

Narrative research in the texts of GT 19 –mathematics education at the national meetings of ANPEd

Investigación narrativa en los trabajos del GT 19 – educación matemática en las reuniones nacionales de la ANPEd

Recherche narrative dans les textes du GT 19 – éducation mathématique dans les rencontres nationales de l'ANPEd

Pesquisa narrativa nos trabalhos do GT 19 – educação matemática nas reuniões nacionais da ANPEd

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Abstract

Narrative research and research with narratives has been growing in the area of Mathematics Education, which can also be seen in the works presented in GT 19 – Mathematics Education at the National Meetings of the National Association for Research and Post-Graduate Studies in Education, ANPEd. This article has the following research question: What perspectives of narrative research are present in the papers published in the meetings of GT 19 – Mathematics Education of ANPEd? The objective is: to map and analyze the papers that address narratives, published in the meetings of GT 19 – Mathematics Education since its creation. To this end, a survey was carried out in the annals of the National Meetings from 2000 to 2023 and 44 works were found that mention narratives in the text. Four axes of analysis emerged from the data: narrative research, research and teacher education devices, data production devices and the term “narrative” in other research scenarios. The data analysis showed an increase in the papers that have used this research approach in the last meetings and also revealed the polysemy of the term “narrative”. The works presented indicate the potential of narrative research for professional development, valuing narrative for data production, research and education. They

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also use, for the most part, a common theoretical framework that considers narrative research a theoretical-methodological approach that theorizes the lived, by prioritizing the experience of oneself and of others throughout the research process.

Keywords: Narrative research, Narratives, Mathematics education, ANPEd.

Resumen

La investigación narrativa y con narrativas han crecido en el área de Educación Matemática, el que se puede ver también en los trabajos presentados en el GT 19 – Educación Matemática en las Reuniones Nacionales de la Asociación Nacional de Investigación y Pós-Grado en Educación, ANPEd. En este artículo, se tiene como cuestión de investigación: ¿Cuáles perspectivas de investigación narrativa están presentes en los trabajos publicados en las reuniones del GT 19 – Educación Matemática de ANPEd? Y como objetivo: mapear y analizar los trabajos que abordan narrativas, publicados en las reuniones del GT 19 – Educación Matemática desde su creación. Para ello, se realizó un levantamiento en las actas de las Reuniones Nacionales de 2000 a 2023 y se encontraron 44 trabajos que mencionan narrativas en el texto. Emergieron de los datos cuatro ejes de análisis: investigación narrativa, dispositivos de investigación y de formación de profesores, dispositivos de producción de datos y el termo “narrativa” en otros escenarios de investigación. El análisis de los datos muestran un aumento de los trabajos que tienen utilizado ese abordaje de investigación en las últimas reuniones y reveló la polisemia del termo “narrativa”. Los trabajos presentados indican la potencialidad de la investigación narrativa para el desarrollo profesional, valoran la narrativa para la recogida de datos, para la investigación y formación. También utilizan, en su mayoría, un referencial teórico común que la consideran la investigación narrativa un abordaje teórico-metodológico que teoriza el vivido al enfatizar la experiencia de si y del otro en todo el proceso de investigación.

Palabras clave: Investigación narrativa, Narrativas, Educación matemática, ANPEd.

Résumé

La recherche narrative et la recherche avec des récits se développent dans le domaine de l'éducation mathématiques, ce qui peut également être constaté dans les articles présentés dans le GT 19 - Éducation Mathématiques aux Réunions Nationales de l'Association Nationale pour la Recherche et les Études Supérieures en Éducation, ANPEd. Cet article pose la question de recherche suivante : Quelles perspectives de recherche narrative sont présentes dans les articles publiés lors des réunions du GT 19 – Éducation mathématiques de l'ANPEd ? L'objectif est : de cartographier et d'analyser les articles abordant les narrative, publiés lors des rencontres du

GT 19 – Didactique des mathématiques depuis sa création. À cette fin, une recherche a été menée dans les annales des rencontres nationales de 2000 à 2023 et 44 articles mentionnant des narrative ont été identifiés. Quatre axes d'analyse ont émergé des données : la recherche narrative, les dispositifs de recherche et de formation des enseignants, les dispositifs de production de données et le terme « narrative » dans d'autres contextes de recherche. L'analyse des données a montré une augmentation des articles utilisant cette approche de recherche lors des dernières rencontres et a également révélé la polysémie du terme « narrative ». Les articles présentent soulignent le potentiel de la recherche narrative pour le développement professionnel, valorisant le narrative pour la production de données, la recherche et la formation. Ils utilisent également, pour la plupart, un cadre théorique commun qui considère la recherche narrative comme une approche théorico-méthodologique théorisant le vécu, en privilégiant l'expérience personnelle et celle des autres tout au long du processus de recherche.

