Article

Literacy practices and shared repertoire by teachers who teach mathematics

Práticas de letramento e repertório compartilhado por professoras/es que ensinam matemática

Prácticas de alfabetización y repertorio compartido por docentes que enseñan matemáticas

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ABSTRACT

This article aimed to identify and describe engagement in teaching literacy practices in which teachers who teach mathematics participated. We used a qualitative approach and analytical tools from the Social Theory of Learning and literacy as a social practice to identify and describe interactions with the uses of reading and writing in study meetings and lesson planning held in a public school. The empirical material was produced through observations, interviews, and documents. The results suggest that members engaged in literacy events mediated both by prescriptive texts and by texts produced by the group itself to organize the repertoire. However, the constitution of the shared repertoire occurred through engagement in literacy practices recognized and valued in the group. Although prescriptive texts guide the practices, the repertoire was not limited to these prescriptions, passing through the various social engagements of those involved.

Keywords: Literacy practices. Shared repertoire. Training of teachers who teach mathematics. Social practice. Reading and writing.

RESUMO

Este artigo teve por objetivo identificar e descrever o engajamento em práticas de letramento docente das quais participaram professoras/es que ensinam matemática. Utilizamos uma abordagem qualitativa e ferramentas analíticas da Teoria Social da Aprendizagem e do letramento como prática social para identificarmos e descrevermos interações com usos da leitura e da escrita em reuniões de estudo e planejamento de aulas realizadas em uma escola pública. O material empírico foi produzido por meio de observações, entrevistas e documentos. Os resultados sugerem que os membros se engajaram em eventos de letramento mediados tanto por textos prescritivos quanto por textos produzidos pelo próprio grupo para organizar o repertório. Contudo, a constituição do repertório compartilhado ocorreu pelo engajamento em práticas de letramento reconhecidas e valorizadas no grupo. Apesar de textos prescritivos orientarem as práticas, o repertório não se limitou a essas prescrições, perpassando pelos diversos engajamentos sociais dos envolvidos.

Palavras-chave: Práticas de letramento. Repertório compartilhado. Formação de professores que ensinam matemática. Prática social. Leitura e escrita.

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RESUMEN

Este artículo tuvo como objetivo identificar y describir el compromiso en las prácticas de alfabetización docente en las que participaron profesores que enseñan matemáticas. Utilizamos un enfoque cualitativo y herramientas analíticas de la Teoría Social del Aprendizaje y la alfabetización como práctica social para identificar y describir interacciones con los usos de la lectura y la escritura en reuniones de estudio y planificación de lecciones, realizadas en una escuela pública. El material empírico se produjo a través de observaciones, entrevistas y documentos. Los resultados sugieren que los miembros participaron en eventos de alfabetización mediados tanto por textos prescriptivos como por textos producidos por el propio grupo para organizar el repertorio. Sin embargo, la constitución del repertorio compartido ocurrió a través de la participación en prácticas de alfabetización reconocidas y valoradas en el grupo. Si bien los textos prescriptivos orientan las prácticas, el repertorio no se limitó a estas prescripciones, pasando por los diversos compromisos sociales de los involucrados.

Palabras clave: Prácticas de literacia. Repertorio compartido. Formación de profesores que enseñan matemáticas. Práctica social. Leyendo y escribiendo.

INTRODUCTION

Understanding the uses of written language[1] as forms of action incorporated into the production of meanings, not just as an expression of interaction in the social world, has gained space in education research, especially in the last two decades (Tusting, 2005; Perry, 2012; Gee, 2013; Kleiman and Assis, 2016). In this sense, Gee (2008) explains written language as a set of practices, i.e., beyond a system of words, linguistic codes, and grammatical rules. This perspective, therefore, considers that the uses of written language express action in the material and social world, whose meanings are produced in contexts, in situated social practices (Perry, 2012).

In Perry's (2012, p. 52) words, "[...] language, thus, is never independent of social world [...]". The author says that language conforms to social relations and contexts, so reading and writing are uses of written language and ways of thinking and acting in the world. Consistent with this meaning, we place this study in a sociocultural perspective of literacy (Gee, 2013) and understand the uses of reading and writing within the contexts of social, cultural, political, economic, and historical practices in which they take place (Lankshear and Knobel, 2007).

Literacy as a social practice[2] (Street, 2017) means that "[...] reading and writing cannot be separated from speaking, listening, and interacting, on the one hand, or using language to think about and act on the world, on the other" (Gee, 2013, p. 136). In this understanding, literacy is a phenomenon beyond mechanical skills related to people's individual capacity in the uses they make of reading and writing, being better understood in terms of sociocultural processes than cognitive skills (Kleiman and Assis, 2016).

In this projection, the uses of reading and writing refer to the perspective that a literate person has of themselves, others, and the texts available to interact and to be able to assume different roles in a social context (Gee, 2008), since reading and writing are actions intertwined in some social form and that only make sense in specific social conditions (Soares, 2006). We, therefore, understand the

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1   As in Gee (2013), in this study, we refer to the uses of written language as oral or written interactions that express modes of action, writing, and reading to assume roles.
2   This expression will be further defined in the next section. For now, consider it intuitively.

text as the form of social practice represented in written, spoken, printed, or visual form on which meanings are socially produced (Brockmeier and Olson, 2009).

Studies on literacy as a social practice maintain that reading and writing presuppose reading and writing in a meaningful way, that is, each type of text requires specific skills and experiences to be read coherently (Perry, 2012). Likewise, "[...] particular texts can be read in different ways, contingent upon different people's experiences of practices in which these texts occur" (Lankshear and Knobel, 2007, p. 2).

In this way, reading and writing specific types of texts and in particular ways presuppose interaction in a social practice in which participants "[...] not only read texts of this type in this way but also talk about such texts in certain ways, hold certain attitudes and values about them, and socially interact over them in certain ways" (Gee, 2008, p. 44).

