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"But there is another way to do it, right?": Curriculum documents and teaching practice in the context of field schools

"Pero hay otra manera de hacerlo, ¿no?": Documentos curriculares y práctica docente en el contexto de las escuelas rurales.

«Mais il existe une autre façon de procéder, n'est-ce pas ?» : Ies documents pédagogiques et les pratiques pédagogiques dans le contexte des écoles rurales

"Mas tem outro jeito de fazer, né?": Documentos curriculares e prática docente no contexto das escolas do campo

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# **Abstract**

This article aims to investigate, based on teachers' narratives, whether the curricular policy and the Political-Pedagogical Project (PPP) of field schools in a municipality in the Triângulo Mineiro region favor the recognition of numeracy practices related to the social practices of rural peoples. The qualitative research was conducted with six teachers working in field schools in the municipal network. Semi-structured interviews were used as data production instruments, which were analyzed in light of the concepts of teacher literacy, numeracy, and studies on curricular policies. The teachers' narratives reveal gaps between the prescribed curriculum proposal and the pedagogical practices of teachers working in field schools, although individual efforts to mediate between the prescribed curriculum and the reality experienced by students are noticeable. There is also a lack of teacher education focused on the specificities of field education, which compromises the articulation between official documents and teaching practices. It is concluded that it is urgent to develop curricular proposals that take into account local knowings and rural peoples' culture, particularly to promote a field mathematical

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education, as well as the promotion of continuing teacher education for the development of critical education and an appreciation of the rural environment.

*Keywords:* Curricular documents, Countryside Education, Teaching practice, Numeracy practices, Teacher training.

#### Resumo

Este artigo orienta-se pelo objetivo de investigar, a partir das narrativas dos professores, se a política curricular e o Projeto Político-Pedagógico (PPP) das escolas do campo de um município do Triângulo Mineiro favorecem o reconhecimento de práticas de numeramento relacionadas com as práticas sociais camponesas. A pesquisa, de cunho qualitativo, foi realizada com seis professores atuantes em escolas no/do campo da rede municipal. Utilizaram-se entrevistas semiestruturadas como instrumentos de produção de dados, os quais foram analisadas à luz dos conceitos de letramento docente, numeramento e dos estudos sobre políticas curriculares. As narrativas dos professores revelam distanciamentos entre a proposta curricular prescrita e as práticas pedagógicas dos docentes que atuam em escolas do campo, embora seja perceptível esforços individuais na tentativa de mediação entre o currículo prescrito e a realidade vivida pelos estudantes. Observa-se ainda a carência de formação docente voltada para as especificidades da educação do campo, o que compromete a articulação entre os documentos oficiais e as práticas de ensino. Conclui-se que é urgente a construção de propostas curriculares que contemplem os saberes locais e a cultura camponesa, em particular para a promoção de uma educação matemática do campo, bem como a promoção de formação continuada de professores para o desenvolvimento de uma educação crítica e de valorização do Campo.

*Palavras-chave:* Documentos curriculares, Educação do Campo, Prática docente, Práticas de numeramento, Formação docente.

## Resumen

Este artículo tiene como objetivo investigar, a partir de las narrativas de los docentes, si la política curricular y el Proyecto Político-Pedagógico (PPP) de las escuelas del campo de un municipio de la región del Triángulo Mineiro promueven el reconocimiento de las prácticas numéricas relacionadas con las prácticas sociales campesinas. La investigación cualitativa se realizó con seis docentes que trabajan en escuelas del campo dentro de la red municipal. Se utilizaron entrevistas semiestructuradas como herramientas de recolección de datos, que se analizaron a la luz de los conceptos de alfabetización docente, aritmética y estudios sobre políticas curriculares. Las narrativas de los docentes revelan brechas entre la propuesta

curricular prescrita y las prácticas pedagógicas de los docentes de las escuelas del campo, aunque son notables los esfuerzos individuales para mediar entre el currículo prescrito y la realidad vivida por los estudiantes. Además, existe una falta de formación docente centrada en las especificidades de la educación del campo, lo que compromete la conexión entre los documentos oficiales y las prácticas docentes. Se concluye que es urgente desarrollar propuestas curriculares que contemplen los saberes locales y la cultura campesina, particularmente para la promoción de la educación matemática del campo, así como la promoción de la formación continua docente para el desarrollo de una educación crítica y de valoración del campo.

*Palabras clave*: Documentos curriculares, Educación rural, Práctica docente, Prácticas numéricas, Formación docente.

#### Résumé

Cet article est guidé par l'objectif de rechercher, à partir des récits des enseignants, si la politique curriculaire et le Projet Politico-Pédagogique (PPP) des écoles de Campo de Uberaba-MG favorisent la reconnaissance des pratiques de calcul liées aux pratiques sociales de Campo. La recherche, de nature qualitative, a été réalisée auprès de six enseignants travaillant dans les écoles rurales du réseau municipal d'Uberaba-MG. Des entretiens semi-structurés ont été utilisés comme instruments de production de données, qui ont été analysées à la lumière des concepts d'enseignement de l'alphabétisation, de la numératie et des études sur les politiques curriculaires. Les récits des enseignants révèlent des écarts entre la proposition de programme prescrit et les pratiques pédagogiques des enseignants qui travaillent dans les écoles rurales, bien que des efforts individuels soient perceptibles dans une tentative de médiation entre le programme prescrit et la réalité vécue par les élèves. Il existe également un manque de formation des enseignants axée sur les spécificités de l'éducation rurale, ce qui compromet l'articulation entre les documents officiels et les pratiques pédagogiques. On conclut qu'il est urgent de construire des propositions curriculaires qui prennent en compte les savoirs locaux et la culture paysanne, en particulier pour la promotion de l'enseignement des mathématiques rurales, ainsi que la promotion de la formation continue des enseignants pour le développement de l'éducation critique et de l'appréciation de la campagne.

*Mots-clés*: Documents curriculaires, Éducation rurale, Pratiques pédagogiques, Pratiques de calcul, Formation des enseignants.

