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Contributions of WG-19 of ANPEd for the development of Brazilian Mathematics Education[1]

Contribuciones del GT-19 de la ANPEd para el desarrollo de la Educación Matemática Brasileña

Contributions du GT-19 de l'ANPEd au développement de l'Éducation Mathématique Brésilienne

Contribuições do GT-19 da ANPEd para o desenvolvimento da Educação Matemática Brasileira

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Abstract

This study aims to investigate and discuss the main contributions of WG-19 of ANPEd to the development of Brazilian Mathematics Education over its 25 years of existence, both as a professional and scientific field. The basic corpus for analysis consists of six studies that comprise a thematic dossier, carried out by researchers who participated in the community formed by WG-19, exploring and examining relevant aspects, themes, and events of this trajectory. The analysis of this corpus was conducted through a narrative review that consists of an almost-systematic inquiry and analytical and interpretative treatment of the phenomena or themes of the studies from this WG. The results of this review reveal that the trajectory of WG-19 of ANPEd, over its 25 years, has consolidated itself as a plural and dynamic space for research, training, and resistance, legitimizing and giving visibility to Mathematics Education as an educational and scientific field. The group overcame initial tensions, built its own epistemological identity, and faced social and political challenges, including neoliberalism and the health crisis. Its differential contribution is evidenced in the articulation between research, training, and teaching practice; curriculum; educational policies; digital technologies; and in the defense of democracy, social justice, and an inclusive public school, seeking to promote critical, decolonial, and socially relevant curricula that affirm Brazilian Mathematics Education as an interdisciplinary and transformative field.

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Keywords: Mathematical Education, Educational Research, Narrative Review.

Resumen

Este estudio tiene como objetivo investigar y discutir las principales contribuciones del GT-19 de la ANPEd para el desarrollo de la Educación Matemática brasileña, a lo largo de sus 25 años de existencia, ya sea como campo profesional o científico. El corpus básico de análisis está constituido por seis estudios que conforman un dosier temático y que fueron realizados por investigadores que participaron de la comunidad formada por el GT-19, explorando y examinando aspectos, temáticas y eventos relevantes de esa trayectoria. El análisis de este corpus se llevó a cabo mediante una revisión narrativa que consiste en la indagación y el tratamiento analítico e interpretativo casi sistemático de los fenómenos o temáticas de los estudios de este GT. Los resultados de esta revisión revelan que la trayectoria del GT-19 de la ANPEd, a lo largo de sus 25 años, se consolidó como un espacio plural y dinámico de investigación, formación y resistencia, legitimando y dando visibilidad a la Educación Matemática como campo educacional y científico. El grupo superó tensiones iniciales, construyó una identidad epistemológica propria enfrentó desafíos sociales y políticos, incluido el neoliberalismo y la crisis sanitaria. Su contribución diferencial se evidencia en la articulación entre investigación, formación y práctica docente, currículo, políticas educativas, tecnologías digitales y en la defensa de la democracia, la justicia social y de una escuela pública inclusiva, buscando promover currículos críticos, decoloniales y socialmente relevantes, que afirman la Educación Matemática brasileña como un campo interdisciplinario y transformador.

Palabras clave: Educación Matemática, Investigación educativa, Revisión Narrativa.

Résumé

Cette étude vise à enquêter et à discuter des principales contributions du GT-19 de l'ANPEd au développement de l'éducation mathématique brésilienne, au cours de ses 25 ans d'existence, tant en tant que domaine professionnel que scientifique. Le corpus de base d'analyse est constitué de six études qui composent un dossier thématique et qui ont été réalisées par des chercheurs ayant participé à la communauté formée par le GT-19, explorant et examinant des aspects, des thématiques et des événements pertinents de cette trajectoire. L'analyse de ce corpus s'est faite par une révision narrative qui consiste en une enquête et un traitement analytique et interprétatif presque systématique des phénomènes ou thématiques des études de ce GT. Les résultats de cette révision révèlent que la trajectoire du GT-19 de l'ANPEd, au cours de ses 25 ans, s'est consolidée comme un espace plural et dynamique de recherche, de formation

et de résistance, légitimant et donnant visibilité à l'éducation mathématique comme domaine éducatif et scientifique. Le groupe a surmonté les tensions initiales, a construit une identité épistémologique propre en affrontant des défis sociaux et politiques, y compris le néolibéralisme et la crise sanitaire. Sa contribution différencielle se manifeste dans l'articulation entre recherche, formation et pratique enseignante, curriculum, politiques éducatives, technologies numériques et dans la défense de la démocratie, de la justice sociale et d'une école publique inclusive, cherchant à promouvoir des curriculums critiques, décoloniaux et socialement pertinents, qui affirment l'Éducation Mathématique brésilienne comme un champ interdisciplinaire et transformateur.

Mots-clés : Éducation mathématique, Recherche éducative, Revue narrative.