Within social practice, participants use language to carry out specific social activities, which, as they are situated, are called social languages (*idem*, 2013). These languages have specificities that make them recognized and valued when participants are socialized, such as lexical and grammatical characteristics, style, register, and discursive connectors. Thus, socializing means acquiring and using these languages (*idem*, 2008). In this sense, socialization is negotiated within a social practice (Wenger, 1998).

This understanding converges with the notion of shared repertoire elaborated by Wenger (1998). According to the theorist, when interacting in a specific social practice, community members develop a repertoire of common language resources, styles, and routines through which they recognize themselves as members. This includes ways of engaging in practice and entails ways of thinking and speaking, discourses, tools, understandings, and memories that are, to a greater or lesser extent, shared among community members (Tusting, 2005).

From the discussions above, we argue that, when engaging in reading and writing specific types of texts in specific ways, group members interact through social languages to develop a repertoire of practices to be shared. Social language use allows members to build a recognized and valued repertoire expressing forms of association with that community (Lankshear and Knobel, 2007).

For example, De Grande (2015) analyzed reading and writing practices in the continuing education of teachers and showed that interaction with texts enabled different formative moments. The study indicated that the discussion of theoretical texts presented interactional characteristics of an expository class, with the coordinator in a prominent position, while discussions about external assessments enabled interaction since actions and roles were shared.

In this article, we analyze the involvement of teachers who teach mathematics[3] in reading and writing actions. To refine the objective of this research in more precise terms, in the next section, we resume the literature on literacy as a social practice from the assumed theoretical perspective. The third section presents the methodological procedures, followed by the analysis section. Finally, we discuss the conclusions and implications.

ENGAGEMENT WITH USES OF TEXTS: LITERACY AS A SOCIAL PRACTICE

The sociocultural perspective of literacy seeks to give meaning to reading, writing, and the production of meanings as integral elements of social practice (Tusting, 2005; Lankshear and Knobel, 2007; Gee, 2013). This perspective takes place in literacy studies (Kleiman and Assis, 2016), more recently called "Literacy as a Social Practice" (Street, 2017, p. 23).

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3   We use the expression "teachers who teach mathematics" instead of "mathematics teachers" to demarcate professionals who teach mathematics regardless of their initial education. We chose to present the female gender before the male gender in recognition, since female teachers were the majority among the members of the researched community.

According to Kleiman and Assis (2016), a common characteristic of studies in this theoretical perspective is the change in focus on the basic unit of analysis because instead of focusing on structural characteristics of the text, it is involved with literacy events. These are defined as observable situations of uses of reading and/or writing in which participants are motivated to carry out activities in which they mobilize literacy practices to produce meanings in the relationship with the text (*ibidem*).

As for practices, considering that we seek to analyze how teachers' engagement in reading and writing actions develops the repertoire, we assume the concept of literacy practices as practices inferred from events mediated by texts and in which the specific meanings assumed by a social group are relational to contexts (Kleiman, 2010; Street, 2017). In teaching literacy, these practices privilege uses of reading and writing specific to the school context and in which teachers participate to exercise their professional role (Kleiman and Assis, 2016).

According to Perry (2012), the presence of a text is not a sufficient condition for the constitution of a literacy event, and participants must be oriented and assume they are engaged in a social activity in which reading and/or writing are constituent parts. However, the text does not necessarily need to be present in the activity since participants can be guided by it and reference it in interactions (Barton and Hamilton, 2005).

Purcell-Gates, Perry and Briseño (2011) clarify that the motivations for engaging in an event can be analyzed by the participant's communicative intention and social objective. The authors believe that communicative intention is associated with the particular purpose of engaging in reading and writing actions. This intention refers to why you are engaging and is at a level closer to the text. The social objective concerns what to engage in and is related to broader social domains. For example, the motivation to send an online text message may have the communicative intention of informing the family something (why to engage), and, at the same time, it may serve the social objective of maintaining family ties (what to engage).

In this study, we understand the social community[4] from Wenger, McDermott and Snyder's (2002) perspective, i.e., as a group of teachers gathered with the specific objective of studying topics related to mathematics teaching and planning activities for curriculum development, interacting regularly, and sharing common interests, concerns, languages, and ways of doing things.

However, the activities in the community are circumscribed in a practice, a social practice, because it refers to a doing, but "[...] not just doing in and of itself. It is doing in a historical and social context that gives structure and meaning to what we do" (Wenger, 1998, p. 47). The author explains that there is involvement between participants in the search for a joint enterprise and that, over time, this mutual engagement develops a shared repertoire of common language resources, styles, and routines through which they can negotiate meanings.

For Wenger (1998), the process of negotiating meanings is fundamental and is involved in practice, in the way we experience the world. This process includes social relations as factors in negotiation and comprises community participation and reification as ways of shaping our participation experience. For the author, experience is an experience of meaning that occurs with the negotiation of meanings in practice, whose processes of participation and reification complement each other to produce new interpretations.

Participation "[...] is a complex process that combines doing, talking, thinking, feeling, and belonging" (Wenger, 1998, p. 55-56). Furthermore, the theorist says it is part of relationships with

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4   Wenger's (1998) theoretical notions were elaborated on specific groups, the "communities of practice." However, as Tusting (2005) warns us, despite the concern with the shared repertoire, Wenger (1998) did not develop a conceptualization for the uses of written language. Therefore, without prejudice to analytical potential, we prefer to use the expression "social communities."

others, reflecting personal and social processes. Through reification, participating in community projects meaning into the world and produces objects that "freeze" this experience into a "thing" (*ibidem*). However, although reification is a product/process of experience, it does not show the experience itself.

We will use this theoretical framework and references from literacy as a social practice to understand the engagement with the uses of reading and writing by teachers who teach mathematics. Literature in this area has demarcated how teachers engage in literacy practices (Cristovão, 2015; Lucio and Nacarato, 2018; Fernandes, 2019). For example, Fernandes (2019) analyzed how teachers mobilized literacy practices in training in field education and showed that involvement in these practices followed objectives specific to rural problems, such as the financial organization of family agricultural production.