Mots-clés : Recherche narrative, Narratives, Éducation mathématique, ANPEd.

Resumo

A pesquisa narrativa e com narrativas tem crescido na área de Educação Matemática, o que pode ser visto também nos trabalhos apresentados no GT 19 – Educação Matemática nas Reuniões Nacionais da Associação Nacional de Pesquisa e Pós-Graduação em Educação, ANPEd. Neste artigo, tem-se como questão de pesquisa: Quais perspectivas de pesquisa narrativa estão presentes nos trabalhos publicados nas reuniões do GT 19 – Educação Matemática da ANPEd? E como objetivo: mapear e analisar os trabalhos que abordam narrativas, publicados nas reuniões do GT 19 – Educação Matemática desde sua criação. Para tanto, realizou-se um levantamento nos anais das Reuniões Nacionais de 2000 a 2023 e encontraram-se 44 trabalhos que mencionam narrativas no texto. Emergiram dos dados quatro eixos de análise: pesquisa narrativa, dispositivos de pesquisa e de formação de professores, dispositivos de produção de dados e o termo “narrativa” em outros cenários de pesquisa. A análise dos dados mostrou um aumento dos trabalhos que têm utilizado essa abordagem de pesquisa nas últimas reuniões e revelou também a polissemia do termo “narrativa”. Os trabalhos apresentados indicam a potencialidade da pesquisa narrativa para o desenvolvimento profissional, valorizam a narrativa para a produção de dados, para a pesquisa e a formação. Também utilizam, em sua maioria, um referencial teórico comum que consideram a pesquisa narrativa uma abordagem teórico-metodológica que teoriza o vivido, ao primar pela experiência de si e do outro em todo o processo da investigação.

Palavras-chave: Pesquisa narrativa, Narrativas, Educação matemática, ANPEd.

Narrative research in the work of WG 19 – Mathematics Education at ANPED National Meetings

Several researchers, especially those participating in Working Group 19 – Mathematics Education at the National Meetings of the National Association for Research and Graduate Studies in Education (ANPED), have explored narrative and narrative-based research in the field of mathematics education. Our research question is as follows: What perspectives of narrative research are present in the papers published at ANPED's WG 19 – Mathematics Education meetings? Our objective is to map and analyze papers addressing narratives published at WG 19 meetings since its inception.

To identify works from a narrative perspective, we adopted criteria that we have studied and experienced recently, considering it a theoretical-methodological approach. According to Bolívar et al. (2001), "narrative is both a structure and a method for recapitulating experiences" (p. 17), and it has the potential to elucidate, construct, and reconstruct ideas. Narrative is also a "device used to promote change in practice." Additionally, narrative can be considered "a subarea within the broad umbrella of 'qualitative research'" (Bolívar et al., 2001, p. 18).

To this end, we surveyed the proceedings of the ANPED National Meetings from the 23rd meeting in 2000 in Caxambu, Minas Gerais, to the 41st meeting in 2023 in Manaus, Amazonas. In an initial search, we read only the titles of the works and found only seven studies. We realized that we needed to access the full-text or expanded abstracts to determine if they were related to narratives. In this second search, we found 44 works that mention narratives in the text.

This study is structured as follows: first, we present the theoretical framework that underpins our discussions, followed by the research methodology. Next, we present and analyze the found works, and finally, we offer some considerations.

Narrative research

By nature, people have their lives "reported" when they recount their experiences, emphasizing those in specific times and spaces. Therefore, narrative researchers should seek to describe these lives, collect and tell stories about them, and write accounts of experience (Clandinin & Connelly, 2015, p. 12). Researchers interpret participants' interpretations and announce their times and spaces when constructing these meanings.

Another striking aspect of the narrative approach is that the starting point of narrative research is the researcher's narrative of experiences and autobiography. According to Clandinin and Connelly (2015, p. 106), it is central to "compose our narratives" of our formative and

professional paths. Thus, "we recall past stories that influence our present perspectives through a flexible movement that considers the subjective and the social" (Clandinin & Connelly, 2015, p. 107).

