



---

## Ethnic-racial relations in the curriculum of Licentiate Degree courses in Mathematics of Bahia institutions

---

### Relações étnico-raciais nos currículos dos cursos de Licenciatura em Matemática das IES baianas

---

*Thaís Santana Araújo dos Santos<sup>1</sup>*

*Maria de Lourdes Haywanon Santos Araújo<sup>2</sup>*

#### Abstract

The present work verified the existence of, due to the treatment aimed at education for ethnic-racial relations in the curriculum of Licentiate Degree courses in Mathematics of Bahia institutions, as well as discussing the importance and need for the treatment of this topic, to contribute to an education that values and respect diversity. A research, documentary and bibliographical, of a qualitative nature, was carried out with data obtained from documents and by listening to coordinators, professors and students of the courses, through questionnaires. It was noticed in most institutions the lack of training, which reflects the lack of interest or even the lack of knowledge of the need to deal with the subject, on the part of the course coordinators, as opposed to the need of students who perceive the influence of this gap in their, when faced with the hypotheses of racism in the school context.

**Keywords:** ethnic-racial relations; Degree in Mathematics curriculum; teacher training.

#### Resumo

O presente trabalho verificou a existência de discussões voltadas à educação para as relações étnico-raciais nos currículos dos cursos de Licenciatura em Matemática das instituições públicas baianas, bem como discutiu a importância e necessidade do tratamento deste tema, visando contribuir para uma educação que valorize e respeite a diversidade. A pesquisa documental e bibliográfica, de cunho qualitativo, foi realizada utilizando dados obtidos em documentos e pela escuta de coordenadores, professores e estudantes dos cursos, por meio de questionários. Percebeu-se, na maioria das instituições, a ausência dessas discussões, o que reflete desinteresse ou ausência de entendimento da necessidade de tratar da temática por parte das coordenações dos cursos, em contraponto à necessidade dos estudantes que percebem a influência dessa lacuna em sua formação ao se depararem com situações de racismo no contexto escolar.

**Palavras-chave:** relações étnico-raciais; currículo de Licenciatura em Matemática; formação de professores.

---

**Submitted on:** 21/11/2021 – **Accepted:** 31/01/2022 – **Published on:** 26/05/2022

<sup>1</sup> Master's student in the Graduate Program in Education at the State University of Feira de Santana (UEFS), Brazil. Email: tai.sas@hotmail.com. ORCID: <https://orcid.org/0000-0003-3306-7685>.

<sup>2</sup> PhD in Teaching, Philosophy and History of Sciences (UFBA/UEFS). Professor at the State University of Feira de Santana, Brazil. E-mail: lore@uefs.br. ORCID: <https://orcid.org/0000-0002-6068-2168>.

## Introduction

Believing that the quality of education goes beyond reducing the numbers related to failure and dropout, the importance and need for the formation of critical citizens in school is highlighted. According to Libâneo, Oliveira & Toschi (2003), school is a privileged space to build citizenship, understanding it as an active participant in the social and political development of the country, which goes beyond teaching pre-established content in the curriculum, which, although important, are not sufficient to promote it.

With this, we understand the importance of a teacher training based on the social, cultural, political, or economic context in which the student is inserted. In this reflection, it is important to highlight that the new demands of society seek the training of these educators as a contribution to build a curriculum that encompasses them, promoting equity and diversity (Silva & Ferreira, 2008).

In this sense, this paper discusses the need for the existence of racial agendas in the curricula of undergraduate courses in Mathematics (LM) in the state of Bahia, as an essential theme to deconstruct the structural racism present in Brazilian society, which is a result of the slavery history of the country. In view of this, the teacher has an essential role, regardless of the specific area he or she works in, especially, in this case, Mathematics, whose concepts are essential for understanding society. In this perspective, it is important to point out that this work focuses on the role of the curriculum in the education of mathematics teachers and the respect for diversity in all its facets, which in this work are based on racial issues, through the conceptions of Critical Mathematics Education (CME).

## Teacher training and ethnic-racial relations

The Black Movement plays a unique role in a history of struggle and resistance, composed of organizations from various areas of society, with a common goal: the fight against racism in all these social spheres and in its various forms. From these struggles emerged changes in policies and in Brazilian society, including in education.

During the first year of the government of former president Luís Inácio Lula da Silva, the Black Movement's actions produced more significant effects, not only for the black population, but for the entire population that is part of the national education system. These effects came about with the promulgation of Law 10.639/03 and the publication of the Opinion and Resolution on the teaching of ethnic-racial relations, both in 2004. Among other achievements over time are: "the Special Secretariat for the Promotion of Racial Equality (Seppir), in 2003, and, in the Ministry of Education, the Secretariat for Continuing Education, Literacy and Diversity (Secad), in 2004" (Gomes, 2011, p. 115), which were first instituted through the initiative of the Federal Government.

As mentioned above, the performance of the Brazilian Black Movement was essential to ensure the regulation and institution of the National Curriculum Guidelines (DCNs) for the

DOI: 10.20396/zet.v30i00.8667622

education of ethnic-racial relations and the teaching of Afro-Brazilian and African history and culture, through the Opinion National Education Council / Full Council (CNE/CP) 03/2004, the Resolution CNE/CP 01/2004 and Resolution No. 2 of July 1, 2015.