Based on these discussions, we maintain that interactions in a social community of teachers are mediated by texts to develop the repertoire. The way they use social languages specific to this context can demonstrate how they produce meanings in "[...] ways of speaking, listening, writing, reading, acting, interacting, believing, valuing, feeling, and using [...]" (Gee, 2013, p. 143) reading and writing to develop social practice. As discussed in the previous section, teachers are expected to interact with texts in different ways, negotiate different meanings, and use them in different ways.

After discussing the literature on literacy and the assumed theoretical concepts, our objective with this study can be restated as follows: to identify and describe engagement in teaching literacy practices in which teachers who teach mathematics participated. To achieve this objective, we attended planning and study meetings of a group of teachers who teach mathematics in the final years of elementary school at a public school.

CONTEXT, PARTICIPANTS, AND METHODOLOGICAL PROCEDURES

The interactions analyzed make up the empirical material produced during some pedagogical meetings with teachers who teach mathematics at a municipal public school in Vitória da Conquista, in Bahia, Brazil. With weekly frequency and calculated within the workload, they constituted an integral part of the complementary activities and as an instance of permanent continuing education developed within the school and supported by specific legislation, such as Lei Federal nº 11.738/2008 (Brasil, 2008) and Lei Municipal nº 2.42/2015 (Vitória da Conquista, 2015).

In the meetings, the teachers committed to participating, interacting regularly, and sharing repertoires about theoretical studies on methodological approaches to mathematics teaching, choice and adaptation of mathematical tasks, and discussion of projects, in addition to producing class narratives. This way of organizing actions, initiated in 2016 and proposed by coordinator Isabel, motivated us to select the group as an empirical field, as it demonstrated the members' commitment to developing community enterprises and the possibility of investigating this engagement in that social practice.

As our research focus was on engagement in reading and writing practices, we believed that how the actions were organized would allow us to contemplate the uses of these social practices. To this end, we observed 26 meetings between July of 2018 and February of 2019, which took place on Wednesday mornings, with an average duration of two hours, with the participation of six teachers from the final years of elementary school and the pedagogical coordinator.

On a visit before one of these meetings, we presented the research objective to the group and requested permission to observe the meetings, which, after participants signed the free and informed consent form (TCLE), were filmed and audio recorded. The teachers and coordinator chose pseudonyms to preserve their identities, according to the information provided in Chart 1, as follows.

Chart 1 – Research participants

Name	Age	Classes	Teaching time/Time in the group	Professional education
Ana	46	Grades 7 and 8	18 years/4 years	Teaching degree in mathematics
Carla	28	Grade 8	5 years/4 years	Teaching degree in mathematics
Paulo	24	Grades 6 and 7	1 year (contracted)/1 year	Teaching degree in physics
Sara	25	Grade 8	2 years (contracted)/2 years	Teaching degree in mathematics
Ivo	40	Grades 7 and 9	12 years/3 years	Teaching degree in mathematics
Joana	36	Grades 6 and 8	4 years/4 years	Teaching degree in mathematics
Isabel	39	Coordinator	6 years/4 years	Degree in pedagogy

Source: Elaborated by the authors.

The experience at another school, coordinating the initial years of elementary school, and the readings carried out in a specialization course encouraged Isabel to develop, together with the group, the work of writing class narratives and theoretical studies. At the time, Ana, Carla, Ivo, and Sara also worked at another school. Paulo has a teaching degree in physics but has worked in the mathematics subject.

We presented an event where members discussed implementing the "Assessment" project. This project was prepared by the pedagogical team of the Municipal Department of Education to be developed in all schools in the network to prepare students to take the Prova Brasil, of the Basic Education Assessment System (Sistema de Avaliação da Educação Básica — SAEB). This assessment is applied to classes in the 5th and 9th grades of elementary school. However, the project included actions in all classes.

We describe the social experience in which a group of teachers participated when engaging in reading and writing practices. The analysis focused on the experience of meanings (Wenger, 1998) regarding how members participated in social practice with the mediation of texts. Therefore, this research has a qualitative approach, as we seek to understand the phenomenon without quantifying it (Johnson and Christensen, 2012).

Due to this methodological option, we used observation of continuing education meetings, interviews with teachers, and document analysis as instruments for producing empirical material. The observation allows us to identify and record, in the real context, speeches, gestures, and actions (Creswell, 2008). After some meetings, we carried out seven semi-structured interview sessions (Amado and Ferreira, 2013) to support the analysis of engagements. The documents were the class narratives, the texts discussed, the slides used in the meetings, and the researcher's field notes (Alves-Mazzotti, 2002).

In the transcription and presentation of the speeches, we used some symbols. They are: "[...]" to signal excerpts of speeches with the same meaning or that do not correspond to the focus of what is being analyzed and highlight excerpts that are not audible in the transcription; "..." to indicate a small suspension or pause in speech, and words in brackets to indicate the researcher's explanations. The statements were both numbered to make it easier to locate and related to the letters O (Observation) and I (Interview) to identify the procedures that made their production viable.

To systematize the theoretical understandings arising from the empirical material, we transcribed them by carefully "reading" the videos and interviews and analyzed them line by line to identify excerpts or words that had the same reference or meaning. Then, we created codes and, subsequently, more general categories that, soon after, would generate results to be discussed in the light of literature and theory.

ENGAGEMENT IN READING AND WRITING PRACTICES AND REPERTOIRE DEVELOPMENT

To analytically understand how participants oriented themselves and engaged in events in which the uses of reading and writing were part of interactions in specific activities and with specific objectives (Kleiman, 2010), we organized the analysis into two complementary events: "Engagement in literacy events in organizing the repertoire" and "Engagement in literacy practices in constituting the repertoire."