# "But there's another way to do it, right?": Curriculum documents and teaching practice in the context of field schools

Contradictions, challenges, and political disputes have historically crossed education in field schools. Characterized by a tradition of neglect and invisibility, schools located in rural areas often reproduce an urban-centric logic, disregarding the cultural, social, and economic specificities of rural individuals. As Caldart (2002, 2009) and Molina (2019) highlight, the fight for field education is also a fight for recognition, for the right to difference, and for an education that values local knowings and rural people's identity.

In Brazil, the movement for an education focused on rural areas gained strength from the 1990s onwards, with the holding of national conferences and the creation of specific guidelines, such as CNE/CEB Resolution N. 1/2002, which establishes the Operational Guidelines for Basic Education in Field Schools [Diretrizes Operacionais para a Educação Básica nas Escolas do Campo]. The guidelines recognize the diversity of rural peoples and guide the development of contextualized curriculum proposals, capable of integrating traditional knowings, scientific knowledge, and local experiences. However, despite regulatory advances, challenges persist in implementing these guidelines in everyday school life, especially in teacher education and the use of curriculum documents.

In practice, teachers working in field schools often lack initial training that addresses this reality, making it difficult for them to recognize and mobilize pedagogical practices that value the knowings of rural people. Added to this is the adoption of curricula and teaching materials designed for urban contexts, which accentuates the distance between what is prescribed and what is experienced in rural communities.

From this perspective, the problem that guides this article is centered on the following question: To what extent do curricular policies and Political-Pedagogical Projects (PPP) of field schools, in a municipality in the Triângulo Mineiro region, contribute to the recognition and appreciation of numeracy practices linked to rural social practices, according to the narratives of mathematics teachers? To answer this question, we propose understanding how curriculum documents are appropriated by mathematics teachers working in schools located in the field, analyzing how those teachers integrate the prescribed guidelines into their pedagogical practices, considering the specificities of the territories in which they are inserted.

The research is grounded in a qualitative approach and employs semi-structured interviews as a data collection instrument, subsequently organized into narratives. Based on these findings, we analyze how teachers understand curriculum documents and how they construct their practices within institutional requirements and local specificities. As a

theoretical contribution, this study is based on the concepts of teaching literacy (Kleiman & Assis, 2016; Rosso et al., 2011), numeracy practices (Fonseca, 2009, 2017), in debates on field education (Arroyo 2012; Caldart, 2002, 2009; Molina, 2019), as well as in curriculum policies aimed at the rural areas (Brasil, 2002, 2017; Minas Gerais, 2018), seeking to critically reflect on the meanings attributed to the curriculum and teaching practice in rural contexts.

In this study, we understand numeracy practices as forms of social use of mathematics that articulate values, beliefs, languages, cultural contexts, and strategies related to doing mathematics in everyday life (Fonseca, 2017). This conception recognizes that mathematical knowledge is not neutral or universal, but is shaped by specific sociocultural contexts (Fonseca, 2009). Thus, numeracy practices extend beyond the technical application of mathematical skills, encompassing the meanings attributed to them by subjects in the practices experienced in the relevant territories. In the case of rural schools, these practices relate, for example, to agricultural cultivation, informal measurement, local commerce, and other aspects of rural life. By highlighting numeracy as an integral dimension of literacy, this article proposes a critical reading of curriculum documents and teaching practices that emerge from teachers' narratives.

The text is structured in five sections: after this introduction, we present a theoretical discussion in *Curriculum and Field Education*; we describe the methodological procedures; we perform a data analysis we called *Teaching in Field Schools: Spaces of Existence/Resistance and plurality* which, throughout the section, highlights the tensions, resistances and powers of teaching practice in rural contexts, reaffirming the centrality of teachers as agents of curriculum transformation and subjects of contextualized pedagogical knowing. Finally, we present our considerations based on the proposed objectives.

# **Curriculum and Field Education**

Understanding field education requires scrutinizing its historical, political, and cultural constitution, characterized by processes of silencing, exclusion, and resistance. The field, as a territory, is not limited to a geographical notion; it is a space of life, struggles, cultural practices, and the production of knowings (Fernandes, 2012). The field is woven by multiple identities and unique ways of existing, which challenge hegemonic school models based on urban and universalizing conceptions of knowledge (Fernandes, 2012; Arroyo, 2007).

From this perspective, the school located in this territory cannot be a mere reproducer of urban models, but must constitute itself as a space for critical mediation, recognizing and valuing local knowings. Arroyo (2011) makes a significant contribution to this discussion by

stating that the curriculum is a "disputed territory," where clashes occur between different societal, cultural, and knowledge projects. In this context, the author asks:

In the training and basic education curricula, have we been guaranteed the right to know our own history? Isn't this a dispute over curriculum territory? What stories and how much learning do we have to tell ourselves in these stories? Are we moving towards positive professional self-images? What moment are we in? (Arroyo, 2011, p.23)

These questions highlight the importance of considering curriculum as an expression of societal projects, a field of forces where voices, knowings, and memories compete for legitimacy. We must ask: Who is authorized to tell the story? Which kind of knowledge is selected and which is silenced?

The history of education offered to rural peoples in Brazil, however, reveals a trajectory of exclusions. For a long time, the logic of rural education predominated, which, as Ribeiro (2012) points out, aimed to train a subordinate and disciplined workforce, neglecting local knowing and ways of life, thereby contributing to the erasure of rural peoples' traditions and cultures. According to Arroyo (2007), this conception reinforced the idea that while the field was a backward place, the city was synonymous with civilization. The author criticizes this imaginary, pointing out that field education was conceived under the paradigm of "adaptation" to the urban model, which contributed to the denial of schools as spaces of rural identity and autonomy.

The overcoming of this logic was driven by the mobilization of social movements, especially at the 1st National Conference for Field Education [I Conferência Nacional por uma Educação do Campo] held in Luziânia/GO, in 1998, during which the paradigmatic change from the term "rural education" to "field education" was consolidated. According to Kolling, Cerioli, and Caldart (2002, p. 27), field education must "strengthen the identity and autonomy of rural populations, and help the Brazilian people as a whole to understand that the relationship is not one of hierarchy, but of complementarity: the city cannot live without the rural areas and vice versa." In this context, education thought *in* the field does not necessarily recognize rural culture. In contrast, field education, according to Caldart (2002), is structured based on the subjects who live there, respecting and valuing their social, cultural, and historical practices. In this new horizon, the school must not only recognize the rural population but also build a formative proposal with them, rooted in their territories and social practices.