In narrative research, the metaphor of the "standstill," inherited from Geertz's anthropological studies (1988), is used to capture the transformation that occurred during the analyzed period. It is impossible to examine an event or period without considering it within the context of the standstill (Clandinin & Connelly, 2015, p. 47). In this way, narrative researchers construct the provisional, which can be understood in at least two ways.

The sense of provisionally relates to how someone positions themselves in the Stand. We know what we know because of where we stand in the Stand. If we change our position in the Stand, our knowledge changes. ... If the Stand changes, our relative positions in it also change. What we knew at a certain point change when the Parade temporarily shifts to another point. (Clandinin & Connelly, 2015, p. 47)

In this perspective, an open dialogue emerged with the work of WG 19 on the authors' options for the term "narrative," and we share our interpretation in this metaphorical "Parada." In this dialogue, we also draw on the literature in the field on the subject.

We corroborate the ideas of Nacarato et al. (2014) when they point to the breadth of the term narrative:

We acknowledge the polysemy of the term "narrative": writing by professors, autobiographical narratives, narratives of experience, life stories, memoirs (of education), educational trajectories, classroom narratives, narrative research, and biographical-narrative investigations. Often, these terms are not related, but rather have multiple meanings and forms of theoretical approaches and analyses. Additionally, we identify diversity in the presentation of texts, including those that use the narrative genre to communicate research results, termed narrative analysis, and those that treat narrative as the object of research yet do not present results in narrative form (p. 702).

The "narrative" can be used as a device for data production, research, and teacher training, as well as narrative research. These possibilities include oral or written accounts or stories in the form of interviews, letters, autobiographies, biographies, cartographies, and their variations. It is a form of research that crosses the accounts or stories of the participants with those of the researcher. All of them are protagonists in times and places. There are diverse sources that allow for an understanding of the context of the phenomenon or object of research.

Bolívar and Segovia (2019) also clarify the distinction between method and phenomenon by exploring some ambiguities in the terminology.

Both “autobiography” and “life story” have an etymological ambiguity: they refer to the course of an individual's life but also to its narrative reconstruction, its writing or narration through an account. The subject of study and the method of approaching it—life and life account, history and history told, autobiography, and biography—are often confused. Thus, we could study the professional life of a professor using the “life story” method, or the life story of the professor could be our object of study, to be investigated using different methods. (p. 22)

The authors explore the ambiguities of terms used in different narrative perspectives across languages and countries. They indicate that although the terms may seem distinct, in both Spanish and German, the term "life story" encompasses the two meanings found in English: "life story" and "life history." According to Bolívar and Segovia (2019), "telling a story involves making a personal or autobiographical account, as well as an objective or biographical one, and even a fabulous one" (p. 19). However, they highlight the methodological importance of using these terms. While a life story is an individual account centered on the individual's actions, a life history is a contextualized and complemented initial account with other sources of research, providing a theoretical understanding.

In addition to these two meanings, a third meaning emerges in the works of Clandinin and Connelly (2015) and is highlighted by Bolívar and Segovia (2019). This third meaning refers to the purposes or uses of narratives.

Biographical-narrative research has the potential to generate knowledge that helps us understand and interpret educational reality. It is a powerful tool, especially relevant for exploring identity, meaning, and practical knowledge. It reveals the everyday dynamics present in processes of interrelation, identification, and personal and cultural reconstruction (Bolívar & Segovia, 2019, p. 24).

Based on this discussion, narrative research favors the professional development process through "reflective exercises" about being, existing, or becoming a teacher. By narrating experiences, pedagogical practices, and beliefs, narrative research contributes to a broader understanding of the factors that determine the present. It "combines experience with self-criticism and development" (Clandinin & Connelly, 2015, p. 122). Narrative research is a theoretical-methodological approach that conceives of a self-forming character because "giving adults a voice to discursively represent their accumulated knowledge, experiences, and concerns is a powerful tool for self-formation" (Bolívar & Segovia, 2019, p. 61). This approach brings the participant to the center. Research is conducted with participants, not about them, and data is produced through dialogue between researchers and participants.