ENGAGEMENT IN LITERACY EVENTS IN ORGANIZING THE REPERTOIRE

In this event, the dialogues reveal how the teachers organized group actions based on general guidelines contained in the "Assessment" project and prescribed in the National Common Curricular Base (Base Nacional Comum Curricular — BNCC) (Brasil, 2018):

> (O1) Isabel: The proposal follows the thematic units provided for in the BNCC [...], but we do not need to follow the order that appears in the document [mentioning the project document (text)].
> (O2) Sara: So, ...we will continue with the content in the sequence it appears in the course plan.
> (O3) Joana: We will work on the BNCC, but in the sequence we have already organized in the course plan.
> (O4) Ana: I'm going to suggest, like..., in these thematic units, that we look for tasks that represent challenges because the proposal is problem solving.
> (O5) Ivo: I will suggest a task with sports, [...] exploring problem solving. [...]. It can't be just any task. Our objective is to prepare students for the assessment [alluding to Prova Brasil].
> (O6) Carla: Shall we use the question bank? Working on questions that have already been applied familiarizes students with the types of questions asked in this assessment.
> (O7) Joana: I agree [...], uhm... Isabel asked me for a text to study problem solving, [...] to discuss it before choosing the tasks. (August 22nd, 2018)

The participants defined some conditions that guided the group's actions. Isabel (O1) recognized that the project incorporates specific skills in the area, through connection with thematic units — numbers, algebra, geometry, quantities and measurements, probability and statistics, according to the BNCC guidelines (*ibidem*). However, even legitimizing the project development, she maintained that it was not necessary to follow the same sequence of content, which was immediately recognized by Sara and Joana (O2 and O3) when they reaffirmed working with the sequencing already foreseen in the course plan, the group had prepared at another time.

In addition to guiding actions mediated by the project, the teachers added other elements to the practice, such as course plan guidelines. Thus, they both engaged in action planning by reading the project and claimed other elements previously negotiated and reified in the group's practice to organize their activities, such as reading the course plan.

The teachers' stance of following "the content in the sequence it appears in the course plan" (O2), and not as provided in the project prepared by the Department of Education (O1, O2, O3, O5), could suggest a resistance, refusal, or even insubordination action against using the texts available there. However, we evaluate these actions as ways of participating and recognizing elements negotiated in practice. Thus, at that moment, the teachers "[...] produce a practice to deal with what they understand to be their enterprise" (Wenger, 1998, p. 80) and demonstrated commitment to reified elements in practice.

The members also defined another condition for organizing the actions (O4 to O7) related to the methodological approach based on problem solving, as foreseen in the project and suggested by BNCC (O4). Furthermore, as Ivo (O5) pointed out, the tasks needed to fulfill the objective of preparing students to take the Prova Brasil (SAEB), which led Carla (O6) to suggest the search for tasks already applied and available in a bank of data on the internet.[5]

As documented in the literature, an agenda of investigations problematize how prescriptive documents and external assessments guide pedagogical work, whether focusing on materials designed to support teachers in enabling curriculum reforms (Stein and Kim, 2009) (such as the teacher's handbook in textbooks, printed or online materials, or even project texts), whether in the analysis of these prescriptions and how these professionals are constituted in the interaction with these materials (Crecci and Fiorentini, 2014; De Grande, 2015; Grando and Nacarato, 2016). In any case, these studies highlight how prescriptive documents impose organization on the curriculum and daily school life.

The way in which participants guided actions and organized their practice activities — through guidelines provided by the BNCC, the project, and the course plan and, more specifically, to prepare students to take the Prova Brasil (SAEB) (O5) — is consistent with the study by De Grande (2015), which showed how pedagogical meetings were constituted through literacy events that privileged reading and writing practices mediated by documents on external assessments and on which teachers organized their school routines.

These conclusions converge with Joana's speech (O7) about problem solving. She reaffirmed her commitment to the repertoire negotiated at that time, recognizing and legitimizing this methodological approach and enabling another action to be incorporated into the repertoire, reading and reflecting on texts from the literature in mathematics education on problem solving.

The interactions (O1 to O7) highlight that the actions in that context were mediated using texts as an integral part of the interactions, organized as follows: thematic units and methodological approach according to the BNCC; sequencing of content following the course plan; and selecting tasks based on the project and taken from a database. This enterprise was mediated by literacy events, in which reading and writing supported choices and organized activities.

Figure 1 as following lists the references of the texts used in literacy events that organized the community's repertoire.
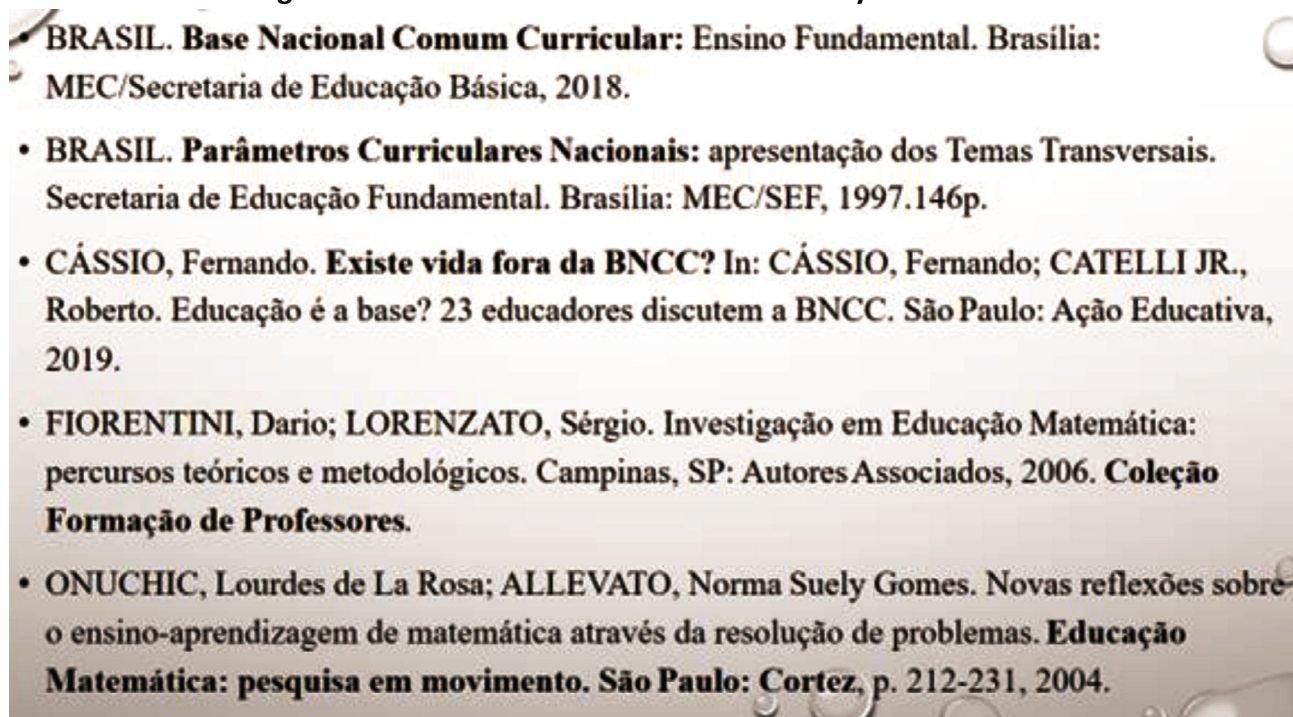
Besides these conditions related to the use of prescriptive texts, there were other enterprises in the repertoire, such as the practice of writing class narratives by teachers and socialization in the group. The narratives relate to reports, reflections, and impressions of the development of a task in the classroom (Lucio and Nacarato, 2018), according to an excerpt from an interview with Isabel, as shown as following:

> (E1) Isabel: We started with the narratives in 2017 [...] It was difficult to reach an agreement with the teachers because they are not used to writing about their practices. [...] We agreed that they would write their accounts once a month and share them with one in the group. [...] Then, we made a script of which elements should be in the writing [...] with a beginning, a development, a conclusion, and a discussion. (September 12, 2018)

We realized that the routine of practices negotiated by the community gave structure and meaning to the actions, organizing ways of doing things. When Isabel (E1) said that "it was difficult to reach an agreement with the teachers, because they are not used to writing about their practices", we infer that there was negotiation in the group and some members resisted the idea, but that they found ways to develop and share the enterprise, according to the interview with Ana, below:

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5   Available at: http://escolas.educacao.ba.gov.br/avaliacoessabe2019. Accessed on: Jan. 14, 2021.

Figure 1 – References of the texts discussed by the teachers.

- BRASIL. **Base Nacional Comum Curricular:** Ensino Fundamental. Brasília: MEC/Secretaria de Educação Básica, 2018.

- BRASIL. **Parâmetros Curriculares Nacionais:** apresentação dos Temas Transversais. Secretaria de Educação Fundamental. Brasília: MEC/SEF, 1997.146p.

- CÁSSIO, Fernando. **Existe vida fora da BNCC?** In: CÁSSIO, Fernando; CATELLI JR., Roberto. Educação é a base? 23 educadores discutem a BNCC. São Paulo: Ação Educativa, 2019.

- FIORENTINI, Dario; LORENZATO, Sérgio. Investigação em Educação Matemática: percursos teóricos e metodológicos. Campinas, SP: Autores Associados, 2006. **Coleção Formação de Professores.**

- ONUCHIC, Lourdes de La Rosa; ALLEVATO, Norma Suely Gomes. Novas reflexões sobre o ensino-aprendizagem de matemática através da resolução de problemas. **Educação Matemática: pesquisa em movimento.** São Paulo: Cortez, p. 212-231, 2004.

Source: Empirical research material, 2021.

> (E2) Ana: [...] We read the narratives for group discussion, [...] we point out what was positive and what needs to change. So... this narrative must follow some steps to be well organized and to be useful as a model in another situation. How was the awareness? How did we organize the room? Afterward, ...how were the reading of the task and the interventions? [...]. In conclusion, we talked about how the assessment was carried out and whether the results were shared in the class. At the end, we wrote what we considered positive and what must be changed. (November 14, 2018)

Ana's (E2) and Isabel's (E1) statements suggest that the elaboration of narratives followed a structure, including some elements that gave a standard form to the writing and organized ways of doing things in the community routine. So, in a way, the narratives were conditioned to this structure and, at the same time, influenced actions in social practice since, by narrating their ways of doing things and socializing in the group, other teachers could feel inspired by those practices and use them in their classes, as Ana (E2) said, when she explained that the "narrative must follow some steps to be well organized and to be useful as a model in another situation."

In this event, we argue that the organization of the community's repertoire of practices was mediated by the texts, either prescriptive — such as the project and the BNCC, coming from other communities and negotiated in the enterprise — or reifications of the very practice, such as the course plan and class narratives.

Since the group's actions were mediated by using texts, these literacy events constituted the community's joint enterprise, as they became a focal point for the interpretative processes in which the teachers participated. Next, in Chart 2, we highlight the literacy events in which the participants engaged to organize the group's actions.

As shown in Chart 2, reading and writing actions shaped the events from different perspectives:

Chart 2 – Literacy events that constituted group actions

Literacy events	Organization of actions
Reading and discussion of texts (course plan, BNCC, articles, projects, curricular texts)	External assessments
	Thematic units
	Methodological approach
	Task selection and analysis
	Theoretical studies
Reading and task analysis	Task selection
	Task modification
Preparation of class narratives	Writing
	Reading
	Socialization and reflection

Source: Elaborated by the authors.

1. focusing on teaching, with repercussions on classroom practice (ways of doing guided by the problem-solving approach and the selection of tasks);
2. with a focus on teaching, with texts constituting interaction in planning moments (documents on external assessments and teaching guidelines, theoretical studies); and
3. as constitutive of the organization of the event and its register (writing, reading, and listening to narratives).

Even though the interactions had predominantly an oral materiality, they referred to written support that mediated the negotiation of meanings.