Despite advances, such as the creation of Operational Guidelines for Field Education [Diretrizes Operacionais para a Educação do Campo] (Brasil, 2002), and the initial education policy, which launched the teaching degree in field education [Licenciatura em Educação do

Campo] (LECAMPO) courses, there is still a gap between what is established normatively and what occurs in schools. Most teachers working in field schools were not trained for this reality and are often unaware of the legal frameworks that govern this modality. Curriculum policy, in this context, becomes a key element. As Girald (2018) highlights, we must ask which type of school one intends to train teachers for and what the sense of the prescribed curriculum is in those spaces.

For subjects living in rural areas, the curriculum policy must prioritize local knowings and foster dialogue between scientific knowledge and popular knowledge, thereby bridging the dichotomy between theory and practice. Gatti (2020) emphasizes that educational practices are cultural and collective acts, and that they must be understood in their complexity as part of a broader formative process that is sensitive to the realities of the territories.

To Arroyo (2011, p. 30), curriculum policies act as devices for shaping and controlling teaching, but are also susceptible to resignification: "Curriculum policies [...] have acted as a framework for shaping and controlling work and professional identities." However, as studies by Zanlorenzi and Oliveira (2017) demonstrate, teachers working in contested territories resist these impositions and develop pedagogical strategies that engage with traditional knowings, even in the face of the contradictions and limitations of the official curriculum.

From this perspective, discussing curriculum in field education is also discussing rights. Arroyo (2004, p. 74) is emphatic in stating that "the school must treat rural men, women, children, and youth as subjects of rights. As subjects of history, of struggles, as subjects of intervention." This statement calls us to think of the curriculum not as an external and neutral prescription, but as a living, situated process, built in dialogue with the territories and their subjects.

In this context, the curriculum discussion is a privileged field for challenging traditional schooling models and proposing alternatives that recognize the epistemic plurality of rural territories. As one of the teachers interviewed in this research points out: "It has to be in their way, in their experience... of the students... otherwise we just end up pushing things that don't make sense to them" (Teacher Antônio3, interview). Curriculum in field education, in this case, is not just about discussing content in prescribed documents, but also about meanings, identities, and societal projects. This statement summarizes what is sought with a field education curriculum: relevance, sense, and commitment to comprehensive education.

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<sup>3</sup> We will use fictitious names throughout this article to preserve the identity of the research subjects. This research was approved by the Research Ethics Committee.

Therefore, below, we present the methodological procedures and deepen the analysis of teaching practices and curriculum documents in rural schools, highlighting how teachers understand, appropriate, and resignify curriculum guidelines in light of their territorial realities.

# Methodological procedures

This study was conducted in the municipality of Uberaba, Minas Gerais, at municipal schools situated in rural areas, and is part of the results of a master's dissertation. The research involved eight rural schools, with the participation of six teachers working in middle school. The teachers were invited to voluntarily participate in the research, after acceptance by the Research Ethics Committee. They had their identities preserved through the assignment of pseudonyms: Joana, Amélia, Divina, Samuel, Antônio, and Roberto.

The choice for middle school teachers was due to the researcher's placement in a municipal school in a rural area and the understanding that field education has its own characteristics, strongly influenced by cultural, social, and economic aspects of rural communities, which differ significantly from urban dynamics. In this context, we considered it relevant to investigate how those teachers, working directly in field schools, experience and reframe pedagogical processes in light of current curriculum policies.

The methodology adopted was qualitative research, of an exploratory and interpretative nature, based on Lüdke and André's (1986) assumptions. The data collected from interviews were organized in the form of teachers' narratives, as proposed by Nacarato, Passos, and Lopes (2019), seeking to understand teaching experiences and how research subjects produce, mobilize, and resignify mathematical knowings, in the context of field schools.

Data were collected through semi-structured interviews, conducted according to a script prepared following the research objectives. This study aims to understand how curriculum documents are appropriated by mathematics teachers working in rural schools, analyzing how these teachers integrate the prescribed guidelines into their pedagogical practices, considering the specificities of the territories in which they are situated.

The interviews followed a script composed of 13 open-ended questions, guided by three themes: initial education and insertion into the field education context; curriculum documents and teaching practices in the field context; and numeracy practices. The interviews took place individually, lasting an average of 40 to 60 minutes, and were conducted in person at the participating schools or the Professional Training Department – Casa do Educador Professora Dedê Prais, in a private environment. This approach to conducting interviews, as highlighted by Fraser and Gondim (2004), facilitated the deepening of teachers' reports and experiences by

enabling access to the perceptions, values, and meanings that teachers attribute to their practice in the rural context.

After the interviews were conducted, we listened to and transcribed the audio recordings. From this material, we proceeded to construct qualitative data based on the speeches of mathematics teachers who work in field schools in the municipality of Uberaba (MG). The organization of this information was done through the elaboration of narratives, resulting from the process of textualizing the transcripts (Pereira, 2016). The narratives were supported through in-depth readings, with an emphasis on excerpts related to the research objectives. Subsequently, we organized the data into a chart to facilitate articulation with the adopted theoretical frameworks. Thus, the categorization took place a posteriori and, based on the creation of three axes of analysis: (i) recognition and appropriation of curriculum documents; (ii) numeracy practices and mathematics classes; (iii) curriculum adaptation and resignification in the daily field school life.

It is worth noting that the scenario investigated is characterized by a context of plurality, comprising schools with varying sizes, social realities, and infrastructure. Some have a teaching team with greater professional stability and community involvement, while others struggle with teacher turnover and geographic isolation. This diversity was considered in the data analysis, respecting the uniqueness of each school unit.

# Teaching in Field Schools: Spaces of Existence/Resistance and Plurality

In this section, we present the analysis of the narratives of the teachers participating in the research, focusing on the relationship between the curriculum documents and their pedagogical practices in field and rural schools. Based on data produced through semi-structured interviews, we organized the analysis into three interdependent thematic topics, which were constructed a posteriori based on the interpretative reading of the reports and aligned with the research objectives.