It is worth drawing attention to the 2019 Resolution, which is a step backwards compared to the previous ones, since it only mentions ethnic-racial relations when talking about racial discrimination that occurs in schools. Thus, there are numerous criticisms regarding it, which is explicit in the Bulletin of the National Association for the Training of Education Professionals (ANFOPE) No. 4, 2019, when it says that this Resolution disfigures teacher training by proposing to agree with the BNCC, thus disregarding the criticisms regarding the Base, presented by educators (Rocha, Lino & Gonçalves, 2019).

Figure 1 shows the construction of a legal basis that impacts the curriculum of teacher education, presents the documents analyzed in this research and indicates the specific DCNs for the Bachelor's and Bachelor's degrees in Mathematics. It is important to note that the documents for Mathematics courses do not discuss ethnic-racial relations, which are not mentioned at any point in the text.

DOI: 10.20396/zet.v30i00.8667622



Figure 1 - Infographic with timeline of the legislations used.

Observing this scenario, it is understood that to comply with the law, it is necessary the proper preparation/initial and continuing training of teachers, since they also face daily situations of racism and other types of prejudice. As Trindade (1994) states, students in public schools live a symbolic massacre, including Black people, which can generate feelings of inferiority and non-belonging in relation to the social environment where they live, thus hindering their social ascension.

## Curriculum for mathematics teacher education and social issues

To understand the current curricula for mathematics teacher education, a brief historical overview of the beginning of these courses in Brazil was made. Ziccardi (2009) explains that, in 1930, the first signs of the Brazilian mathematical community were the congregations of mathematicians.

Initially, there were no really specialized professionals for teaching mathematics. Soares (2006) reports that the teachers of the area, until 1934, were, in fact, engineers, a profession of higher social status and better benefits, which perpetuated the lack of interest in promoting specific courses to train mathematics teachers.

In the late 18th century, the Faculty of Mathematics of the University of Coimbra (Portugal) was founded, being a major landmark in the history of mathematics teacher education. According to Circe Silva (2000, p. 1), the University of Coimbra, "in its statutes, established the 'profession of mathematician' and one of its goals was 'to perpetuate public teaching.

However, while Latin American countries sought to train teachers, Portugal held Brazil in a very different situation, not offering any preparation for secondary school teachers, being these trained only in polytechnic and military schools, which did not guarantee the necessary training to function as a teacher (Silva, C., 2000).

According to Junqueira & Manrique (2012, p. 46),

Throughout the 1950s and 1960s, Brazilian higher education suffered the impacts of ideologies that were the basis of the governments that followed until 1964. The universities grew in number from five, in 1945, to 37, in 1964, and the isolated colleges increased from 293 to 564 in the same period.

In addition, one can mention the Modern Mathematics Movement (MMM), an essential milestone for the expansion and development of LM courses, especially during the 1970s.

Currently, the curricula of LM courses are the target of several criticisms, as stated by Fiorentini & Oliveira (2013), mostly referring to the curricula, with more emphasis on specific disciplines, methodologies, in the dichotomy between training and teaching practices, and in the lack of connection between specific disciplines and pedagogical training. Along with this, Garnica (2014, p. 48) states that "a considerable body of research aimed at historically understanding the training of mathematics teachers has taken as its privileged locus some urban centers [...]", which indicates the need to expand the discussions regarding teacher training courses to the various training spaces in the country. In this sense, this research stands out for discussing the curricula of LM courses from a critical perspective, by presenting the need for discussion of diversity, especially in Bahia - capital and interior - in view of the importance of the topic for a state consisting of 80% black people (self-declared black and mixed race), according to the PNAD Continuous (IBGE, 2020).

Something very present in these courses is the culture of having the specific disciplines of Mathematics as extremely important - and they are - to the detriment of the devaluation of

DOI: 10.20396/zet.v30i00.8667622

the components focused on social, political, and pedagogical discussions. In this case, it is important to emphasize that "knowing mathematics to be a mathematician is not the same thing as knowing mathematics to be a mathematics teacher" (Fiorentini, 2004, p. 109), reaffirming that the mathematics of the undergraduate should not be inferior to that of the bachelor, but that beyond a technical-formal education, the future teacher needs other knowledge.

About looking at mathematical knowledge and its teaching, Freire (1996) pointed out:

Life turning existence becomes mathematized. For me, and I come back to this point now, I think that a fundamental concern, not only of mathematicians but of all of us, especially educators, to whom certain decipherments of the world are entrusted, I think that one of the great concerns should be this: that of proposing to young students, pupils, to educators, that before and at the same time that they discover that 4 by 4 is 16, they also discover that there is a mathematical way of being in the world. (Verbal information)<sup>3</sup>

From this perspective, Freire (2002) reaffirms the need for teachers to awaken to the reality of their students, making clear the importance of being less alien to that context. In addition, both Freire (2002, 2005) and D'Ambrósio (1985) believe that education is a political act and, as such, cannot be neutral; thus, it is essential that the cultural, social, and historical baggage of those involved - educator and student - be considered in the process of teaching and learning.

We reiterate that teacher training courses need to be aligned with an ideal that aims to help build a teaching and learning process that values and respects the differences in Brazilian society. In this sense, thinking about LM courses, Ethnomathematics may be a possible methodological perspective, but not sufficient, to link Mathematics to the valorization of the culture and traditions of a community, when dealing with the training and professional development of teachers, since the approach

places as a central theme the importance of acquiring theoretical and methodological tools that can help the teacher to understand and pedagogically appropriate the diversity of mathematical activity, namely, in the communities where they teach, to integrate them into their teaching and organize their teaching practice, developing activities and teaching materials that include mathematical elements from various cultural heritages. (Moreira, D., 2004, p. 33).