Resumo

Este estudo objetiva investigar e discutir as principais contribuições do GT-19 da ANPEd para o desenvolvimento da Educação Matemática brasileira, ao longo de seus 25 anos de existência, seja como campo profissional ou científico. O *corpus* básico de análise é constituído por seis estudos que compõem um dossiê temático e que foram realizados por pesquisadores que participaram da comunidade formada pelo GT-19, explorando e examinando aspectos, temáticas e eventos relevantes dessa trajetória. A análise deste *corpus* deu-se mediante revisão narrativa, que consiste na inquirição e no tratamento analítico e interpretativo quase-sistemático dos fenômenos ou temáticas dos estudos deste GT. Os resultados dessa revisão revelam que o GT-19 da ANPEd, ao longo de seus 25 anos, consolidou-se como espaço plural e dinâmico de pesquisa, formação e resistência, legitimando e dando visibilidade à Educação Matemática como campo educacional e científico. O grupo superou tensões iniciais, construiu identidade epistemológica própria e enfrentou desafios sociais e políticos, inclusive o neoliberalismo e a crise sanitária. Sua contribuição diferencial é evidenciada na articulação entre pesquisa, formação e prática docente, currículo, políticas educacionais, tecnologias digitais e na defesa da democracia, da justiça social e de uma escola pública inclusiva, buscando promover currículos críticos, decoloniais e socialmente relevantes, que afirmam a Educação Matemática brasileira como campo interdisciplinar e transformador.

Palavras-chave**:** Educação matemática, Pesquisa educacional, Revisão Narrativa**.**

Contributions of WG-19 of ANPEd for the development of Brazilian Mathematics Education

This study aims to investigate and discuss the main contributions of WG-19, a group within ANPEd, to the development of education, especially Brazilian mathematics education, throughout its 25 years of existence as both a professional practice and a scientific field. The current WG-19 coordination invited me to conduct this study, which is based on the six studies that comprise the group's 25-year dossier. These studies were prepared by WG-19 researchers who explored and examined relevant aspects, themes, and events of this trajectory.

Since each article in this corpus employs a freer, less systematic inquiry and analytical and interpretive treatment of themes or phenomena of this working group (WG) over a long period, approaching what academic and scientific literature calls a narrative review (Green et al., 2006), I decided to conduct a narrative review of these studies as well.

I was also part of the WG19 community during its creation and development, playing a more prominent role in its early days. I was the first WG19 representative on the ANPEd Scientific Committee when the Study Group on Mathematics Education officially became a WG of ANPEd. I served in this role for two consecutive meetings.

The working hypothesis of this investigative option is that each pair or trio of researchers who conducted the studies in this dossier not only extracted data and analyzed what they read when reading and interpreting the works presented, but also constructed other meanings and relationships based on their experiences participating in and debating within this community. This process created plots and meanings for what happened or is happening during the WG meetings or in their interstitial spaces (Cristovão & Fiorentini, 2021; Riessman, 2008).

Next, I will point out the theoretical and methodological foundations of this research process, as well as the methodological procedures used. Then, I will present, analyze, and discuss the initial creation and configuration of WG-19, as well as the identity and epistemological constitution of Mathematics Education and WG-19 within the ANPEd context. Second, I will address and discuss thematic studies relevant to mathematics education that were prompted by calls from WG-19, as well as emerging thematic studies that permeated WG-19 meetings. Finally, in my conclusions, I will attempt to synthesize this narrative review of the 25-year trajectory of ANPEd's WG-19.

About the methodological process of this study

This article studies the formation and development trajectory of WG19 and its contributions to Brazilian mathematics education over the last 25 years, examining it as both a

professional practice and a scientific field. I was invited by the current coordination to conduct a study of this phenomenon and was given the six studies carried out by WG19 researchers as the main corpus of analysis. These studies explore and examine relevant aspects, themes, and events of WG19's trajectory. Therefore, the analysis focuses on the researchers who participated in the WG19 community and the relevant aspects, themes, and events of its trajectory.

This object of study is a diachronic phenomenon that requires a longitudinal study of its formation and development over time to be elucidated and understood. This could lead to narrative research from Clandinin and Connelly's (2000) perspective, which presents a way to understand the reflective and investigative experience of the WG19 community, as well as its impact on the development of Education, especially Mathematics Education. Another way to conceive of this narrative research is through narrative analysis of the practices, studies, and events that constitute WG19. This would produce a plausible explanatory history of the group.

To describe the research approach adopted in this article, it is first necessary to note that the analysis corpus was predefined in the invitation and consists of six studies conducted by 11 WG19 authors who played prominent roles in the group's history. These studies were primarily developed as reviews of works presented in this working group (WG) in the form of scientific communications, commissioned works, or mini-courses. However, only three of the six articles explicitly mention their intention to review these works. Two of these articles express the intention to conduct a systematic review (Grando & Oliveira, 2025; Lopes & Valle, 2025), while the third (Bairral & Wanderer, 2025) is a "semantic analysis" of works that use technologies. The others do not explicitly mention how they reviewed the studies or works presented in WG19.

While this does not compromise the quality of the articles, I consider it important to briefly analyze this fact. The three articles that do not explicitly mention reviewing works ended up performing reviews in some way. For example, Nacarato and Santos (2025) state that they used "the different texts and dossiers produced by WG19, based on the annual meetings of ANPEd" (p. 1) as a source of data for their analyses and results. Soares et al. (2025), in turn, analyzed "the themes prioritized in the commissioned works and mini-courses, highlighting the research focuses developed" (p. 1). Carneiro and Silva (2025), on the other hand, mapped and analyzed "the works that address narratives published in the WG19 meetings," identifying "four axes of analysis emerging from the data" (p. 1).