In this context, the first topic entitled "Curriculum documents and teaching practice in rural areas: appropriations and resignifications" deals with teachers' recognition and appropriation of curriculum documents. There, we analyze how teachers understand and use documents such as the Minas Gerais Reference Curriculum [Currículo Referência de Minas Gerais] (CRMG), the curriculum matrices of the Uberaba Municipal Department of Education (SEMED), and the Political-Pedagogical Projects (PPP), as well as the meanings they attribute to these instruments.

The second topic, "Between practices and documents: the PPP and rural peoples' knowledge in school mathematics," addresses numeracy practices and mathematics teaching, highlighting how teachers recognize and mobilize local knowings in classes, connecting school mathematical knowledge to the daily experiences of rural students. Pedagogical experiences that favor contextualization and interdisciplinarity are highlighted, valuing the knowings of rural peoples.

Finally, the third topic, "Limits of the prescribed curriculum and the challenges of teaching in rural areas," focuses on the processes of curriculum adaptation and redefinition in everyday school life, exploring teachers' position in the face of gaps in curriculum documents and seeking strategies to bring them closer to the rural peoples' realities. This movement is analyzed as part of teaching literacy, which involves critical mediation between what is prescribed and what is experienced.

This organization sought to address the complexity of teaching in rural areas, considering the tensions between what is prescribed and what is experienced, as well as teachers' efforts to make the curriculum more relevant to rural students' realities. We understand that pedagogical practices are permeated by multiple – political, social, and cultural – dimensions and that teachers act as agents of teaching literacy (Kleiman & Assis, 2016), reinterpreting official documents and mobilizing local knowings in the construction of meaningful educational experiences.

Next, we discuss the first topic of analysis, highlighting how teachers understand, use, and (re)signify normative texts in their teaching practice in field schools.

# Curriculum documents and teaching practice in rural areas: appropriations and resignifications

The relationship between curriculum documents and teaching practice in field schools has revealed a constant tension between normative discourses and local realities, whose cultural and social specificities are not always supported by curriculum prescriptions. The analysis of the teachers' narratives reveals a pedagogical practice constructed in an attempt to engage with such documents, particularly the Minas Gerais Reference Curriculum [Currículo Referência de Minas Gerais] (CRMG) and the matrices of the Municipal Department of Education of Uberaba (SEMED), despite these not effectively capturing the singularities of rural peoples' lives. In this direction, Teacher Samuel, for example, reveals the direct use of these official guidelines:

"[...] for lesson planning, here we use the Minas Gerais Reference Curriculum and that of the city hall as well; a new document was created this year with the curriculum

matrices that are also based on this Minas Gerais reference curriculum, on which everything must be based now. So, this is what we use. This is what I currently use."

Other teachers, such as Divina and Amélia, highlight an effort to integrate the CRMG into the BNCC and the municipal curriculum, despite these documents still lacking a proposal aimed at field schools. From this perspective, Amélia mentions: "For my planning, I usually use the curriculum much, right, from Minas Gerais, intertwined with that of Uberaba." Divina complements this connection between documents by stating: "For lesson planning here at school, we use the entire school, not just me, the entire school uses the CRM and the BNCC, to combine both. [...] This year, we prioritized the CRMG issues [...]."

These statements highlight the leading role of the CRMG as a guide for pedagogical practice, which is justified by the indication of these documents by the Municipal Department of Education, particularly when it employs control devices (Foucault, 2010), such as assessments and reports, precluding teaching autonomy. Even so, teachers demonstrate initiative in adapting normative guidelines to students' realities.

This integration between the prescribed and the territory can be understood as a teaching literacy practice, as defined by Kleiman and Assis (2016). The authors recognize as teaching literacy the reading and writing practices necessary and relevant to the workplace, in this case the school, which teachers use to teach, such as preparing lesson plans, reports, participating in planning meetings, preparing and correcting assessments, reading and analyzing official documents, textbooks, analyzing mathematical tasks, discussing projects, and scientific productions. From this perspective, teaching literacy practices in the construction of the lesson plan, for example, involves more than the technical mastery of reading and interpreting documents; it involves constructing meanings and redefining curriculum guidelines in light of the local context.

According to Teacher Roberto, planning represents a fundamental starting point in the organization of his teaching practice, so he affirms: "For pedagogical practice here at the field school, I think that all the planning we do is a guide for what we will do in class." Divina also points out: "I believe these documents contribute positively to my teaching practice, because they have a direction, right?", adding that "You need to draw a parallel between what is described in the CRMG and what you know your student experiences."

This adequacy, however, is crossed by limits imposed by the organization of teaching work itself. The CRMG guidance states: "You must understand the relationship of this document with your daily life at school, be aware and understand the precepts discussed here and the ability to work on them in the classroom and at school" (Minas Gerais, 2018, p. 02).

However, it is necessary to question the viability of this proposition in contexts where teachers face excessive responsibilities, a lack of specific education, and inadequate public policies that value their practices and areas of activity.

According to Garcia-Reis and Callian (2021), teaching work is characterized by its complexity, simultaneity, and unpredictability, demanding reflective actions and a solid foundation in pedagogical knowledge. To the authors, it is necessary to overcome the idea that the teacher is solely responsible for contextualizing the curriculum, disregarding the structural and political conditions that affect their work:

All these characteristics demonstrate the complexity of the teaching work activity. It involves permanent choices made by the subjects involved, as well as conflicts between their way of acting and the prescriptions that guide their activity. Thus, as Clot (2007) states, the prescription agent should not be conceived as a mere executor of the prescribed task, as this task is inserted in his/her history. Thus, we must consider that the teacher not only carries out the prescriptions present in the documents as a simple agent, but must be considered as an actor in the teaching process. (Garcia-Reis & Callian, 2021, p. 12)

Ball, Maguire, and Braun (2021) recognize educational policies as a process, which is not only configured by documents and curriculum prescriptions, but also as discursive processes that are shaped, mediated, and institutionally influenced by context. The authors highlight the role of school agents, especially teachers and students, as curriculum producers, even though they were not considered in the production of the prescribed curriculum (Ball, Maguire & Braun, 2021). Ball et al. (2021) and Garcia-Reis and Callian (2021) resonate with the narratives of the research teachers, such as Joana and Antônio, who express the perception that the curriculum documents do not adequately address the particularities of rural peoples' realities. About this, Joana states:

"When I think about the reality here at the school, I think it should be a little more focused on those rural students. So, I think it's a priority to think about the curriculum to mobilize mathematics teaching, so that it is more targeted. Because I think there should be something more targeted, so that they don't leave the rural areas and, in the future, suffer more in the city."