It is not possible to ignore that Mathematics is still an area of knowledge seen by society as something ready and finished, a perfect and unquestionable science, which reverberates in schools, universities, media, and other environments, contributing to the reaffirmation of power relations (Borba & Skovsmose, 2001). For this ideology to be deconstructed, it is necessary to develop processes of building democratic competences, with spaces for discussions focused on social issues, so that mathematics is thought from the perspective of a critical and liberating education (Freire, 2002).

---

<sup>3</sup> Interview given by Paulo Freire to mathematics educators Ubiratan D'ambrósio and Maria do Carmo Domite, shown at ICME 8, Seville-Spain, 1996.

DOI: 10.20396/zet.v30i00.8667622

It is understood here the need for the curriculum to evolve to provide an education in which the teacher inserts himself in the reality of his students and even in his own reality during class time, and the role played by this educator should be to "establish himself in the construction of mathematics to teach. From general pedagogies and didactics, passing through psychology, sociology, anthropology, little by little some knowledge is being constituted that more directly characterizes the teaching office, which gives it professional identity" (Valente, 2017, p. 221).

When reflecting on the discussion of ethnic-racial relations in schools and/or universities, it can be directly associated with the knowledge for teaching, thus realizing the need to put students in contact with mathematical problems that reflect social discussions, especially those that are in everyday life and that, often, they do not even realize or understand, so that they can seek transformations in diverse contexts, imbued with social meanings.

## **The Role of the Curriculum**

The discussion about curriculum has grown a lot over the years, to show that being well structured and thought in favor of society can be an instrument for changes in situations necessary for the improvement of the country. Antônio Moreira (2008, p. 11) reports the meaning of curriculum as an instrument "used by different societies both to develop the processes of conservation, transformation, and renewal of historically accumulated knowledge, and to socialize children and young people", further highlighting its importance in the pedagogical process.

Tomaz Silva (1995, p. 195) states how the discussions present in the curriculum demonstrate "which social groups can represent themselves and others and which social groups can only be represented or even be totally excluded from any representation. Furthermore, these discussions represent various social groups in diverse ways, while some are exalted and appreciated, others have their culture and way of living devalued and diminished (Silva T., 1995).

It is necessary that the curricula are built aiming to form transforming agents of this society impregnated with prejudice and seeking that more people feel included in the educational spheres, which need to guarantee grounded and critical discussions. The curricula, in any area of knowledge, need to guarantee elements of the deconstruction of racism and of the several forms of prejudice and, for that, they must turn to those who do not know the history, culture, and the struggles of the African people, besides those who grow up hearing and learning to reproduce racist attitudes and speeches as if they were correct and normal attitudes.

Monteiro, Santos & Barduni Filho (2020) understand that the curriculum has a political dimension and describes it to express the existence of diversity, aiming to achieve a knowledge-power that moves away from the oppression of minority groups and develops the affirmation of the various identities existing in society.

Moises Santos (2018) points out that Law No. 10,639 proposes an open and innovative



curriculum that enables the development of more democratic and humane proposals for the school environment, so that ethno-racial diversity is understood as an ethical issue and, consequently, one of respect, so that differences are better accepted.

However, all this will only have a satisfactory result, even overall, if the initial point of change happens in teacher training. According to Ferreira (2009), if students in undergraduate courses do not have this training in parallel to the teachers who are already in the classroom, the problem will only increase, making it even more difficult to solve it and generating more expenses for the State, in the case of public institutions.

Freire (2002, p. 18) makes it clear that "[...] in the permanent training of teachers, the fundamental moment is that of critical reflection on practice. It is by critically thinking about today's and yesterday's practice that the next practice can be improved. In this sense, Manrique (2009) considers the need for undergraduate courses to have projects that go beyond the limits imposed by the groups of subjects, seeking to point out the importance of developing cultural and social activities to be presented to future teachers.

It is necessary that educators are aware of the existence of prejudice rooted in society, not only racial prejudice, but also gender, economic and social prejudice, sexual orientation, religious prejudice, generational prejudice, among others, which are usually so present in everyday life that they go unnoticed, including in the classroom.

In view of this discussion, it is important to emphasize that the theme in question is not simple to absorb and consolidate quickly, since it is necessary to remember years and years of racial discrimination, arising from and rooted in the history of the country through the colonization process that was consolidated based on the slavery of black people. Furthermore, it is necessary to deconstruct ideas imposed by society, remove stereotypes that have been created, and build knowledge that will help in the understanding of the structural racism present in society, so that anti-racist practices can be created, including at school. In this same vein, it is essential to undo the still existing concept of neutral mathematics teaching, based on techniques and algorithms, and that does not relate to the social context. Having said that, it is understood that it is a process, so care, attention, and effort are needed to be able to obtain satisfactory results.

## Methodology

Besides being characterized as qualitative research, this work is of bibliographic and documentary nature, considering that "its purpose is to put the researcher in direct contact with everything that has been written, said or filmed on a particular subject" (Lakatos & Marconi, 2010, p. 166). In this way, the bibliographic study was built according to research and readings on the subject in question, and its ramifications arising from the data, among them, articles, dissertations, monographs, theses, books, magazines, among others, which enabled the enrichment of the text.