On the other hand, the two articles that were initially intended to be *systematic reviews* ended up not being so. Grando and Oliveira (2025), for example, state that they could not carry out the review because they lacked access to several commissioned works due to "changes on

the official ANPEd website," prompting them to contact "the authors and former coordinators of WG19" to obtain the works. Several articles were lost in the process (p. 6). The article by Lopes and Valle (2025) attempts a systematic review by presenting a clear investigative question from the outset: "Which studies were presented in WG19 over its 25 years of dialogue with Paulo Freire, and which concepts stand out in them?" (p. 1)—and seeks to map and systematize some of the most commonly used Freirian terms using IRaMuTeQ software. However, I would consider it incomplete because there is no conceptual systematization of these terms to obtain a synthesis of the main concepts related to Paulo Freire. The authors attribute this difficulty to the small number of studies (only 8% of the works) in WG19 that address Freirean pedagogy. In their article, Bairral and Wanderer (2025) claim to have performed a *semantic analysis* of selected material consisting of works from WG19 that used digital technologies. They explore three different dimensions, though they do not use the word "review." They do not conceptualize this type of analysis nor refer to its use in investigative literature in the field of human sciences. However, they present a rigorous and careful process of selecting and analyzing the data produced from the selected material. They conclude with reflections that open doors to new studies.

Based on our analysis of the six articles' methodological procedures, we can conclude that they demonstrate a trend toward freer, almost systematic inquiry, as well as analytical and interpretive treatment. This approach is similar to what academic and scientific literature has termed a "narrative review" (Bernardo et al., 2004; Green et al., 2006). This type of review has the potential to consider the diachronicity of a 25-year study.

Unlike systematic reviews, narrative reviews do not use predefined criteria because they presuppose the creation of a narrative that is more interpretive than analytical. The goal is to describe and discuss the development of research in a specific field and provide an overview of the research movement in that field. From this perspective, selecting the corpus for analysis and interpretation does not require a systematic search for studies. It is sufficient to select a set of relevant studies that focus on a common phenomenon (Gonçalves & Fiorentini, 2023).

The results of narrative reviews are presented in logical, chronological order, and researchers typically offer their interpretations of existing research. However, narrative reviews generally do not involve a systematic synthesis of the reviewed studies, unlike systematic reviews.

Based on this information, I propose the following working hypothesis for my research: narrative reviewers do not merely extract and analyze data when reading and interpreting the works presented (content analysis). As active members of WG19, they also construct meanings

and relationships based on their experiences participating in and debating within this community. They create narratives about what happens or has happened during WG meetings or in their interstitial spaces (Cristovão & Fiorentini, 2021; Riessman, 2008).

I was part of the WG19 community during its creation and development, playing a more prominent role in the group's early days. I was the first WG19 representative on the ANPEd Scientific Committee when the Study Group on Mathematics Education became a Working Group of ANPEd. I held this position for two consecutive meetings (2000 and 2001). Additionally, I authored the first commissioned work (Fiorentini, 2002), mapping and assessing the work of WG19 submitted and presented from 1998 to 2001.

Below, I present my narrative review based on the six articles that colleagues produced for this dossier commemorating 25 years of WG19.

The initial movement to create and configure WG19

The motivations for establishing a Mathematics Education Working Group at ANPEd in 2000 were similar to those that led to ANPEd's establishment in 1978, as inferred from the studies by Soares et al. (2025) and Nacarato & Santos (2025), which were produced for this dossier. For example, the creation of ANPEd was motivated by the need for coordinators and professors of education graduate programs to have a specific forum to discuss graduate education problems and directions in Brazil, as well as researcher training. ANPEd also opened up space for teachers and students in these programs to present and discuss their completed or ongoing research, as well as public policies concerning this emerging field of study.

Specific postgraduate programs in mathematics education (Pós-Graduação em Educação Matemática - PPGEM) also began to emerge. By the end of the 1990s, Unesp in Rio Claro had already created a master's degree program in mathematics education (1984) and a doctoral program (1993). PUC-SP's Faculty of Exact Sciences and Technology created a master's degree in mathematics education in 1994 and a doctorate in mathematics education in 2002 (Fiorentini & Lorenzato, 2006).

Since the CAPES Science and Mathematics Teaching Area was not established until the end of 2000, these emerging PPGEM programs were linked to the CAPES Education Area until then. Therefore, ANPEd was the only forum for discussion for the coordinators, teachers, and students of these programs since the National Meeting on Mathematics Education (Encontro Nacional de Educação Matemática - ENEM) did not focus on research or training researchers. However, according to Sonia Igliori, who was the coordinator of the PPGEM at PUC-SP at the time, it would be difficult for the faculty and students of her program to participate in ANPEd

because their work generally did not align with the scope of study of the existing working groups, nor did it receive merit analysis due to the ANPEd Scientific Committee's lack of evaluation criteria. Only a few works from these programs aligned with the Teacher Training Working Group (Miguel et al., 2004, cited by Nacarato & Santos, 2025).