Teacher Joana's speech highlights the importance of a curriculum tailored to the rural context and prompts an exercise in curriculum redefinition, aiming to bring mathematics teaching closer to students' realities. Joana's story also suggests that the future of these rural youth will be in urban centers, as a result of the emptying of rural territory and, subsequently, the devaluation of the culture established there. Antônio, in turn, comments that "The curriculum documents do not cover the content, the rural part, the field education—nothing

like that. I don't even think there is such a prediction. I don't know about it. The matrix is standard, right?" In this scenario, teaching practice becomes a space for curriculum production, because, as Oliveira (2013) states, what the teacher does is, in fact, the current curriculum. Antônio's observation confirms this perspective, considering that the current curriculum overlooks the knowings of rural peoples.

It is worth highlighting that Antônio recognizes content not only as the specific mathematics content presented in the curriculum guidance documents used by the teachers investigated, but also as the broader context in which it is situated. Furthermore, by stating that "the matrix standard," Antônio highlights the gap between the mathematical knowings present in field experience and that proposed in the curriculum documents. This gap reveals the predominance of a curriculum focused on urban reality, contributing to the invisibility of rural peoples' practices in official pedagogical guidance instruments.

Thus, the curriculum assumes a crucial role in guiding pedagogical practices, being understood as a guideline that should be articulated with the multiple dimensions of teaching practice and the particularities of school contexts. However, when reflecting on the Minas Gerais Reference Curriculum (CRMG), Garcia-Reis and Callian (2021, p. 12) raise a question about the centrality attributed to the teacher in this document: "All these discussions allow us to question whether the Minas Gerais Reference Curriculum includes in its content these considerations about the peculiarities of the school and conceives the teacher as this central subject, with their own intentions and reasons for acting."

This question leads to a reflection on the extent to which curriculum documents, even when formulated under the justification of national or state guidance, often fail to consider the teacher as a historical subject, living in a specific context, and with capacity for agency. By overcoming the complexity of teaching, curriculum proposals reinforce a prescriptive logic that hinders the construction of pedagogical practices consistent with the territories and students' experiences. In this sense, the criticism of the teachers interviewed demonstrates not only the discrepancy between the document and the reality of rural areas but also highlights the efforts of these professionals to resist homogenization and seek their own ways of mediating between what is prescribed and what is experienced.

Next, we aim to analyze the contextualization and resignification strategies employed by teachers to integrate local knowings into mathematics teaching and construct meaningful pedagogical practices for the rural context.

# Between practices and documents: PPP and rural peoples' knowing in school mathematics

The gap between normative curricula and the specificities of field schools, particularly in the context of this research, was mitigated through the role of teachers as mediators and agents of resignification. In this context, the Political-Pedagogical Project (PPP) emerges as a crucial instrument, as it enables greater autonomy and dialogue with local reality. Teacher Samuel recognizes this role:

"So, I believe that the PPP is actually a guide for you to work on planning and executing classes, because you won't work in isolation, each person working differently, saying one thing and not having a unit of work. So, I think the PPP is a document that guides the work so that everyone is on the same page, working in the same way, with the same goals."

This understanding is aligned with Veiga's (1998, p. 11) conception, when announcing that "the project seeks a route, a direction. It is an intentional action, with an explicit meaning, with a collectively defined commitment." The author also highlights that the PPP is an expression of the school's autonomy and the capacity of its agents to build their own identity,

[...] this means rescuing the school as a public space, a place for debate and dialogue based on collective reflection. Therefore, it is necessary to understand that the school's political-pedagogical project will provide the necessary indications for the organization of pedagogical work, which includes the teacher's work in the internal dynamics of the classroom [...] (Veiga, 1998, p. 12)

Teacher Joana confirms: "We wrote the Political Project here at school together. Whole team. It has a math project, interdisciplinary and cross-disciplinary projects, including all the content together." Teacher Samuel also reinforces this perspective of collective construction:

"Even this year, we were making adjustments to the political-pedagogical project. And there, we are always consulted to do it. For every matter, we hold meetings with the pedagogical responsible, the school management, and everything. The management is very democratic; we are the ones who develop the projects that are in the school's PPP. These are our projects, created by us at school."

Amélia highlights the spaces for collective construction of this document, and the importance of the pedagogical team concerning the necessary adjustments and reformulations:

"I have already read and participated in the construction of the school's political project and the curriculum proposal. We had a meeting at the beginning of the cycle, where the project was presented, and we could do it and give our opinions. The opinion that it should be remodeled or that it should be maintained, you know?"

These reports show that the PPP can serve as a powerful channel for linking teaching practice to local knowings and for teachers to be recognized as active subjects in curriculum construction. However, the effectiveness of this proposal depends on the appreciation of teacher participation and autonomy in educational policies, as well as the recognition of teachers' actual working conditions. Macedo, Oliveira, Manhães, and Alves (2011, p. 63) defend the idea that the horizontalization of relations between different knowings

[...] seeking to break with the logic of dominant thought that hierarchizes them according to their level of scientific knowledge, politically granting them the legitimacy considered as a technique that they enjoy is one of the most important tasks that we have ahead of us in the development and implementation of a political-pedagogical project that contributes to the democratization of our schools.