The growing use of narrative research in mathematics education, as in other areas of knowledge, is justified by the fact that it enables all participants to play a leading role in the

research process. We observe its use of devices such as biographical interviews, written or oral narratives, biograms, life stories, autobiographies, and the intersection of protagonists' stories, as well as narrative writing. This marks a paradigm shift in academic writing, allowing for the exploration of subjective aspects of the phenomenon or object of research.

According to Oliveira et al. (2023), who study teacher training, narrative research is increasingly used in this field. The researchers date the introduction of this approach to the Brazilian context to the 1980s.

Interest among researchers in the field of education emerged in 1984 with the publication of the book (*The Teacher is a Person*) by Ada Abraham. According to Nóvoa (1992), this period saw the emergence of interest among researchers in the life cycle, career, professional trajectory, biography, and autobiography of professors. (p. 2)

In the field of mathematics education in Brazil, thematic groups have formed to address the subject, given its scope and potential to develop teaching practices and understanding of the profession. The first of these publications emerged at the 32nd Annual Meeting of Anped in 2009, based on the Commissioned Work on Narrative Research published in 2010 in the journal *Ciências Humanas e Sociais em Revista* (Humanities and Social Sciences in Review) of the Universidade Federal Rural do Rio de Janeiro. In 2011, Passos (2011) organized a second issue entitled "*Narratives as Enablers in the Movement of Teaching, Learning, and Training*." This initiative brought together Brazilian and Portuguese researchers and was published in the journal *Interações* of the Higher School of Education of Santarém in Portugal.

In 2013, Nacarato and Passos organized the third issue, titled *Writing, narratives & teacher training in mathematics education*, which was published by the journal *Revista Educação* of the Pontifical Catholic University of Campinas. In 2014, the journal *Bolema* continued the series with a fourth thematic issue organized by Nacarato et al., researchers who have promoted the defense and use of narrative research for the past two decades.

Each of us has been working on specific theoretical perspectives related to the theme of narratives: biographical studies (Adair), sociolinguistic analysis (Cármén), and oral history (Heloisa). Recently, both in our individual research and in partnership with our students and research groups, we have identified how the use of narratives has been gaining ground in mathematics education research, especially in the field of teacher training. This growing interest may stem from the importance given to historicity, a striking aspect of narratives, both as a pedagogical practice and as a potential approach to understanding social practices related to Mathematics Education. (p. 701)

These four publications marked the beginning of production and dissemination in the field of mathematics education. In them, narrative research is used as a device for training, self-

training, and research. We also verified this in the lines of analysis that emerged from the work of WG 19.

We will now describe the paths taken in this research.

Paths of analysis

In the process of collecting and analyzing WG 19's work, we considered the concepts described and the use of narrative research devices. We observed that the word "narrative" appears in several works but takes on different meanings. In addition to references to the field of narrative research, we found excerpts from structured or semi-structured interviews, quotations, and textual genres. To explore the various works and their perspectives presented and discussed in the history of WG 19, we chose to analyze all the texts found and understand their meanings.

We emphasize again the provisional nature of this analysis. When reading one of the selected texts based only on its bibliographic reference containing the word "narrative," we came across a narrative research study focusing on life stories (Gama & Gurgel, 2004). This suggests that other works may be absent from our dialogue precisely because they use different terminology. According to Clandinin and Connelly (2015), "What we may be able to say now about a person, a school, or another entity is a meaning constructed in terms of a broader context, and that meaning changes over time" (p. 47).

Next, we will share how our perspective on the research presented in Working Group 19 on Narrative Perspective has developed over the past 25 years. After reviewing the proceedings of the ANPEd National Meetings from the 23rd meeting in Caxambu, Minas Gerais, in 2000, to the 41st meeting in Manaus, Amazonas, in 2023, we found 44 works mentioning narratives, presented in Table 1. The table identifies the meeting at which the work was published, the analysis axis to which the text was assigned, the title, the authors' names, and their affiliated institutions.

Table 1.