In 1997, the PUC-SP group, led by Igliori, called a meeting to discuss creating a specific working group (WG) for mathematics education. Some opposed the proposal, fearing isolation from other WGs. I was among those who opposed it because I feared it would hinder the advancement of mathematics education from an interdisciplinary and dialogical perspective with various viewpoints in the field of education. However, the majority favored approval, justifying that the emerging field of Mathematics Education had its issues requiring their space for discussion without disassociating from Education (Soares et al., 2025).

Before the formation of WG-19, I was an active participant in the Teacher Training Working Group (WG-8). Meanwhile, Maria da Conceição Fonseca (UFMG) participated in the Youth and Adult Education Working Group, eventually becoming its coordinator. My experience in WG-8 was very rewarding. Together with Marli André (PUC-SP), Menga Ludke (PUC-Rio), and Selma Garrido Pimenta (FEUSP), I took on the challenge of epistemologically configuring the field of study of the professor due to the lack of identity of its object of study. The high number of papers submitted to this working group (65 in 1999 alone) and the low number of those approved for presentation evidenced this problem. This soon inspired the WG-19 Mathematics Education Working Group to discuss its epistemological identity and relationship with the broader field of education, as we will highlight in the next section. Years later, it also inspired the SBEM's Teacher Training WG-7 to take this step.

After the proposal to establish the new working group (WG) was approved, it underwent a two-year probationary period (1998-1999) as a study group (GE-19) under Sonia Igliori's coordination. It officially became WG-19 in 2000 when Silvia Machado (PUC-SP) became the coordinator. As the first WG-19 representative on ANPEd's Scientific Committee (SC), I experienced the difficulty the committee had in evaluating proposals from the field of mathematics education.

Each submitted work underwent two evaluations: one ad hoc by the WG itself and another general evaluation by the SC, unless the SC representative was from the original WG. Based on these two evaluations, the representative of each WG consolidated the evaluation and issued a final opinion of acceptance or rejection for presentation. During my first SC meeting at the 23rd ANPEd conference in 2000, I was surprised to find that several WG-19 papers had not been evaluated by SC members. I discovered that these papers had been sent for evaluation

by WG representatives who were not closely aligned with mathematics education: WG3 (Social Movements and Education), WG-06 (Popular Education), and WG-14 (Sociology of Education). I remember having conversations with my SC colleagues about this issue. Some complained that the works had "*too much mathematics and too little education*" and did not feel qualified to evaluate them. On the other hand, Miguel Arroyo (UFMG) from WG3 commented on his enchantment with the ethnomathematics perspective, envisioning its potential to develop a plural and inclusive school. This corroborates the relevance of WG-19's presence in ANPEd.

After speaking with representatives from working groups more closely related to mathematics education, we presented the problem to the other SC members. The debate on this issue was attended by Nilda Alves (UERJ), the president of ANPEd at the time. For the first time, we discussed the possibility of reorganizing the SC into related subareas to facilitate a better evaluation of the work. We then carried out a preliminary experiment, aligning Mathematics Education (WG-19) with Didactic (WG-4), Teacher Training (WG-8), Curriculum (WG-12), and Education and Communication (WG-16). Years later, Fischer (2007) evaluated this process, stating that:

> The creation of subareas, starting in 2000, allowed for the systematization of "exchanges" and complementary readings among the members of the Scientific Committee; the works began to be discussed among colleagues from related subareas, for a more comprehensive evaluation, and the accumulated experiences demonstrate positive results. (p. 419)

This reorganization continued through the 24th and 25th meetings in 2001 and 2002, respectively, which reduced the difficulty of evaluating the merit of the works. However, when the new ANPEd board took office in 2003, they did not continue the reorganization, reverting to the situation before 2000. According to Nacarato and Santos (2025), this problem was definitively resolved only after the 30th meeting (2007), when Antonio Miguel took over as representative of WG-19, with the reorganization planned in 2000 being reinstated.

The configuration of WG-19 in ANPEd was finalized with the first work commissioned from this WG. This work was carried out by Dario Fiorentini for the 25th meeting. There, the "Mapping and Assessment of WG-19's Work from 1998 to 2001" (Fiorentini, 2002) was presented and discussed. This covered four annual meetings. During this period, 91 papers and 16 posters were submitted to WG-19 for evaluation, and just over half (48 papers and six posters) were approved and presented. During this period, 91 papers and 16 posters were submitted to WG-19 for evaluation, and just over half of them (48 papers and six posters) were

approved and presented. These results reaffirmed WG-19's relevance within ANPEd because they demonstrated a similar or higher output than that of some already-established WGs.