In particular, reflecting on the numeracy practices that teachers report, they serve as proof of how the curriculum can gain meaning in students' daily lives when it is based on field experiences. Initiatives such as school vegetable gardens and rural open markets exemplify concrete possibilities envisioned in the Political Pedagogical Projects of the schools investigated, highlighting how mathematics teaching can be linked to the daily experiences of students living in rural areas. Joana, for example, highlights that the PPP includes "mathematics project, interdisciplinary, transversal projects," and, in her speech, she highlights the educational potential of working with vegetable gardens, especially regarding mobilizing school knowledge, appreciating numeracy practices in the pedagogical context, and promoting an interdisciplinary approach:

"I worked on math, and then I included the vegetable garden. Everything comes into play here: counting, sequence, magnitudes, measurements, everything, right? There is science, there is geography. [...] We planted, we worked on the geography, the soil, right, the composting... We planted vegetables and worked on measurements in mathematics, including the spacing of plants. You need some space to plant vegetables, greens, those things. I know there was a lot that had to be fitted into this project. Math, geography, Portuguese, plant names, what else? Vitamins, there were several contents that I included in that project, you know? So, we worked on all of that, it was teamwork. And we, automatically, planting. We used the vegetable garden. We harvested the vegetables, everything here at school. The school also participated in the feeding. And the boys took what they harvested here. They took it, donated it, and some had it at home too, right? So, it was a lovely work. I found it very enjoyable to do it, and so did they, because there, they want to do everything, right? They want to deal with the soil, they say 'no, 'dona', I'll do it here!' Because here they call us 'dona', I don't know if you noticed: it's 'dona'." (Joana)

<sup>4</sup> In the context of the research, "dona" is a respectful and affectionate way in which students refer to their female teachers.

This interdisciplinary approach and connection with everyday life are characteristic of field education and the proposal of teaching literacy as a mediator between scientific knowledge and popular knowings. Samuel intensifies this idea by explaining:

"[...] we also have interdisciplinary projects, which is our knowledge fair, called FIAR (Feira Interdisciplinar de Aprendizado Real) [Interdisciplinary Real Learning Fair]. This is a specific fair, it is not your traditional school science fair. This is interdisciplinary, all the teachers work together and the issues are thematic, so, all subjects are included. FIAR works like this: the teacher chooses a topic to work on, organizes their team, and, within that team, they develop the topic. And the themes, we try to return to themes, including those from the field school." (Samuel)

In field schools, numeracy practices extend beyond the simple execution of school-based mathematical skills, manifesting themselves in the articulation of diverse knowledge and highlighting the relevance of the situation to the meaning of knowledge. An example of this is Samuel's account of field situations demonstrated by farmers and the use of a central pivot (or water wheel) in a pedagogical activity, in which students mobilized concepts of geometry to build a replica of a simulation system:

"So, a student, for example, took a horse there to show how to trim a horse's hoof, how to cut the hair, how to cut the mane. So, we try to work within their reality and, of course, insert our content. Now, about field practice, we hosted an evening fair, the Rural Activities Exhibition. [...] The fair is very focused on this rural practice. So, we have already carried out several activities that I consider to be a successful pedagogical practice. A student took a horse and showed what he could do. Some of our students who were more interested in engineering built a mini electric water wheel that irrigated and rotated around a circle. So, I explained to them the concept of a circle, including its center and area, see? This one with the pivot was perfect, I'll never forget it. And they did it because one of them lived on a farm that had a pivot. That's really good. So, speaking, it's even difficult to explain, right? Do you know how a pivot works? It rotates around a center. And theirs was perfect. It rotated and irrigated simultaneously, powered by a small electric motor and other components. And it's something they developed to use in their context. So, it was a really cool thing that he was giving me this knowledge of the pivot, and I was giving him the mathematical knowledge. And we joined both knowledges and made a difference." (Samuel)

The narratives of teachers Joana and Samuel reveal their effort to bring students' numeracy practices closer to school numeracy practices, which we can consider part of teacher literacy. The role played by teachers in mediating knowings originating from the rural community and the systematized mathematical knowledge present in the school curriculum and the valorization of the knowings produced in the field context in mathematics classes stands out. Thus, experiences such as the fair that teacher Samuel mentioned highlight the potential of integrated initiatives that articulate school mathematics content with the knowings of the

territory, facilitating the understanding of specific content addressed at school that allows the mobilization of non-school numeracy practices brought from the experiences of field students.

In these practices, content such as magnitudes, measurements, numerical sequences, and even the phases of the moon, used in planning agricultural activities, is integrated in an interdisciplinary manner, enabling the construction of meanings and the recognition of numeracy practices, as exemplified by Joana:

"And then, we made the vegetable garden, everything. The phases of the moon, which is good for planting. Then, we researched the months, its phases, which was good for this and that food, to be planted. And then the students intervene: 'Ah, I have, for example, manure to put on the plants, which I already have ready at home.' Then, one brought it, the other one too. [...] I found it very enjoyable to do it, and so did they, because there, they want to do everything, right? They want to deal with the soil, they say 'no, 'dona', I'll do it here!' Because here they call us "'dona', I don't know if you noticed: it's 'dona'. And there, they work a lot with vegetable gardens. They make, sell, and resell. The city hall has several projects with vegetable gardens, things like that. And they are used to planting, harvesting, selling, taking to the market, to the open markets in Uberaba. So, I looked at them: 'No, 'dona,' I know how to do that, I can do it!' 'Leave it to me.' Then someone dug the flowerbeds, right? They made the flowerbeds. The other, fertilization, you know? Stir the soil, right? Wrap the right fertilizers at the right time. Then, water it, you know? So, it's an interdisciplinary project, in which I tried to include a little bit of everything, and the students get involved in it, they like it."

These narratives demonstrate that, even when faced with curricula that disregard the specificities of the field, teachers can mobilize powerful practices that integrate school knowledge with local experiences and cultures. It is worth considering that these approaches, which combine different knowledge from the field and from school, are directed towards the schooling process. The construction of a pivot for irrigation or the use of unconventional measures for field work does not always require systematic knowledge about the properties of the circle or standard units of measurement, for example. Knowledge is situated (Lave & Wenger, 1991), and the objectives related to those situations depend on the context in which the action takes place. Next, we propose a reflection on the limits of teaching participation and the absence of the prescribed curriculum in the face of rural peoples' realities.