DOI: 10.20396/zet.v30i00.8667622

Documentary research "seeks to explain a problem based on theoretical references published in articles, books, dissertations and theses" (Cervo, Bervian & Silva, 2007, p. 60). Supported by the perspective of documents as historical sources that allow "the construction of a history of mathematics education" (Valente, 2007, p. 39), many documents were used, such as laws, Pedagogical Political Projects (PPPs), normative instructions, guidelines, and opinions, which were objects of study for the development of the research.

It is important to emphasize that the research approaches discussions on the history of mathematics education, whose "specificity is the elaboration of historical facts related to the teaching of mathematics", as shown by Valente (2007, p. 39) when bringing to light the absence of discussions in the curricula of mathematics teacher education related to ethnic-racial discussions, in a northeastern state with deep roots in the history of black people, being the state with the largest self-declared black population in the country. Finally, for the research construction to happen, it was established as a general objective to verify the existence of discussions about ethno-racial issues in LM curricula in Bahia to reach the information. Besides the bibliographic and documental research, approaching the research in oral history, questionnaires were used as an instrument for data collection, for listening to coordinators, professors, and students of the LM courses of public institutions in the state of Bahia.

### **An analysis of the curricula of undergraduate mathematics courses at public universities in Bahia**

Through the research conducted in the pedagogical projects and in the curricula of the LM courses of the institutions in Bahia, it was possible to survey which of these courses have subjects focused on ethno-racial discussions. Initially, when searching which public institutions in Bahia had a LM course, eight institutions were found, and in 17 of them the course was offered in 17 campuses.

The existence or not of the courses presented in Table 1 specifies which ones are compulsory, optional, or mixed, and which course they belong to. In the case of UNEB, six campuses have the course of LM, however, only two were specified in Table 2, because the other curricula are the same, these being the campuses of Alagoinhas, Paulo Afonso, Senhor do Bonfim and Barreiras.

Chart 1 - Survey of courses on ethnic-racial relations in Bahia's universities

UNIVERSITY	CAMPUS	CURRICULAR MATRIX	MIXED DISCIPLINE	COMPULSORY SUBJECT	OPTIONAL SUBJECT
UEFS <sup>4</sup>	Feira de Santana	In deactivation	-	-	X
		In deactivation		X	
UESC <sup>5</sup>	Ilhéus	Effective	-	-	-

<sup>4</sup> Universidade Estadual de Feira de Santana (UEFS).

<sup>5</sup> Universidade Estadual de Santa Cruz (UESC).

DOI: 10.20396/zet.v30i00.8667622

UESB <sup>6</sup>	Vitória da Conquista			-
UNEB <sup>7</sup>	Teixeira de Freitas			x
	Caetité			x
	Outros 4 <i>campi</i>			-
IFBA <sup>8</sup>	Valença	x (mandatory)	-	-
	Eunápolis	x (optional)	x	x
	Camaçari			x
	Salvador			x
	Barreiras			-
UFBA <sup>9</sup>	Salvador			-
UFOB <sup>10</sup>	Barreiras			x
UFRB <sup>11</sup>	EAD Mode	x (optional)	-	-

Source: the authors themselves.

From this, it was possible to observe that only three courses in Bahia have the subject as a mandatory component, and in one of them the subjects are mixed.

Regarding mixed subjects, among the LM courses of the universities listed in the study, the IFBA course in Valença has two compulsory mixed subjects, the IFBA course in Eunápolis has six optional subjects and the UFRB course (distance learning modality) has an optional mixed subject in its curriculum.

At UNEB, only the courses at the Caetité and Teixeira de Freitas campuses have a subject that includes the theme, which is the same in both courses, and optional in both. In the courses of the other campuses there is no compulsory or optional subject focused on the study of the theme in question, however, in the campuses of Barreiras, Caetité, Senhor do Bonfim, Paulo Afonso and Teixeira de Freitas there is an extension project dealing with the theme, and only in the Alagoinhas campus nothing was identified about the discussions.

In IFBA's PPP (Barreiras) it is stated that the course subjects deal with the theme, however, analyzing the course descriptions it is possible to notice that they do not correspond

<sup>6</sup> Universidade Estadual do Sudoeste da Bahia (UESB).

<sup>7</sup> Universidade do Estado da Bahia (UNEB).

<sup>8</sup> Instituto Federal da Bahia (IFBA).

<sup>9</sup> Universidade Federal da Bahia (UFBA).

<sup>10</sup> Universidade Federal do Oeste da Bahia (UFOB).

<sup>11</sup> Universidade Federal do Recôncavo Baiano (UFRB).

to what is presented in the pedagogical project, that is, those subjects do not deal with afro-descendant and Indigenous issues.

The same happens in the UFOB course, which, in its PPP, states that one of the disciplines is complying with the requirements of the DCNs of 2004, since its curriculum includes a discipline called Ethnomathematics. However, despite the affirmation of this approach, when one looks at the course syllabus, one realizes that it does not portray what is reported in the PPP of the course, for, although Ethnomathematics addresses "the different forms of mathematics that are specific to cultural groups" (D'Ambrósio, 1987), and this is one more space for valuing diversity, this fact does not involve the discussions necessary for the education of teachers advocated in this work, focused on the education of ethnic and racial relations, aiming at the deconstruction of structural racism.

It is worth mentioning that the Universidade Federal do Vale do São Francisco (Univasf) has the course of LM, however, it was not analyzed for lack of public information. The university's website does not make available the course PPP, nor the curricular matrix. When we contacted them by e-mail, there was no answer either, implying the absence of the course data in the data analysis.