After the evaluation of WG-19's first four years of activity, Fiorentini (2002) identified three issues that sparked significant discussion and guided the group's subsequent work. The first issue concerned the "construction of WG-19's identity in the context of ANPEd" (p. 12) and its relationship with the fields of education and public policy. This implies "giving priority or continuity to certain lines of research considered strategic and fundamental at a given moment" (p. 12). The second issue referred to the "didactic-pedagogical relevance of certain research topics or problems and the challenge of developing a theoretical-methodological framework that could support the studies" (p. 12). Fiorentini (2002) noted that "some topics of low relevance to mathematics education or education in general" (p.13) tended to be favored in evaluations because they had a "research tradition or theoretical-methodological models validated or consolidated by other researchers" (p. 13). The third issue dealt with the relationship between the specific and the non-specific in the context of education and mathematics education. What is our place in ANPEd? What has been our dialogue and contribution to the broader field of education?" How can coexistence with different areas of education contribute to the continuous revitalization and dynamism of mathematics education? "The dependence of mathematics education on education is relative and autonomous" (p. 14). On the other hand, mathematics education seeks its own identity within a field that is open to the multiple dimensions of educational practice but has its research questions (p. 14).

These issues were discussed and influenced the programming of the commissioned work that followed in the subsequent four meetings of ANPEd's WG-19, which we will discuss briefly below.

The epistemological identity of Mathematics Education and WG-19 under debate

To discuss the consolidation and identity of education as an area of knowledge production, for example, the group invited four experts with different or complementary perspectives to the 26th meeting in 2003. The experts represented French Didactic (Sonia Igliori); the movement for the constitution and disciplinarization of Mathematics Education and the emergence of Ethnomathematics (Antonio Miguel and Ubiratan D'Ambrosio); and teacher training based on oral history (Vicente Garnica).

For the next three WG-19 meetings, researchers were invited to discuss the various subjects and methods of research in mathematics education and mathematics didactics. Thus, for the 27th meeting (2004), João Pedro da Ponte (ULisboa) was invited to discuss investigating practice as a means of producing professional knowledge. At the 28th meeting in 2005, several WG-19 researchers were invited to conduct a study and discuss the main types of qualitative research used by WG-19 participants (Nacarato et al., 2005). For the 29th meeting (2006), Juan Godino (University of Granada) discussed the object of study of research in didactic mathematics (Godino, 2006).

Representatives of the Postgraduate Program in Mathematics Education coordinated the first six meetings of WG-19. The first four were held at PUC-SP with Sonia Igliori and Silvia Machado, and the next two (2001–2003) were held at UFMS with Luiz Carlos Pais and at UNESP-RC with Marcelo Borba. Starting in 2003, the coordinators were primarily representatives of postgraduate programs in education with a research focus on mathematics education.

This change is significant because WG-19 ceased to be the primary forum for discussing research and graduate studies in mathematics education. This responsibility was transferred to the International Seminar on Research in Mathematics Education (SIPEM), which was organized based on the SBEM's structure of research groups. Consequently, WG-19 gradually adopted a different epistemological identity, shifting its primary focus to its relevance and dialogue with the broader field of education.

Thus, as highlighted in the study by Grando and Oliveira (2025), a change in the call for papers was already evident from the 30th meeting (2007) onwards. Although WG-19 continued to define the theme and guests to debate it in advance, the call was open to interested parties with related studies, and the guests were responsible for systematizing and discussing these studies.

Thematic studies relevant to Mathematics Education induced by calls from WG-19

The first theme for commissioned papers focused on the relationship between mathematics education as a professional and scientific field and public policy. This theme was

explored in two consecutive meetings of WG-19. This theme was chosen based on the perception that although mathematics education has produced knowledge relevant to improving the teaching of mathematics professors, Brazilian public education policies have not been based on these studies. In response to this issue, Vicente Garnica (UNESP) systematized and discussed studies involving curriculum, assessment, didactic textbooks, and teacher training policies at the 30th meeting of ANPEd (2007). At the 31st ANPEd meeting in 2008, Cristiano Muniz (UnB) discussed specific public policies for the initial and continuing training of mathematics professors based on studies submitted in response to the WG-19 call.

For the 32nd ANPEd meeting in 2009, a call was made for studies on the theme of narrative research, including autobiographical studies and oral history. Since 2000, this methodology has gained prominence and followers among education and mathematics education researchers, especially when studying the training and professional development of professors and teaching practices (Grando & Oliveira, 2025).

One of the studies in the dossier commemorating the 25th anniversary of WG-19 (Carneiro & Silva, 2025) mapped and analyzed 44 works by WG-19 that addressed narrative (narrative research and research with narratives) after noticing the recurrent use of this research methodology. The authors identified various viewpoints on the application and exploration of narratives in the study of diachronic phenomena, which manifest over time within specific sociocultural contexts. These phenomena include the formative and investigative experiences of professors within communities of practice. The authors highlighted the reverberations of these phenomena in the professors' professional development, teaching, learning, and identity transformation/constitution.

In my interpretation of the study by Carneiro and Silva (2025), the analysis of these studies presented in WG-19 reveals at least three different ways of using and exploring narrativity in research processes. (1) narrative research, which aims to investigate diachronic phenomena systematically in education or training; (2) mediation of teacher training, learning, and knowledge production from practice, creating meaning about oneself and one's professional practice (similar to autobiographical studies); and (3) producing narrative data on practices and experiences in time and space. This data is then subjected to narrative analysis, which may or

may not resemble narrative research, according to Clandinin and Connelly (2000) and Riessmann (2008).