However, guiding the actions, these events, at first, were not decisive for the development of the repertoire since its resources "[...] gain coherence not as specific activities, symbols or artifacts, but through the fact that they belong to the practice of a community pursuing an enterprise" (Wenger, 1998, p. 82). The repertoire development was not limited, therefore, to the organization imposed by the texts made available in practice, but rather, it went through the negotiation of meanings that reorganized the activities according to the interpretative processes mediated by the uses of these texts.

The reading and writing practices provided by the teachers' engagement with the texts were not restricted to a technical dimension; in fact, they considered ways of participating that reflected both the pursuit of the enterprise and the social relations that accompanied it. This is because participation "[...] involves the whole person, including our bodies, minds, emotions, and social relationships" (*ibidem*, p. 56). Therefore, the members' engagement was shaped by different ways of participating in the mediation of these texts. How they reacted and engaged was decisive for the development of the repertoire, reflecting broader social objectives, which constituted practices, as we will see as follows.

ENGAGEMENT IN LITERACY PRACTICES IN THE CONSTITUTION OF THE REPERTOIRE

The discussions at this event relate to an analytical effort to understand the teachers' engagement in literacy events, that is, their communicative intentions and social objectives (Purcell-

Gates, Perry and Briseño, 2011) when using texts (BNCC, project, theoretical references, course plan, narratives) and how they mobilized teaching literacy practices that constituted the group's repertoire, that is, what the participants did with reading and writing in that particular context and how this contributed to the development of the repertoire.

Since literacy practices are not observable, being inferred from literacy events (Barton and Hamilton, 2005), we analyzed the events presented in the previous section to infer members' engagement in literacy practices (Perry, 2012). Below, we present excerpts from interviews in which teachers justified their choices when engaging in reading and writing events with the mediation of those texts.

Sara (O2) objected to the content sequencing according to the project text and stated that the group would need to follow what was agreed in the course plan. She reaffirmed the commitment to an enterprise negotiated in the community and not to external documents. This action was followed by other members, such as Joana (O3), and constituted the repertoire to be shared.

Sara's communicative intention, when engaging in the defense for mediation based on reading the course plan, was to sequence the contents. In an excerpt from the interview below, she clarified her motivation for participating in this event:

> (E3) Sara: [...] I suggested working on the contents in the order of the course plan because it was a document we created. [...] It was [created] thinking about student learning. They demand [...], parents and students demand each year's content, so the sequence is important. (October 10, 2018)

The communicative intention (sequencing content), together with the text (course plan), mediated the social objective for which Sara participated in the event. In this case, the objective was to follow the content sequencing proposed in the plan. However, this immediate social objective was shaped by broader domains of activities, which are part of a set of social practices historically accepted and valued as belonging to the context of school mathematics.

Sara's objective was shaped by the discourse of a tradition of the school mathematics curriculum, in which the contents are presented sequentially organized and structured, following a logic of linearity by levels and distributed throughout the school grades. The teacher's concern that "sequence is important" (E3) met one of the prerogatives pertinent to this tradition, according to which mathematics teaching must have "[...] the appreciation of the logical precedence of the contents, of their linearity and link considered as indisputable" (Garnica, 2008, p. 505, our translation).

In turn, this broader domain was still shaped by other contextual layers (E3), which suggest choices aligned with the concern for student learning and, resulting from this engagement, with the expectations of parents and students regarding teaching. Engagement in these actions can explain Sara's commitment to the enterprise and the objects reified in constant negotiations, such as the course plan when she said: "it was a document we created" (E3), which suggests her involvement by recognizing community activities and sharing them.

The participants mobilized literacy practices around the project and shared the same communicative intention, corresponding to the content organization and the same social objective to engage in different uses of reading and writing. However, engagement in discussions regarding content sequencing was different, according to excerpts from interviews with Joana and Ivo, as follows:

> (E4) Joana: Hmm... [...] I don't see any problems adapting the course plan [content sequence and/or methodological procedures] to the projects that arise. It is [...] we also must prepare students for external assessments, ...such as Prova Brasil and ENEM. You know, [...] and this project is for Prova Brasil, I see it is necessary to adapt the course plan. (September 12, 2018)

> (E5) Ivo: I will bring a task for the group to evaluate. [...] I supplement the course load at another school with physical education. I'm going to bring a task that explores some content in sports activities, then... I see that students are interested. (October 10, 2018)

Joana (E4) explained her engagement with the course plan. Despite sharing the same social objective as the other participants, her speech suggests, regarding the sequencing of content, that this objective was shaped by other layers of the social domain, which, unlike Sara's case (E3), was related to parameters defined by external assessments, such as Prova Brasil (SAEB).

Joana justified her position in changing content sequencing based on the school's need and obligation to prepare students to take external assessments. Likewise, this domain is, in turn, shaped by other even broader social layers, in this case, the educational institutional structure, of which the school institution is part and in which it is immersed in hierarchical relationships.

In addition to the engagements presented, which comprised broader domains of social activity and shaped the practice with the mediation of texts, we also highlight participation in practices in other contexts. To illustrate, we selected the interview with Ivo (E5), in which the teacher uses his work experience at another school and with another subject to suggest tasks because he realized that students were interested in tasks exploring sports.

Wenger (1998) explains that participation in diverse communities and non-participation in others can shape characteristics in participation by making connections between communities. In Ivo's (E5) case, experiences considered successful in one community manifested as a tendency to participate somehow in another context. Regarding Joana (E4), we realized she did not participate because of the historical place in which it occurred, as part of the school institution. However, the control of an institution or the authority of an individual is "[...] no less important, but they must be understood as mediated by the communities in which their meanings are to be negotiated in practice" (Wenger, 1998, p. 85).

Thus, in analyzing the previously mentioned excerpts from the interviews (E3, E4, E5), we observed that the communicative intention for engaging in the literacy event conformed to the social objective of following the content sequencing, as set out in the course plan. This mediation between communicative intention and text supported choices, such as following the content sequence, and constituted which elements would be incorporated into the group's practice, in this case, the course plan instead of the full project, forming part of the shared repertoire by the community.