Thus, expanding the initial perspective of document analysis, in the search to understand the reasons why some courses do not have subjects focused on racial issues in their curricula, and what teachers of the area think about it, two questionnaires were conducted, one for the coordinators of the colleges of the courses that do not have the subjects in their curricula, and another for teachers of the components focused on discussions of ethnic-racial relations who work in other courses of the respective universities where the LM course does not have the subjects.

The coordinators of the following institutions were contacted: UESC (Ilhéus); UESB (Vitória da Conquista); UNEB (Alagoinhas); UNEB (Paulo Afonso); UFBA (Salvador). In the other cases, no possible ways of contact were found, since no e-mail for contact could be identified in the official portals, so the questionnaire was not sent. Among those who received it, only three answered the questions.

When questioned about the reasons why the course does not have discipline(s) addressing education for ethnic-racial relations in the LM curricula, the coordinators explained that the courses will undergo curricular reforms so that they can meet the standards established in the 2004 and 2015 Guidelines. However, one of them pointed out that in the 2004 DCNs the compulsory nature of the subjects is not explicit:

*"And the curriculum reform committee interpreted that it could be optional, so we have in the current grid the optional subject Education and Ethnic-Racial Diversity. We inform that as of 2021, after a new reformulation of the course, the subject Ethnic-Racial Relations was created as mandatory in the curriculum<sup>12</sup>.*

---

<sup>12</sup> Response from interviewed coordinator.

DOI: 10.20396/zet.v30i00.8667622

However, nothing was found about the disciplines mentioned, since this, another e-mail was sent requesting the PPP (which was not located on the site) and the new curriculum matrix, however, there was no further response. It is important to emphasize that the analysis made, in this case, was only on the curricular matrix.

It is understood, in this research, that the laws that deal with the teaching of ethnic-racial relations do not bring the compulsory insertion of compulsory or optional subjects that deal with the theme in the curricula of LM courses, which does not imply that they are not necessary and essential for teacher training, especially in a state whose population is mostly black (IBGE, 2020).

Regarding the questionnaire about teachers, it was difficult to find the teachers responsible for the subjects in the other courses of the institutions mentioned, because in most of the documents analyzed it was not explicit which teachers taught a given subject, which is mandatory according to the Law of Directives and Bases (LDB). For this reason, only three professors were contacted. By searching for their names in the Lattes Platform it was possible to find the professors from UESB (Vitória da Conquista), UNEB (Paulo Afonso) and UFBA (Salvador), but only one professor answered the questionnaire.

On the questioning about the importance of disciplines focused on the discussions of ethnic-racial relations, the answer was:

*Racism is structural and, therefore, institutional, so it is up to the university to fight it with the formation of knowledge of professionals capable of reading reality, whether in education (degrees) or another field. I defend the introduction of this and other disciplines to understand the conditions of subjectivity and objectivity in social reality. Silencing or denying this role is a step back and impacts on societal organization<sup>13</sup>.*

*And about the need for such discussions in LM courses, she replied:*

*The mathematics course and others from fields of knowledge that do not prioritize the sciences of humanity need, these, and other disciplines to not be limited to technique, but to achieve polytechnics. The denial of this and other sociological disciplines constitutes a mistaken university practice, which by guiding an academic vision in the formation of knowledge, shares all knowledge for the understanding of an object<sup>14</sup>.*

The answer of the teacher, with training and professional performance in discussions of diversity and, in particular, ethnic-racial relations, suggests the importance and need for the insertion of the theme in the training of teachers of any area and is in line with what is advocated in this work.

Despite the few answers obtained, the data are enough to understand both perspectives: the one that understands the insertion of the theme in the curriculum to ensure compliance with the legislation, and the one that understands the importance of the discussion to ensure a training that promotes the deconstruction of prejudices. Thus, we understand the absence of

---

<sup>13</sup> Teacher interviewee's response.

<sup>14</sup> Teacher interviewee's response.

DOI: 10.20396/zet.v30i00.8667622

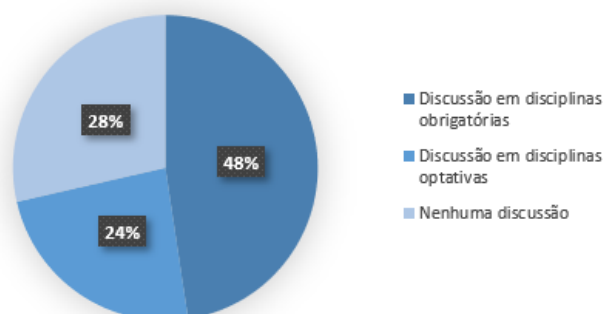
discussions on ethno-racial issues in these courses, in line with the curriculum perspective that maintains social and power structures (Monteiro, Santos & Barduni Filho, 2020; Manrique, 2009; Silva, 1995), and the conception of neutrality of Mathematics (Skovsmose, 2001).

When analyzing the teacher's response to the questionnaire, it was decided to listen to the final year students and graduates of the LM course of UEFS, seeking more in-depth information, as it is one of the only ones to have a specific discipline (optional for the interviewed students) for the theme and, due to the proximity with the course, it was chosen for this analysis. The focus was to think about the structure of the course curriculum and the respective course menus in this PPP. To this end, it was analyzed if there were discussions about the theme in the courses they attended, even though it was not mentioned in any menu of the mandatory components (of the deactivating curriculum).

