora, 1996. Citado 1 vez na página 4.

D'AMBROSIO, Ubiratan. **Etnomatemática: elo entre as tradições e a modernidade**. 2. ed. Belo Horizonte: Autêntica, 2019. Citado 6 vezes nas páginas 2–4, 7, 10, 13.

FORDE, Gustavo Henrique Araújo. **A presença africana no ensino de matemática: análises dialogadas entre história, etnocentrismo e educação**. 2008. Dissertação (Mestrado em Educação) – Universidade Federal do Espírito Santo, Vitória. Citado 6 vezes nas páginas 4, 8, 10, 13.

GERDES, Paulus. **Geometry from Africa: mathematical and educational explorations**. American Mathematical Society, 1999. Citado 1 vez na página 4.

GOMES, Nilma Lino. Educação, identidade negra e formação de professores/as: um olhar sobre o corpo negro e o cabelo crespo. **Educação e Pesquisa**, v. 29, p. 167–182, 2003. Citado 3 vezes nas páginas 3, 9, 13.

KNIJNIK, Gelsa. Etnomatemática, currículo e formação de professores. **Bolema**, Rio Claro, v. 11, n. 12, p. 1–15, 1999. Citado 5 vezes nas páginas 2, 3, 7, 10, 13.

MENDES, Ezequiel Teodoro. **Educação Matemática e a Lei 10.639/03: percepções e práticas de professores de Matemática**. 2025. Trabalho de Conclusão de Curso (Licenciatura em Matemática) – Universidade Federal do Espírito Santo, Alegre. Citado 15 vezes nas páginas 1, 2, 4–6, 8, 12, 13.

MINAYO, Maria Cecília de Souza. **O desafio do conhecimento: pesquisa qualitativa em saúde**. 1992. p. 269. Citado 1 vez na página 5.

MUNANGA, Kabengele. **Rediscutindo a mestiçagem no Brasil: identidade nacional versus identidade negra**. Autêntica Editora, 2019. Citado 2 vezes nas páginas 3, 13.

NÓVOA, António. **Os professores e a sua formação**. Lisboa: Dom Quixote, 1995. Citado 3 vezes nas páginas 4, 9, 11.

TARDIF, Maurice. **Saberes docentes e formação profissional**. Editora Vozes, 2012. Citado 3 vezes nas páginas 4, 10, 11.

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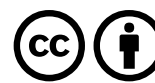
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