# Limits of the prescribed curriculum and the challenges of teaching in the field

Although the Political-Pedagogical Project represents a potential space for collective construction and appreciation of rural people's culture, it also faces implementation challenges. Antônio, for example, mentions that he participated in the construction of the PPP, but highlights the absence of content related to mathematics and social practices in the field: "*There* 

is no theme correlated with mathematics and rural peoples' social practices. There was already a project within the school, with goals, for example, of building vegetable gardens and orchards." This absence highlights the limitations of a curriculum that, even though developed by school actors, still needs to advance to effectively incorporate rural peoples' practices into mathematics teaching. Antônio's speech also reveals some distance between the teacher and the project's intentionality, suggesting weaknesses in the identification and professionalization of the field teacher. As long as educators have to divide their time between several institutions to supplement their income, the connection with the school's pedagogical project tends to be weakened, which impacts the quality of education.

Currently, the teaching degrees in field education have been configured as a space of struggle and resistance for promoting initial teacher education in the field. However, although advances in specific educational policies (Brasil, 2002) for the rural context have had a significant impact, a large number of teachers without specialized training are still working in field schools – as is the case with the participants in this investigation. Therefore, promoting continuing education and valuing the teaching career are urgent paths to impact field education. On the other hand, Teacher Joana contributes with a reflection on how she tries to adapt the curriculum matrices to the field context:

"When I put together my planning, I use the curriculum matrices that are sent to us. And I try, within these matrices, to understand the knowledge of the field student. So, I follow the matrices, applying some bases to some content, to the field school, to the field experience. So, the student, they know some measurements. They have some knowledge that they bring from there, but they don't know how to apply, right? When we do, for example, some exercise in the classroom that is there at the matrix, they already bring something. But in another way of doing it, right? In their way, in their experience. For example, magnitudes and measurements, right? I'll go to the matrices. There you have to work with meters, lengths, centimeters, weights, measurements and so on. So, some already know. And they say: 'Ah, then, that amount there... ah, it's in arrobas, right?' They already know from their experience, right? Weighing, for example, an animal... So, they already bring something in that sense."

Her speech highlights the teacher's role an agent of teaching literacy and cultural mediator, according to Kleiman and Assis (2016), but also highlights the need for teacher training, since the teacher does not recognize that the student –although having difficulties with the applicability of school mathematics– demonstrates knowledge "through ways, modes, techniques, arts (*techné* or *ticas*) of explaining, knowing, understanding, dealing with, living with (mátema) the natural and sociocultural (*ethno*) reality in which they, human beings, are inserted" (D'Ambrosio, 2005, p. 103). Even though the curricula do not explicitly cover the

field, teachers seek to reinterpret them in light of the students' realities. Samuel illustrates this point by mentioning:

"But, look, I don't actually think they're really made with field schools in mind, not really. We adapt because we understand that it's difficult to create a document that considers all the specificities of each region. Therefore, the document must be truly unique. But we have to adapt, right?"

The narratives of Samuel, Antônio, and Joana highlighted the teachers' efforts to adapt the prescribed curriculum to the realities and demands of field schools. Although such statements reveal the teachers' commitment to a contextualized pedagogical practice, it is essential to note that implementing field education requires the formulation of specific curriculum policies that are committed to addressing field issues and territories (Caldart, 2009).

Even with the existence of other references, such as the municipality of Uberaba's curriculum proposal, significant gaps remain. In this sense, Divina points out: "The curriculum proposal, here in Uberaba, is very focused on zebu cattle, right? Therefore, it prioritizes the zebu breed issue. Within mathematics, in the field, I don't see much of it." Her note highlights an important criticism of the centrality attributed to zebu culture in local curriculum construction, which ultimately limits the representation of the sociocultural and economic diversity of the field. This observation underscores the importance of broadening perspectives in curriculum development to avoid reductions that reinforce the hegemony of a single aspect and silence other forms of life, knowings, and experiences present in rural peoples' territories.

Furthermore, these narratives reveal a lack of plurality in curriculum construction, the expansion of spaces occupied by agribusiness in the educational sector to the detriment of local knowings, and reinforce the need for public policies that consider the multiple realities of the field. Souza's reflection (2019, p. 52) is pertinent in this scenario:

[...] When we deal with field schools, we must take into account some specificities. It is essential to remember that in the field, we encounter traditional peoples who live according to their own beliefs and traditions. It is still necessary to consider the type of information that reaches these populations, which, in some cases, may be underprivileged due to geographical limitations. A set of elements is formed that makes the difference between understanding rich in meaning, which is followed by learning, and mere observation, empty of meaning.

Amélia's account comparing her experience in urban and rural contexts illustrates this challenge:

"[...] I had a contrast, that, when you work in a city, in an urban area, and then [you start working at] a field school, you see a very different reality. From then on, everything

has changed. Whenever you plan for an urban school, it's different from a rural school. So what happens? I had to use all that knowledge I already had from urban schools in a different way to work in rural schools."

This reflection highlights the challenges faced by teachers in recognizing the singularities of the rural context. It demonstrates the teacher's critical awareness of their practice, aligning with the notion of a transformative intellectual, that is, "prospective teachers must be trained to carry out critical readings of the world and the school and mobilize transformative actions within it" (Rosso et al., 2011, p.124). As the authors state, this movement demands an ethical and political repositioning in light of the specificities of the territories, valuing local knowledge and students' experiences. Despite this, a distancing of some teachers from the PPP was also observed. Roberto shares:

"We also have the PPP, but I didn't participate in its construction because, when I arrived, it was already ready. Now there will be a change there, it will change again there, I think that now for next year, I will probably participate! I didn't read it all, I already had access, so, since they were commenting on this transition, and I saw that there are several things related to mathematics, but specifically, I won't remember, I remember superficially, but I know it does exist."

Roberto's narrative, considering his novice status—having only been in the field for a year and a half—raises relevant reflections on the processes of constructing and appropriating the Political-Pedagogical Project (PPP) in school institutions. His speech reveals a common reality in many public schools: the newly arrived teachers' initial distance from the main document that guides institutional identity and pedagogical guidelines. Thus, Roberto's speech highlights the lack of institutional strategies to integrate new teachers into the process of developing and appropriating the PPP. Veiga (1998) states that the project is an instrument for organizing pedagogical practice, but it is only effective with active participation and continuing education of the school team.