The 33rd (2010), 34th (2011), and 36th (2013) meetings of WG-19 commissioned papers on curricular and pedagogical practices in mathematics education in elementary school. These studies presented discussions that, in relation to different levels of education, pointed out important problems, challenges, and perspectives that contribute to rethinking mathematics education in early childhood, elementary school, and high school. The studies highlighted the need to develop research that fosters collaboration between universities and schools, problematize teaching through various approaches, and review teacher training (both initial and continuing). They also emphasized the importance of examining current or innovative mathematics teaching and learning practices, exploring new methodologies that integrate mathematics, language, and real-world contexts, and producing specialized pedagogical and curricular knowledge for each level of education (Grando & Oliveira, 2025).

The initial and ongoing professional development of mathematics professors was a recurring theme in WG-19, particularly from 2012 to 2023. For instance, in 2012, a call for papers was issued to discuss the nature and specifics of mathematics training necessary for professors to teach mathematics in the early and final years of elementary school and in high school, as well as its place in undergraduate programs (2012 meeting) and pedagogy (2013 meeting). A call for papers was issued for the 2015 meeting to investigate the professional development of mathematics professors who participated in the Education Observatory Program (OBEDUC).

At the 2019 meeting, a call for papers was issued to discuss the training of mathematics professors in contexts of regulation and loss of rights. Guest researchers Victor Giraldo and Filipe Fernandes systematized and discussed these papers from a decolonial perspective. Subsequent meetings have featured systematized discussions of commissioned papers. At the 2021 meeting, Marcia Cyrino and Regina Grando discussed curricular (de)constructions for the Initial Training of Professors Who Teach Mathematics (Cyrino & Grando, 2021), highlighting challenges and scenarios of possibilities for existing and re-existing. At the 2023 meeting, Vinício Santos discussed studies on the training of mathematics professors from the perspective

of "social justice and equity in the process of rebuilding Brazilian democracy" (Santos, 2024, p. 6).

The study by Grando and Oliveira (2025) in this dossier summarizes this movement very well, emphasizing that these studies presented and discussed in WG-19 – "with professors (collaboration), about professors (resistance) and in the constitution of a professional teaching identity from the perspective of professional development, with collaboration as a key point in this empowerment and professional teacher training" (p. 70). – highlight "the consolidation of knowledge, practices, subjectivities, and conceptions of this professor, defined by an idiosyncratic and, at the same time, political, hegemonic, Euro-US-centered discourse and the possibilities of a (de)construction of a transdisciplinary and decolonial training curriculum" (p.70)

Finally, in the most recent meetings of WG-19, the debate intensified about the role and place of mathematics education in the face of, on the one hand, the challenges of social, racial, and gender inequalities that permeate Brazilian education and, on the other hand, conservative movements to control, standardize, and curtail curricular teaching and learning practices in elementary schools.

Emerging thematic studies that were discussed during the WG-19 meetings

In this section, we discuss the emergence of topics relevant to the field of mathematics education that were not the subject of commissioned papers from WG-19. Many of these topics are discussed in two articles in WG-19's 25-year dossier, such as the presence of Freirean pedagogy in WG-19's work (Lopes & Valle, 2025) and the study and problematization of how digital technologies are used and addressed in the works presented in WG-19 (Bairral & Wanderer, 2025).

In their narrative review of 21 studies by WG-19 engaging with Freirean pedagogy, Lopes and Valle (2025) reveal its continuous presence, albeit timid or indirect, throughout these 25 years. During the first decade, Paulo Freire's ideas formed the theoretical and methodological foundation for discussions about the feasibility and importance of critical mathematics education in the Brazilian educational context. These discussions emphasized the potential of

mathematics to either perpetuate or transform social inequalities through critical analysis and the cultivation of critical consciousness.

Over the last 15 years, WG-19's discussions have intersected with the ideas of Ole Skovsmose, Ubiratan D'Ambrosio, and Beartriz D'Ambrosio. Together, they have investigated and discussed contemporary issues such as ethnomathematics, social movements, public schools, teacher (re)existences, decoloniality, and creative insubordination.

Lopes and Valle (2025) point out the impact of Freirean thinking on the training and practice of mathematics professors, evidenced by their efforts to design and develop mathematics education with methodological rigor and research. This education is focused on listening to students to overcome their naive readings and attitudes, while also promoting epistemological curiosity and equipping students to critically read the world.

The second theme, which is the focus of this dossier, concerns the use of digital technologies (DT) in mathematics education and how the works presented in WG-19 integrate them into teaching and learning processes and research. Bairral and Wanderer (2025) conducted a semantic analysis of the 21 studies identified in this category. They explored three dimensions of these investigations: the mathematical knowledge examined, the results of incorporating technology into mathematics classes, and the technological approach adopted.

The authors highlight that the initial studies, published before 2006, expressed enthusiasm for the didactic potential of DT. These studies encouraged incorporating technologies into mathematics classes and primarily explored Cabri-Géomètre and Winplot because they facilitate visualizing geometric and algebraic concepts. Years later, GeoGebra became the dominant software in these studies, linking algebra, geometry, and statistics.

Since 2006, cyber formation and virtual learning environments (VLEs) have emerged, diversifying and expanding the field of study, particularly in teacher training and education. Cyber formation allows teachers to consider the broader context of education, share resources, and exchange ideas about their teaching methods. It also enables them to monitor the development of their professional field (Bairral & Wanderer, 2025). Around this time, professors and students began collaborating with each other, collectively building knowledge with the support of digital platforms.