Engagements in literacy practices suggest that although the BNCC and the project seek to standardize the negotiation of meanings in reading and writing practices because they were developed to be implemented in broad contexts (in the case of the project in all schools in the municipal network), they shaped the criteria adopted for the development of the repertoire based on practices that considered contextual, professional, institutional, and personal contingencies. Among them, we highlight the concern with student learning, the parents' and students' expectations about teaching, the parameters defined by external assessments, and participation in practices in other contexts.

According to the interviews (E1, E2), another enterprise by the group was elaborating class narratives. Participants were involved in this literacy event from two perspectives: engaging in writing or reading and listening, which corresponded to different functions or communicative intentions and different social objectives, according to the excerpt from the interview with Carla:

> (E6) Carla: [...] It was difficult at first, ...because we have a way of writing about how we developed the task. [...] The important thing is to think, reflect on what you did, and write to make yourself understood. [...], we write about an experience that everyone here understands because we are familiar with it, ...but selecting what matters so that the colleague can mentally visualize the situation is not easy! (October 10, 2018)

Carla (E6) explained her experience in writing class narratives. The teacher thinks that the narrative structure and the way the group negotiated the elements that composed the writing, at the same time, allowed the writer to reflect on their practices because the format also requires a systematization of ideas, and probably for this reason, made writing difficult since it is necessary to "reflect on what you did and write to make yourself understood."

From the perspective of whoever writes the narrative, the excerpt from Carla's interview (E6) suggests that her communicative intention when engaging in writing was to register ways of implementing tasks. Together with the text of the narrative, this intention mediated the social objective of systematizing practices for sharing. This immediate social objective was shaped by the teacher's predisposition to reflect on her practice, which required broader domains of social activity, such as her professional training and previous experiences.

The negotiated format for writing a narrative sought to control the meaning produced between the reader and the text (Soares, 2006). The text is intended for teachers in continuing education and written by the teachers themselves, i.e., by someone who wrote from within the practice and, therefore, imbued with pedagogical intentions, through which it was possible to identify their understanding of students and school daily life. Those conclusions are consistent with Lucio and Nacarato's (2018) study, in which the authors analyzed literacy practices mobilized by teachers when they narrated their experiences in the group.

As Carla's (E6) social objective was to systematize ways of implementing tasks to guide practices, the text of her narratives contains particularities typical of endemic practices in the pedagogical context. Therefore, this repertoire used specialized social languages produced by and produced a practice (Gee, 2013). Therefore, it is a text that is applied for specific purposes in specific contexts of use, a literacy practice that "[...] involves socially recognized ways of doing things" (Lankshear and Knobel, 2007, p. 16).

When writing a narrative with this objective, each teacher imagines, intends to interact with others, and writes from the perspective of making themselves understood by the other, "[...] thinking about who they are writing for, and at all times questions whether the reader will understand the narrated context." (Lucio and Nacarato, 2018, p. 67, our translation). In the meantime, the structure of the narratives followed an intentional organization, a social language that uses the distribution of ideas throughout sections with specific writing protocols to "[...] create a social culture of the math class [...]" (*ibidem*, p. 67) as an attempt to sensitize a specific reader, already socialized to the use of this social language.

From the perspective of reading and listening to a narrative, we analyzed an excerpt from the interview with Joana (E7), from which we inferred that the communicative intention that mediated her engagement in reading and listening to a narrative was to identify ways of implementing tasks. The excerpt from the interview also suggests that the social objective mediated by this intention was to evaluate one's own practice to rethink and do things differently or to identify oneself to justify and/or advise:

> (E7) Joana: I wonder how to do it, and... when I hear or read what my colleague wrote, I also think about my practice. How can I help here? I immediately think about what I would do differently or how this way was better than what I did! So, I say: I'm going to get inspired and organize the class like this! (September 12, 2018)

Joana's (E7) social objective when engaging in this event was related to reflection on her practice. This objective was shaped by broader contextual layers, such as identifying with ways of doing, recognizing these actions as legitimate to incorporate the practice, or even taking shared practices to rethink other ways of doing.

When sharing their narratives, members' participation in social practices of reading or listening was characterized by the possibility of mutual recognition (Wenger, 1998). Engagement in teaching literacy enabled "[...] sharing experiences and knowledge, understanding one's practice and reconstructing new practices" (Nacarato, Passos and Silva, 2014, p. 707, our translation). Thus, reading and listening to the narrative became a process of interaction, in a mutual relationship of experience of meaning in which they recognized something of themselves in each other (Wenger, 1998).

According to the interviews (E6, E7), although the social objectives that shaped these literacy practices — both from the perspective of writing and reading and listening — are different, they are not exclusive, and confluence is possible. After all, when selecting what was significant to write, there can be reflection on the practice and, in the same way, when reading and listening to a narrative, it is possible to be inspired on how to systematize actions for the writing process.

Therefore, when using reading and writing practices in the context of complementary activities, participants, in addition to engaging in literacy events that organized the repertoire available in the community, also participated in literacy practices that constituted the shared repertoire. However, we reaffirm that the separation we made between events and literacy practices is merely a theoretical-methodological issue since these processes are mutually implicated and self-constituted (Perry, 2012).

Figure 2, as follows, represents the possibility of a theoretical relationship between events and literacy practices that shaped actions and developed the shared repertoire in the social practice in which the teachers participated.