Works found in WG 19 – Mathematics Education

Edition	Axis of analysis	Work and Poster	Authors	Institutions
23 rd Anped 2000	3	<i>Metacognitive processes: their development in the initial training of mathematics professors</i>	Diana Jaramillo	UNICAMP
24 th Anped 2001	2	<i>Feelings and dilemmas of mathematics professors at the beginning of their teaching careers</i>	Renata Prenstteter Gama; Célia Margutti do Amaral Gurgel	UNIMEP
27 th Anped 2004	4	<i>The math professor in cinema: scenarios of identities and differences</i>	Carla Gonçalves Rodrigues de Mesquita	UFPeI
28 th Anped 2005	4	<i>Teaching and learning mathematics: some aspects of learning to teach in initial teacher training</i>	Anemari Roesler Luersen Vieira Lopes	UNOESC
	4	<i>Investigating the construction and application of narratives for teaching mathematics in teacher training</i>	Cármén L. B. Passos; Rosa Maria M. A. de Oliveira	UFSCar
29 th Anped 2006	1	<i>Challenges and potentialities of writing in teacher training in mathematics</i>	Maria Teresa Menezes Freitas; Dario Fiorentini	UFU; UNICAMP
31 th Anped 2008	3	<i>The training of mathematics professors through distance learning</i>	Diva Souza Silva	UNIVALE
	4	<i>Mathematical education, racism, and differentiated inclusion: studying a rural school during the nationalization campaign</i>	Fernanda Wanderer	UNISINOS
	3	<i>Early career mathematics professors: identities and collaborative groups</i>	Renata Prenstteter Gama; Dario Fiorentini	UNICAMP
	3	<i>Knowledge about teaching in the initial training of mathematics professors</i>	Viviane Rocha Costa Cardim; Regina Célia Grando	USF
32 nd Anped 2009	3	<i>Continuing training for professors and professional development: the group at school</i>	Monike Cristina Silva Bertucci; Maria do Carmo de Sousa	UFSCar
	1	<i>Donald Schön's reflective teaching – a study with academics from a mathematics degree course</i>	Maria Aparecida Silva Cruz	UEMS
33 rd Anped 2010	2	<i>Narratives and the teacher learning process</i>	Maria Auxiliadora B. A. Megid; Dario Fiorentini	PUC-Campinas; UNICAMP
	2	<i>The professional development of professors who teach mathematics in early childhood education: from self-constitution to teaching</i>	Maiza Lamonato; Renata Prenstteter Gama	UFSCar
34 th Anped 2011	3	<i>Pedagogical practices in mathematical modeling and tensions in professors' discourses</i>	Andréia Maria Pereira de Oliveira	UEFS
	3	<i>Perceptions of teaching: meta-analysis of two studies conducted with mathematics professors in Ouro Preto (MG)</i>	Ana Cristina Ferreira	UFOP

35 th Anped 2012	1	<i>Trajectories of training professors in distance learning mathematics: between knowledge, experiences, and narratives</i>	Diva Souza Silva	UFU
	2	<i>Mathematical learning constructed in the pedagogy course and its impact on the practices of professors in the early years of education</i>	Maria Auxiliadora Bueno Andrade Megid	PUC-Campinas
	3	<i>The knowledge produced by professors based on their teaching practices</i>	Maria Aparecida Vilela Mendonça Pinto Coelho	UNICAMP
36 th Anped 2013	4	<i>The contributions of PIBID to the training of professors who teach mathematics</i>	Cláudio José de Oliveira	UNISC
	4	<i>Mathematical education and family-school relations: a study on homework</i>	Gelsa Knijnik; Débora de Lima Velho Junges	UNISINOS
	4	<i>Memories of modern mathematics teaching at the Colégio de Aplicação da Bahia (1966–1976)</i>	Diogo Franco Rios	UFPeI
	3	<i>Mathematical knowledge in early childhood education: the continuing training process of a group of professors</i>	Priscila Domingues de Azevedo	UFSCar
	4	<i>The discourse of female mathematics professors – a look at professional development</i>	Tânia Margarida Costa Lima	UFMG
37 th Anped 2015	3	<i>Becoming a professor: narratives on the processes of constituting teaching identity among mathematics undergraduates</i>	Rosana Maria Martins; Simone Albuquerque da Rocha	UFMT
	3	<i>Narratives in supervised mathematics teaching practice as a possibility for discussing the teaching profession</i>	Reginaldo Fernando Carneiro	UFJF
	4	<i>The role and place of specific didactics in the initial training of mathematics teachers</i>	Ana Teresa de C. C. de Oliveira; Dario Fiorentini	UFRJ; UNICAMP
39 th Anped 2019	3	<i>Development of identity among mathematics professors and participation in differentiated training spaces</i>	Ana Leticia Losano; Dario Fiorentini	UNICAMP
	4	<i>Strategy guidance in the process of solving proportion problems: an analysis of texts produced by fifth-grade students</i>	Ana Virginia de Almeida Luna; Tania Regina Leite Santos Figueiredo	UEFS
40 th Anped 2021	1	<i>Narrative research in mathematics education: the constitution of the researcher-narrator</i>	Adair Mendes Nacarato	USF
	2	<i>Learning experiences of teachers who teach mathematics through participation in teacher literacy practices</i>	Neomar Lacerda da Silva; Andréia Maria Pereira de Oliveira	UFBA
	3	<i>Experiences in curriculum and training: a study on the curriculum actions of a group of mathematics educators</i>	Flavia Oliveira Barreto; Dario Fiorentini	UNICAMP
	4	<i>Student narratives on mathematics curriculum practices and retention in adult education in rural Ceará</i>	Francisco Josimar Ricardo Xavier; Adriano Vargas Freitas	UFF
	4	<i>Samba school: narratives on education, ethnomathematics, and carnival</i>	Jessica Juliane Lins de Souza Fernandes	UFSC