The results of the study by Bairral and Wanderer (2025) highlight that, as a tool, DTs are decisive in enabling teaching and classroom activities. DTs are an **instrument** that allows thinking, learning, and using in relation to the didactic approach adopted by DTs. As an **artifact**, DTs reveal themselves as a resource for decision-making, enhancing communication skills, interacting with computers in various ways, expanding possibilities, and changing classroom dynamics. And TD, as a mediator, stands out as a way of doing and thinking about mathematics, as a way of experimenting, incorporating, and driving change, and as a means of composing and enriching activities.

Although the Covid-19 pandemic occurred between 2020 and 2022, this thematic study of ANPED's WG-19 suggests that their studies did not focus on or discuss remote and hybrid education processes, digital technology resources, or their effects on teaching and student learning.

However, Bairral and Wanderer (2025) encourage further research on the use of digital technologies in mathematics education. For instance, what impact do these investigative experiences have on the development or transformation of curricular practices for teaching and learning mathematics in schools? What do these experiences highlight regarding curriculum policies implemented through the platformization of teaching, as is currently occurring in public schools in São Paulo and Paraná? What impact do these policies have on students' mathematics teaching and learning, as well as on professional teaching work?

Other emerging themes that ran through WG-19 and were not the subject of commissioned papers or investigated in this dossier could be pointed out. One such theme is the dialogue with the philosophy of difference and theoretical contributions from Deleuze and Guattari. This theme is connected to studies on mathematics as language games from Wittgenstein's perspective, which strongly impacts how we conceive of and explore the discipline's school content. Additionally, we can highlight studies on the professional identity of mathematics professors from a sociocultural perspective.

A meta-synthesis of the narrative review of the 25-year trajectory of ANPED's WG-19

The studies comprising the commemorative dossier marking the 25th anniversary of the WG-19 (Mathematics Education) working group of the ANPEd highlights its establishment as a plural and dynamic space. This group is responsible for legitimizing mathematics education as a field of research and for teacher and researcher training and critical reflection on public policy. According to **Nacarato and Santos (2025)**, the group's formation was marked by initial tensions and the risk of isolation. Over time, however, it developed its own epistemological identity and embraced the challenges posed by political, economic, and social changes in Brazil due to the advancement of neoliberalism in education. Recently, the group has attempted to address the impacts of the global health crisis (i.e., the SARS-CoV-2 pandemic) and the denial of science and policies supporting research and education by far-right governments, which discriminate against social and cultural minorities.

Soares et al. (2025) and Grando and Oliveira (2025) argue that the group's trajectory reveals theoretical and methodological diversity as well as shared commitments, such as defending democracy, public schools, and inclusive curricula aimed at reducing inequalities. Works commissioned between 2002 and 2023 highlighted debates on teacher training, professional development, curricula, educational policies, and mathematics teaching at various stages of basic education. Collaboration between researchers and professors is central to the development of a professional teaching identity and the creation of critical, transdisciplinary, and decolonial curricular alternatives.

The analyses also indicate the consolidation of mathematics education as an interdisciplinary, critical, and socially relevant field. New themes emerge with each meeting, such as anti-racism and the intersection of whiteness. These themes guide the work commissioned by WG-19 in 2025. This demonstrates how the group keeps up with developments in education and expands its focus to include diversity, inclusion, and social justice.

In mapping the studies of WG-19 that used narrative as a source of data or a method of investigation, **Carneiro and Silva** (2025) demonstrate its strength as an approach to research and training. They show that narrative values experience and memory as formative and investigative dimensions. Based on the work of authors such as Clandinin, Connelly, Bolívar,

Josso, and Larrosa, this perspective has made it possible to theorize about lived experiences and promote reflections on the past, present, and future, thereby enhancing professional teacher development.

Another important theme of the studies was the use of digital technologies. According to a review by **Bairal and Wanderer** (2025), multiple approaches were identified as tools, artifacts, or means of mediation that impact teaching practices, mathematical learning, and research in the field. However, these studies also prompt reflection on current curriculum policies, particularly the platformization of teaching currently occurring in São Paulo and Paraná, which could be a focus of future WG-19-commissioned work.

In dialogue with Freirean pedagogy, albeit indirectly, **Lopes and Valle's** (2025) review highlights the influence of works such as *Pedagogy of the Oppressed and Pedagogy of Autonomy* on mathematics education studies, many of which are also associated with ethnomathematics. The main reference of ethnomathematics is Ubiratan D'Ambrosio.

The works analyzed from this perspective emphasize the importance of critical, investigative mathematics education. This type of education pays attention to students' needs, promotes the transition from naive curiosity to epistemological curiosity, and contributes to the human and democratic development of students, especially those in public schools.

In conclusion, the trajectory of WG-19 over its 25 years has demonstrated a consistent process of consolidation and reinvention, gaining visibility and recognition within the Brazilian educational landscape. More than an academic debate space, WG-19 has become a distinctive locus of resistance and proposal in comparison to ENEM and SIPEM. It articulates scientific rigor, social and cultural relevance, and political commitment to critical, inclusive, and transformative mathematics education.