Figure 2 – Literacy events and practices in complementary activities meetings.
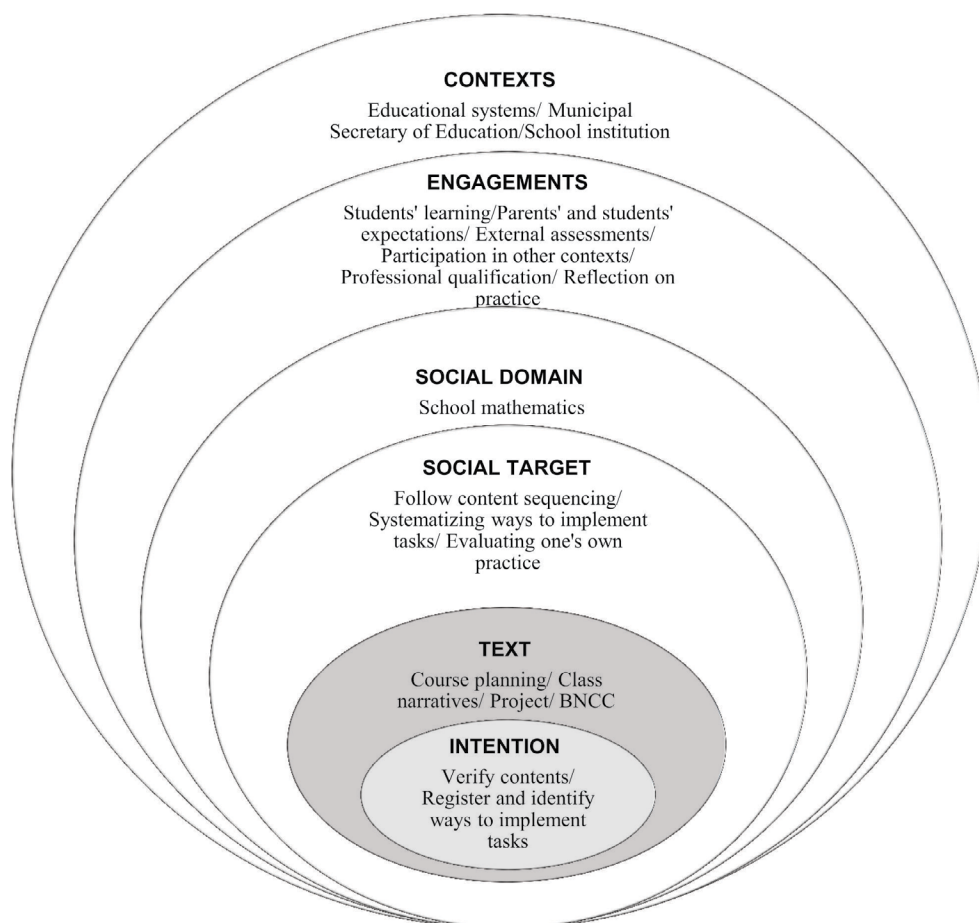
Source: Adapted from Purcell-Gates, Perry and Briseño, 2011, p. 450.

In Figure 2, the shaded interior layers represent observable literacy events, beginning with the participant's statement of intention in using reading and writing and then moving toward the text. For example, teacher Sara (O2) read the course plan to sequence content. Together with the text, this communicative intention mediated the social objective of following the content sequencing, which is why Sara participated in the event.

In turn, this immediate objective was shaped by characteristics present in the tradition of school mathematics, which — aligned with engagements of personal, professional, and emotional origin, among others, and observing contextual layers such as the educational jurisdiction in which it took place — helped teacher Sara organize her activities and decide the sequencing of content to be worked on.

Purcell-Gates, Perry and Briseño (2011) emphasize that social structures seek to impose hierarchies and form an important and comprehensive layer of context. In the previous model (Figure 2), for example, government bodies linked to educational structures and responsible for legislating and supervising teaching shaped practices of the school social institution that directly affected the elaboration of texts on which teachers produced meanings and developed the repertoire of practices.

CONCLUSIONS AND IMPLICATIONS

In this study, we were inspired by a sociocultural perspective of literacy, which understands written language as a social phenomenon. We started from the argument underlying this understanding: the uses of written language (literacy events and practices) constitute the contexts, and dialectically, contexts constitute the uses of written language (Gee, 2013). We analyzed especially interactions that occurred in a social community in which teachers who teach mathematics participated to understand engagement in reading and writing practices. We organized the analyses under two focuses: literacy events and literacy practices.

The analysis of literacy events, i.e., of interactional situations in which reading and writing were an integral part of the interpretative processes, showed that the group organized the repertoire with the mediation of texts. However, the development of this repertoire, i.e., which elements would be shared in practice, was not exactly restricted to the prescriptions arising from the texts available. The ways of participating with these texts were decisive for practice development.

Once the repertoire was organized by engaging in literacy events, the group began to negotiate meanings for what would be incorporated into the practice. To the extent that these actions were repeated regularly, they constituted ways of doing that shaped literacy events and continually reorganized the shared repertoire; therefore, they constituted and mobilized literacy practices.

Therefore, we can say that from the moment the teachers engaged in the use of social languages very specific to that context, their actions were recognized and valued by the members and constituted teaching literacy practices that developed the repertoire, such as the predilection for the course plan and writing narratives, enterprises that contained specific ways of doing things for the group. Thus, a repertoire of routines was created based on what the participants did with reading and writing and how they engaged in interactions, communicative intentions, and social targets.

These results suggest that, although prescriptive texts seek to guide the pedagogical work of that group, the repertoire of practices developed was not limited to the technical prescriptions present in the texts but, rather, permeated the various engagements (communicative intentions and

social objective) that constituted the criteria adopted for the organization of the enterprise, such as contextual, professional, personal, and institutional issues.

Consequently, we point out, with the conclusions of this study, that formative spaces must be attentive to the different engagements of teachers in group enterprises and to the limitations of prescriptive guidelines for practice. One possibility would be to provide spaces and times for moments of collective discussion, in which participants negotiate the practice's enterprises and develop their repertoire, using social languages that recognize and value specific aspects of the practice.

Furthermore, based on the conclusions, we consider that the development of the repertoire of practices considered socialization in social languages that combined resources characteristic of the context to carry out a specific social practice, such as writing narratives. These languages contributed to the teachers' engagement in teaching literacy practices that constituted the group's practice.

As an implication for the field of research, some questions can be raised, for example: how can formative spaces contribute to providing teachers with the opportunity to develop a repertoire that prioritizes socialization in social languages? This focus may shed light on how formative spaces can minimize the prescriptive effects of texts.

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