41 st Anped 2023	4	<i>Collaborative work and investigative practices in mathematics education in the initial training of indigenous professors</i>	Rodrigo Brasil Castro; Gerson Ribeiro Bacury	UFAM
	1	<i>"A dozen little things that make us like math": from the right to learn under PNAIC to the right to learn teaching</i>	Jane Maria Braga Silva	UFJF
	1	<i>Identification through the teaching career: report from a mathematics educator in the mathematics degree program</i>	Fabricia Nates dos Santos Galvão; Rute Cristina Domingos da Palma	UFMT
	1	<i>Teaching lessons narrated by mathematics professors after developing interdisciplinary projects</i>	Celi Espasandin Lopes	PUC- Campinas
	1	<i>Between memories and stories: the training of professors in/with the network movement of the mathematics fair</i>	Araceli Gonçalves; Regina Célia Grando	IFC- Camboriú; UFSC
	3	<i>Stochastic training of mathematics professors in classroom courses in Tocantins</i>	Fernanda Vital de Paula; Celi Espasandin Lopes	UFT; PUC- Campinas
	1	<i>Statistical thinking movements in childhood: between living and storytelling</i>	Regina Célia Grando; Roberta Schnorr Buehring	UFSC
	3	<i>The (well/ill) being of teachers discussed in the initial training of mathematics professors based on documentaries about Brazilian education</i>	Luciane Mulazani dos Santos	UDESC
	1	<i>Mathematical knowledge of a master shipwright mobilized in the construction stages of a traditional Maranhão vessel</i>	Rayane de Jesus Santos Melo; Carmen Lúcia Brancaglion Passos	UEMA; UFSCar
	4	<i>Meaning of mathematics curricula as narrated by teachers of youth and Adult Education in Sobral</i>	Francisco Josimar Ricardo Xavier; Adriano Vargas Freitas	UFF

An initial analysis revealed an increase in papers addressing narratives at the meetings. The last two meetings, held in 2021 and 2023, had the highest number of research papers. Additionally, most of the authors are affiliated with institutions in Brazil's southeastern region, and some have published works at various ANPED meetings. These authors include Fiorentini (2006, 2008, 2010, 2019, 2012), Gama (2001, 2008, 2010), Grando (2008, 2023), Passos (2005, 2023), Silva (2008, 2011), Xavier and Freitas (2021, 2023), and Oliveira (2010, 2021). The devices used in narrative research and their potential applications in the investigative process can be found in both the concepts and the production of data, as well as their respective recording methods. The works can be grouped into four categories: 1) narrative research (10 works), 2) research and teacher training devices (4 works), 3) data production devices (15 works), and 4) the term "narrative" in other research scenarios (15 texts). For our analysis, we considered texts dealing with accounts of lived experiences intertwined with participants in

their respective theoretical and/or practical research. These texts portray and inform perspectives and the devices used in this approach, such as narrative interviews, life stories, biographies, autobiographies, and written and oral narratives. We also noted other indications in our search, such as authors referencing the approach and validating the importance of theorizing lived experiences. With these considerations in mind, we will now present and analyze the WG 19 texts based on their approaches.