References

Bairral, M. A., & Wanderer. (2025). Uma fotografia de estudos enfatizando o uso de tecnologias digitais: a produção do GT-19 da Anped como foco, *Educação Matemática Pesquisa,* p.117-140.

Bernardo, W. M., Nobre, M.R.C., & Jatene, F. B. (2004). A prática clínica baseada em evidências. Parte II: buscando as evidências em fontes de informação. *Revista da Associação Médica Brasileira*, [online], *50*(1), 104-108.

Carneiro, R. F., & Silva, J. M. B. (2025). Pesquisa narrativa nos trabalhos do GT 19 – Educação Matemática nas Reuniões Nacionais da ANPEd, *Educação Matemática Pesquisa, p. 092-116.*

Cyrino, M. C. C. T., & Grando, R. C. (2021). (Des)construção curricular necessária: resistir, (re)existir, possibilidades insubordinadas criativamente. In *Anais da 40.ª Reunião Nacional da ANPEd* (v. único, pp. 1-21). Belém (PA), ANPEd.

Clandinin, D. J., & Connelly, F. M. (2000). *Narrative inquiry: experience and story in qualitative research*. Jossey-Bass.

Cristovão, E. M., & Fiorentini, D. (2021). A investigação narrativa no estudo da aprendizagem de professores de matemática em espaços colaborativos híbridos universidade-escola, *Sisyphus - Journal of Education*, *9*(2), 34-60. DOI: https://doi.org/10.25749/sis.21792.

Fiorentini, D. (2002). Mapeamento e Balanço dos Trabalhos do Gt-19 (Educação Matemática) no Período de 1998 a 2001. In *Anais da 25ª Reunião Anual da ANPEd*, Caxambu, MG, (v.1, pp. 1-17). Disponível em: http://www.ufrrj.br/emanped/paginas/conteudo_producoes/docs_25/mapeamento.pdf

Fiorentini, D., & Lorenzato, S. (2006). *Investigação em Educação Matemática: percursos teóricos e metodológicos*. Autores Associados, 226p.

Fischer, N. B. (2007). Comitê Científico da ANPEd: memórias, desafios e conquistas de uma ação construída em parcerias múltiplas. *Revista Brasileira de Educação, 12*(36), 411-423.

Godino, J. D. (2006). Presente y futuro de la investigación en didáctica de las matemáticas. *Anais da 29.ª Reunión Anual da Associação Nacional de Pós-Graduação e Pesquisa em Educação* (1-24). Caxambu.

Gonçalves, K. V., & Fiorentini, D. (2023). Origens e apropriação cultural do Lesson Study: contribuições à aprendizagem do professor que ensina matemática. *Revista Paranaense de Educação Matemática, 12*(29), 226-249. https://doi.org/10.33871/22385800.2023.12.29.226-249.

Grando, R. C., & Oliveira, A. M. P. (2025). Trabalho Encomendado do GT19 da ANPEd (2002-2023): modelos, temáticas e contribuições para a Educação Matemática. *Educação Matemática Pesquisa,* p.047-073.

Green, B.N., Johnson, C.D., & Adams, A. (2006). Writing narrative literature reviews for peer reviewed journals: secrets of the trade. *J Chiropr Med., 5*(3), 101-117.

Lopes, C. E., & Valle, J. C. A. (2025) Diálogos com Paulo Freire nas pesquisas do Grupo de Trabalho de Educação Matemática (GT 19) da ANPEd. *Educação Matemática Pesquisa, p. 141 - 161.*

Miguel, A., Garnica, A. V. M., Igliori, S. B. C., & D'Ambrosio, U. (2004). A Educação Matemática: breve histórico, ações implementadas e questões sobre sua disciplinarização. *Revista Brasileira de Educação*, *27*, 70-93.

Nacarato, A. M., & Santos, V. de M. (2025). O GT19 - Educação Matemática no contexto da ANPEd: percurso e constituição. *Educação Matemática Pesquisa, p*. 024-046.

Nacarato, A. M., Ferreira, A. C., Lopes, C. E., Fiorentini, D., & Grando, R. C. (2005). Mapeamento inicial dos trabalhos apresentados no GT19 da ANPEd no que diz respeito às questões metodológicas: pesquisas de abordagem qualitativa. In *Anais da 28.ª*

Reunião da ANPEd (v. 1, pp. 1-24).40 anos de Pós-Graduação em Educação no Brasil. Caxambu (MG), ANPEd.

Polkinghorne, D. E. (1995). Narrative configuration in qualitative analysis. *Qualitative Studies in Education*, *8*(1), 5-23.

Riessman, C. K. (2008). *Narrative methods for the human sciences*. Sage.

Santos, V. M. (2024). Formação de professores de Matemática e educação básica: justiça social e equidade no processo de reconstrução da democracia brasileira. *Boletim Gepem* (Online), 84, 6-28.

Soares, F. S., Passos, C. L. B., & Ortigão, M. I. R. (2025). Trajetória e focos investigativos da Pesquisa no GT19 da ANPEd: uma análise dos trabalhos encomendados e dos minicursos. *Educação Matemática Pesquisa,* p. 074-091.