Tedesco (2021) argues that a school's pedagogical project goes beyond its educational guidance function; it also constitutes an instrument of a political nature, as it expresses the institution's commitment to the concrete and collective interests of the community it serves. To the author, this political dimension materializes in the school's responsibility to promote civic education, preparing students to act critically and consciously in the society in which they are

inserted, including in the recognition and appreciation of field culture. In this context, the author expands this discussion by stating that:

The political and pedagogical dimensions thus have an inseparable meaning. In this sense, the Political-Pedagogical Project must be considered as a permanent process of reflection and discussion of the school's problems, in the search for viable alternatives to the realization of its intentionality, which "is not descriptive or confirmatory, but constitutive" (Marques, 1993, p. 23). On the other hand, it provides the democratic experience necessary for the participation of all members of the school community and the exercise of citizenship. (Tedesco, 2021, p. 72)

In this sense, Teacher Roberto's expectation of participating in future PPP reviews is positive, as it reveals a willingness to contribute and reinforces the importance of schools creating permanent mechanisms for teacher integration.

The analysis of teachers' practices and discourses reveals that, although there is an effort to contextualize teaching, a lack of public policies remains, providing systematic support for these practices. Curriculum proposals continue to overlook the realities of the field, compromising the development of a truly emancipatory education. We corroborate that, given the diversity that characterizes the Brazilian context,

[...] the complex and diverse daily experiences of basic education in Brazil are disregarded and end up "wasted", to use Santos's expression (2007, p. 28), by curriculum policies, which are incapable of recognizing them, considering them, or even interacting with them outside the scope of verticalized prescription. Not because curriculum proposals cannot be constructed as public policy, but because doing so while disregarding such experiences reinforces the stereotypes of those who think about the curriculum and those who implement it (Silva, 2011; Lopes & Macedo, 2011) (Valle, 2021, p. 3).

In this scenario, field education, as stated by Silva and Cristóvão (2019), does not merely require another school, but rather new pedagogical practices that involve rural people as active subjects in the construction of knowledge. Thus, understanding teachers as agents of teaching literacy requires recognizing that their practices are not limited to the application of documents, but to their recreation and critical mediation, as teachers Joana, Samuel, and Amélia demonstrate throughout their experiences. The numeracy practices that emerge from these contexts are an expression of teaching creativity and resistance to the homogeneous curriculum.

We therefore conclude that it is urgent not only to strengthen teacher training focused on field education but also to value local knowings, and ensure public and curriculum policies that recognize the diversity of the rural territory. Listening to communities, democratic action in PPPs, and the integration of interdisciplinary projects are ways to promote more equitable, meaningful, and transformative education for field individuals.

## **Final Considerations**

The analysis of teaching narratives and the pedagogical practices they demonstrated revealed the tensions between the prescribed curriculum documents and the sociocultural reality of rural peoples' territories. The relationship between these documents and teachers' practice is configured as a process permeated by efforts of resignification, critical appropriation, and, above all, resistance to curriculum standardizations that do not consider the specificities of the field. We highlight the State's responsibility for the adaptations analyzed here, as specific policies for field schools are not prioritized, and for adequate continuing education.

In this context, the numeracy practices reported throughout this research reveal how the mathematics curriculum can acquire meaning for field students when it is anchored in their everyday experiences. The participating teachers demonstrate teaching literacy by redefining, in their practices, the content provided in the official curricula, seeking to articulate it with local knowings, such as the use of non-standardized measures, marketing practices at open markets, and knowledge related to family farming.

As evidenced in the conclusion of the dissertation that underpins this article, such numeracy practices not only reflect the ways of life of rural communities but also prove to be a powerful starting point for teaching formal mathematical content, when recognized and critically mobilized by teachers. The valorization of non-school mathematical knowings is, therefore, one of the paths to building a mathematics curriculum that is fairer, more inclusive, and connected with the territories. However, as pointed out in the dissertation, the recognition of these practices still depends, to a large extent, on the individual engagement of teachers who, often, were not trained to work in the field and need to seek their own strategies to contextualize their practice.

This movement demonstrates that pedagogical practice extends beyond merely complying with norms and documents, as it involves mediation, adaptation, and the creation of meaning. The reported numeracy practices, the collective construction of PPPs, and the appreciation of interdisciplinary projects show that it is possible to build a contextualized

education, as long as there is space and adequate conditions for listening, autonomy, and teacher authorship. As Oliveira (2013, p. 280) states, "educational policy proposals always encounter a daily routine where things already happen and act upon them, not just function based on them."

Despite this, there is a significant lack of public policies aimed at field education, which systematically include teacher continuing education training, the development of specific curricula, and the overcoming of a centralizing and urban logic of basic education. Reports indicate that, although attempts are made to integrate field knowings into school planning, these efforts often occur in isolation, depending on the individual engagement of teachers. This fragility reveals what Arroyo (2011) calls the dispute over curriculum territories: the field is not just a physical space, but also a symbolic and political one, where the struggle for recognition, belonging, and a societal project takes place.

It is therefore necessary to advance in the formulation of curriculum policies that recognize the diversity of subjects in the field and that are based on active listening by educators and communities. A transformative education for the field cannot do without valuing local practices, democratizing school processes, and shaping critical, reflective teachers committed to the educational rights of rural peoples.

In this context, this study highlights the importance of understanding teachers as transformative intellectuals, capable of reinterpreting documents, reconstructing meanings, and proposing paths towards a more just and contextualized education. Teaching, in these terms, is a political, ethical, and pedagogical act that requires recognition, appreciation, and investment from the State. Through this collective commitment, we can effectively move towards a field education that respects territorial singularities, promotes social justice, and reaffirms the right to difference.

Thus, as an extension of this investigation, we propose future research to explore: (i) the initial education of mathematics teachers for work in field schools, considering the challenges of building teacher literacy in rural contexts; (ii) the role of Political-Pedagogical Projects in valuing local numeracy practices and in the disputes for a contextualized curriculum; and (iii) the impacts of public policies aimed at continuing education in the consolidation of pedagogical practices that respect territorial knowings. Such directions can deepen understanding of possible paths towards a mathematics education more committed to the educational rights of rural peoples.

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