With the answers of 20 people the following result was obtained:

Chart 1 - Results of the questionnaire for students in the LM course at UEFS

### Discussão das relações étnico-raciais no curso de Lic. em Matemática da UEFS



Source: the authors themselves.

Among the disciplines that students reported only one is specific for discussions of ethnic-racial relations, and it is optional. However, in all the others, including the compulsory subjects of the course, these discussions are not even mentioned in the menus, but this was not an impediment for the classes to take this approach, suggesting being at the discretion of the teacher who teaches the subject.

In this sense, Sacristán (2000, p. 196) says that "[...] the teachers' mediation processes between the prescribed curriculum or what is presented to them and the actual practice with the students are processes that take place in the group and in the individuals". However, despite the importance of this statement, it is necessary to emphasize that leaving the curriculum at the sole discretion of teachers does not guarantee a comprehensive approach to all students, because not all students will pass through these teachers and, many times, the discussion may not emerge for the teacher's performance in the subject and, in that semester, the subject is not addressed, since it is not mandatory by the content or PPP.

The arrangement of the subjects in the courses of Bahia's institutions and the menus of the existing subjects as optional or compulsory allow us to realize that, currently, the number

DOI: 10.20396/zet.v30i00.8667622

of courses that have components that deal with discussions of race is minimal. Regarding the compulsory courses that deal with the ethno-racial diversity theme, approximately 17.65% of the 17 courses analyzed offer them, while only 47.06% of all courses offer these courses as optional courses, including mixed courses, which proves the low percentage of the existence of these components, even when dealing with optional courses.

Moreover, it is important to report on the disciplines that deal with racial issues superficially, which shows a certain reduction of the complexity and importance of the theme, which requires in-depth study, and even being addressed in a single discipline cannot be exhausted, because it is in these places/moments that many of these students will begin critical reflections on the subject (Santos & Souza, 2018). Therefore, diversity (in all its aspects) must be present in the curricula and in the daily life of institutions, being remembered and inserted in all experiences in the school and/or academic sphere.

A good exercise to understand the questioning character of diversity in the curricula would be to analyze the proposals and official documents that we deal with on a daily basis. We will certainly notice that the issue of diversity appears, however, not as one of the central axes of curriculum orientation, but as a theme. And more: many times, diversity appears only as a theme that transversalizes the curriculum understood as cultural plurality. Diversity is seen and reduced under the viewpoint of culture. (...) Therefore, more than a multiplicity of cultures, in terms of their number, variety or "plurality", we live in the context of diverse cultures, marked by singularities arising from the historical, political and also cultural processes through which they are built. We live, therefore, in the context of cultural diversity and this, yes, should be a present and inquiring element of the curriculum. Culture should not be seen as a subject nor as a discipline, but as an axis that guides the curriculum experiences and practices (Gomes, 2007, p. 28).

It is important to remember that for the analysis it was not considered the workload of the subjects as a preponderant factor, because some, besides sharing the "space" with other themes of equal relevance and density, such as gender, have a "symbolic" workload, in view of such a broad and necessary discussion.

About the importance of this curricular transformation for students and the reflection of the lack of it for them, Sacristán (2000) states that many cases of school dropout, failure, and demotivation, even in places that show less cultural expressions and development of these perceptions in students, are reflected in the lack of a true meaning for their activities and projects.

Several researches and studies (Giovedi, 2012; Sacristán, 2000; Saviani, 2016) address how the curriculum can be distant from the social context where students are inserted and their peculiarities, which reiterates the importance of ensuring these discussions in the official documents of courses, not only those in which the theme is considered natural, such as History, Sociology, Philosophy. It is necessary to go beyond and think about teacher education, in its complexities, and the possible relationships between the specific training of the area, in this case, mathematics, and diversity, building the knowledge of mathematics to teach (Valente, 2017).



In this perspective, Skovsmose (2001) talks about the implementation of a mathematics education based on students' experiences, in the construction of the curriculum, and in the development of content in the classroom. In this sense, the history, customs, traditions, beliefs, struggles, and prejudices suffered by the African and Afro-Brazilian population are elements that are part of who these students are, and thus it is essential that these discussions take place in education.

It is argued in this research that Ethnomathematics may be a way to teach mathematics, from the perspective of valuing different cultures, races, and ethnicities, having mathematics as an instrument. However, it does not guarantee a critical education based on social discussions of racism, for example.

In this sense, the perspective of Critical Mathematics Education (CME) is taken here as a strategy for the curricula, as a way to guarantee the formation of mathematics teachers with social and political discussions, including the themes of diversity, considering that CME does not understand the teaching of mathematics as something neutral, but that it must always be linked to the context in which it is inserted (Skovsmose, 2001). It is understood, then, the importance of the formation of Mathematics teachers under the perspective of sociological, philosophical, political, social, and cultural discussions, in addition to the important formation of Mathematical knowledge (Fiorentini, 2004; Manrique, 2009; Valente, 2017).

Thus, it is evident that it is necessary to think about training observing, including, the context of each region and its specificities, without having as priority some places and forgetting others, as pointed out by Garnica (2014). Moreover, in this case, one cannot fail to consider the reality of Bahia, which is indicated by IBGE data (2020) as having most of its black population, reinforcing a greater need for discussions that promote racial equality and combat racism.

From this perspective, Silva & Lúzio (2014, p. 31) state that "legal mechanisms such as the laws corroborate a trajectory of struggles and advances, which still do not reach all the demands for inclusion in our society. For this reason, it is necessary to think the curriculum of teacher education aiming at the search for an education based on respect for racial diversity present in Brazil, and make it evident that this is possible, even in courses of the so-called "exact sciences", such as LM.

## **Final Considerations**

During the analysis, it was possible to demonstrate the rare presence of discussions that guarantee an education for the formation of ethnic-racial relations in the vast majority of LM courses in Bahia institutions, and in some cases there is an indication of the existence of the themes in some PPPs, but the course menus do not match, and others do not have the subjects or do not even address the theme in their projects.

Through the answers obtained by the coordinators, the knowledge of the legislation is evident, which shows that the concern is not, in fact, to build a curriculum that transcends the



current colonized and colonizing model (Gomes, 2012), but to comply with what is established. Obviously, it is important and necessary to comply with the DCNs and other national documents, however, this should not be the biggest or only incentive for curriculum changes.

In this sense, it indicates the urgent need to question the curricula for the training of mathematics teachers in Bahia institutions due to the absence of discussions about the theme, because even with the sanctioned laws and resolutions that establish the insertion of the theme, many of the courses remain stagnant, without promoting changes, which are essential for the initial and continuing education of educators.

Thus, the courses are not aligned with what is being requested in the legislation, beyond what is set as mandatory. Moreover, this absence helps perpetuate an educational system based on Eurocentrism, which does not combat the numerous forms of racism in Brazilian society, nor the maintenance of the erroneous idea of the neutrality of mathematics.

The practice needs to go beyond what is presented in the "papers", so that the function of a curriculum that seeks to assume its content as an important factor of social construction, considering economic, political, historical aspects and, even, who is the subject that is part of that environment as an educator and what are his/her characteristics, being this, then, the role that needs to be played by teacher education.

In this perspective, it is necessary to deconstruct the erroneous vision developed throughout the history of mathematics education, which is always seen as distant from social and political discussions and concerns, which will only be effective when the necessary changes occur, specifically, in mathematics teacher education courses, reiterating the need to understand and explore the teachings discussed by Skovsmose (2001) when presenting the elements of CME for the teaching and learning process of mathematics in various contexts of society.

This research seeks to contribute effectively to changes in the training courses for mathematics teachers, given the demand for such discussions in the various spheres of society, because it is understood that educators need to be prepared to talk about the history, culture, struggles and problems of the black population, not only for black people, but for all others who are part of the academic and/or school community, in addition to the need to be able to mediate possible situations of racism in school.

Thinking about teaching as one of the forms of struggle is necessary, because it needs to go beyond the mathematical approach through culture or customs of a people, for example, but taking the position of something that deals directly with these discussions from the perspective of each person who is part of a certain social environment, including because it is what we find in everyday school life.

In short, it is important to emphasize the importance of studies and development of research on ethnic-racial relations, so that increased considerations can be made on the subject, seeking changes in the current scenario, in order to establish an antiracist and equitable education.

## Acknowledgments:

We would like to thank our institution, which guarantees and promotes spaces for debate and learning in the fight against all forms of intolerance, and especially our colleagues, who, in the search for a more equal society, have helped us, as mathematics teachers, in understanding and deconstructing the various forms of prejudice and racism, through studies and research and dissemination of knowledge of an education for ethnic-racial relations. We also thank the teachers and students who were willing to answer the questionnaires, and the course coordinators who met our requests for documents or further information necessary for data collection, without whom this research would not be possible. This study was financed in part by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brasil (CAPES) – Finance Code 23038.000083/2021-48

## References

- Cervo, A. L., Bervian, P. A., & SILVA, R da. (2007). *Metodologia Científica*. São Paulo: Pearson.
- D'Ambrósio, U. (1987). *Reflexões sobre Etnomatemática*. Grupo Internacional de Estudos em Etnomatemática. Disponível em: <http://pt.scribd.com/doc/50972290/etnomatematica>.
- Ferreira, C. M. da S. (2009). *Formação de professores à luz da história e cultura afro-brasileira e africana: nova tendência, novos desafios para uma prática reflexiva*. Dissertação de Mestrado em Educação. São Paulo: Universidade de São Paulo. Retirado em 4 de janeiro, 2021, de: <https://teses.usp.br/teses/disponiveis/48/48134/tde-24092009-152145/pt-br.php>. Acesso em: 04 jan. 2021.
- Florentini, D. (2004). A formação matemática e didático-pedagógica nas disciplinas da Licenciatura em Matemática. *Revista de Educação PUC-Campinas*, (18), 107-115.
- Freire, P. (2002). *Pedagogia da autonomia: Saberes necessários à prática educativa*. São Paulo: Paz e Terra.
- Garnica, A. V. M. (2014). Cartografias Contemporâneas: Mapear a Formação de Professores de Matemática. In A. V. Garnica & A. V. Marafioti (org.). *Cartografias Contemporâneas: Mapeando a Formação de Professores de Matemática no Brasil*. Curitiba: Appris.
- Giovedi, V. M. (2012). *O currículo-libertador como forma de resistência e de superação da violência curricular*. Tese de Doutorado em Educação. São Paulo: Pontifícia Universidade Católica de São Paulo. Retirado em 18 de setembro, 2021, de: <https://tede2.pucsp.br/bitstream/handle/9686/1/Valter%20Martins%20Giovedi.pdf>.
- Gomes, N. L. (2007). Diversidade e currículo. In N. L. Gomes, J. Beauchamp, S. D. Pagel, A. R. do Nascimento. *Indagações sobre currículo: diversidade e currículo*. Brasília, DF: Ministério da Educação, Secretaria de Educação Básica.
- Gomes, N. L. (2011). Diversidade étnico-racial, inclusão e equidade na educação brasileira: desafios, políticas e práticas. *RBPAAE*, 27(1), 109-121.
- Gomes, N. L. (2012). Relações étnico-raciais, educação e descolonização dos currículos. *Currículo sem Fronteiras*, 12(1), 98-109.

DOI: 10.20396/zet.v30i00.8667622

- IBGE. (2020). *População por cor ou raça por unidade da Federação*. Rio de Janeiro: IBGE. Disponível em: <https://sidra.ibge.gov.br/tabela/6403#resultado>.
- Lakatos, E. M., & Marconi, M. de A. (2010). *Fundamentos de Metodologia Científica*. São Paulo: Atlas.
- Libâneo, J. C., Oliveira, J. F. de, & Toschi, M. S. (2003). *Educação Escolar: políticas, estrutura e organização*. São Paulo: Cortez.
- Manrique, A. L. (2009). Licenciatura em matemática: formação para a docência x formação específica. *Educação Matemática Pesquisa*, 11(3). Disponível em: <https://revistas.pucsp.br/index.php/emp/article/view/2830>.
- Monteiro, G. R. F., Santos, G. C. S., & Barduni Filho, J. (2020). As relações étnico-raciais nos currículos das licenciaturas na UEMG-Carangola: notas sobre a proposição de novas epistemologias críticas e construtivas. *Pró-Discente*, 26(1), 50-7.
- Moreira, A. F. B. (org.). (2008). *Currículo: Questões atuais*. Campinas: Papirus.
- Moreira, D. (2004). A Etnomatemática e a formação de professores. *Discursos*, 2, 27-38. Disponível em: <https://repositorioaberto.uab.pt/handle/10400.2/156>.
- Rocha, D. R. da, Lino, L. A., & Gonçalves, S. da R. V. (org.). (2019). BOLETIM ANFOPE n. 4 - Ano 2019. *Associação Nacional pela Formação dos Profissionais da Educação (ANFOPE)*, 4, 1-8. Disponível em: <http://www.anfope.org.br/wp-content/uploads/2019/12/BOLETIM-04-2019-ANFOPE-2019-n4.pdf>.
- Sacristán, J. G. (2000). *O currículo: uma reflexão sobre a prática*. Porto Alegre: ArtMed.
- Santos, M. D. de S. dos. (2018). A importância da diversidade na educação: um olhar sobre a cultura afro-brasileira. *Revista Espaço Acadêmico*, 17(201), 11-20. Disponível em: <http://www.periodicos.uem.br/ojs/index.php/EspacoAcademico/article/view/35784>.
- Santos, M. F., & Souza, M. M. (2018). Pedagogia ou Pretagogia? Movimentos de sentidos no discurso pedagógico em um curso de licenciatura em Matemática. *Revista Espaço Acadêmico*, 18(207), 16-28.
- Saviani, D. (2016). Educação escolar, currículo e sociedade: o problema da Base Nacional Comum Curricular. *Movimento*, 3(4), 54-84. Disponível em: <https://periodicos.uff.br/revistamovimento/article/view/32575/18710>.
- Silva, C. R. R. da, & Lúzio, J. (2019). Educação e pesquisa na desconstrução do racismo no Brasil: desafio, resistências e avanços. In E. F. Lima, F. F. dos Santos, H. A. Y. Nakashima, & L. A. Tedeschi (org.). *Ensaio sobre racismos: pensamento de fronteira*. [S. l.]: Balão Editorial.
- Silva, N. da, & Ferreira, C. M. da S. (2008). Formação de professores com base na Lei 10.639/03: cultura Africana e o legado de Eduardo Mondlane nos dias atuais. *Revista Millenium*, 13(34). Disponível em: <http://www.ipv.pt/millennium/millennium34/default.htm>.
- Silva, T. T. da. (1995). Currículo e identidade social: territórios contestados. In T. T. da Silva (org.). *Alienígenas na sala de aula: uma introdução aos estudos culturais em educação*. Petrópolis: Vozes.

DOI: 10.20396/zet.v30i00.8667622

- Skovsmose, O. (2001). Educação Matemática e Democracia. In O. Skovsmose. *Educação Matemática Crítica: a questão da democracia*. Tradução: Abgail Lins. 1. ed. Campinas: Papirus.
- Trindade, A. L. da. (1994). *O racismo no cotidiano escolar*. Dissertação de Mestrado em Educação. Rio de Janeiro: Instituto de Estudos Avançados em Educação. Retirado em 23 de dezembro de, 2020, de: <https://bibliotecadigital.fgv.br/dspace/bitstream/handle/10438/8948/000304120.pdf>.
- Valente, W. R. (2007). História da Educação Matemática: interrogações metodológicas. *Revista Eletrônica de Educação Matemática*, 2, 28-49. Disponível em: <https://periodicos.ufsc.br/index.php/revemat/article/view/12990/12091>.
- Valente, W. R. (2017). Os saberes para ensinar matemática e a profissionalização do educador matemático. *Revista Diálogo Educacional*, 17(51), 207-222. Disponível em: <https://periodicos.pucpr.br/dialogoeducacional/article/view/2836/2758>.