Possible discussions with the work of WG 19 – Mathematics Education

When we began analyzing the works, we first created brief descriptions of all 44 pieces with the aim of grouping them. To accomplish this, we analyzed and reflected on the aspects that brought them together. We then decided to remove these brief descriptions to make the reading more fluid, articulating the meanings we had constructed using the narrative research framework discussed above.

The researched works were found in three formats: poster, expanded abstract, and complete paper. These formats indicate changes in the organization of records for submitting papers throughout the 25-year history of WG 19. In the first editions, we found complete papers and posters; in the most recent ones, we found expanded abstracts. However, this variation in formats did not affect the information obtained for our analysis.

Works from a narrative research perspective

The narrative research perspective brings together works that declare their use of this approach. We emphasize that researchers engaged in narrative research are interested in understanding the meanings derived from their experiences and the experiences of others. These experiences are in unique and/or shared times and spaces and relate to the phenomenon or object of study. Data production occurs in the interaction between researchers and participants. Participants are "considered the embodiment of life stories" (Clandinin & Connelly, 2015, p. 77). We, as researchers, "learn more about narrative research by doing narrative research" (Clandinin & Connelly, 2015, p. 81), which is why many studies use narrative text to present their findings.

Of the total number of studies found, ten report that the authors conducted narrative research. Seven of these studies directly reference Clandinin and Connelly's work to support their research, and three cite Bolívar, who is widely read and studied by researchers delving deeper into narrative research. Some texts also refer to Larrosa, Josso, Bruner, Souza, Bakhtin, Dewey, Benjamin, Domínguez, Jovchelovitch, and Bauer. These authors share a focus on lived

experience, interaction, and dialogue between researcher and participant, and the reflective process in both data production and communication of results.

The research participants were students enrolled in mathematics degree programs, mathematics professors undergoing continuing education, pedagogical coordinators, a teacher trainer, and a master shipwright. The methods used in the investigation were varied and included autobiographies, interviews, narrative interviews, conversations, meeting transcripts, reports, biographies, document analysis, video and audio recordings, photographs, and field diaries.

All the works address the teacher training process. Some focus on initial training, some on continuing training, and one focuses on the training of narrative researchers who are also mathematics educators. These works exemplify and strengthen the effectiveness of narrative research as a method that promotes professional teacher development. This is achieved through an inward process of "reliving and telling their stories" (Freitas & Fiorentini, 2006) and by seeking to "get to know the subjects and their stories" (Silva, 2011, p. 2).

This trend demonstrates the increasing role of researchers as narrative researchers; the latest edition of ANPEd featured more works from this perspective. These works cross personal stories with those of the participants, engaging in a biographical movement that recounts experiences with mathematics education by exploring student and teacher memories.

Works from a narrative research perspective may originate from the use of narrative as a research or training tool, or from its adoption as a means of producing data. This can be seen in Silva's texts (2008, 2011), where the former falls under the data production axis and the latter under narrative research. The 2008 text was presented as a poster, indicating ongoing research. The 2011 work, on the other hand, appears to be a completed study that highlights the evolution of the investigation and change in methodological perspective. This change moved from devices for data production to narrative research.

Silva's (2008, 2011) path, like that of many narrative researchers, aligns with the assumptions of Clandinin and Connelly (2015, p. 48):

and we study it in narrative form because narrative thinking is a fundamental aspect of experience, as well as a fundamental way of writing and thinking about it.

Based on the discussions, this axis provides evidence of the importance of learning and thinking narratively throughout the entire research process, from its design to the presentation of its results.

Works that use narratives as research and teacher training tools

In this area, four works stand out for their use of narrative as a research and teacher training tool. These works value the oral and written stories of teachers in initial training and those recovering memories of learning mathematics as students. They also value the stories of teachers reporting on practices and beliefs built up throughout their professional careers. These works demonstrate that "the account of teacher training allows us to make explicit and visible the knowledge to use and draw on the set of events, experiences, and learning that have shaped who they are today or how they perceive themselves as teachers" (Bolívar & Segovia, 2019, p. 63).

"Narratives have proven to be an inexhaustible source of meaning for experiences lived in school as students or teachers" (Nacarato, 2018, p. 153). They can be used in various training formats, such as diaries, letters, and interviews, in different types of training, including face-to-face, distance, initial, continuing, and study groups.

The four studies (Lamonato & Gama, 2010; Martins & Rocha, 2013; Megid, 2012; Megid & Fiorentini, 2010) explain the formative dimension of narrative in teacher professional development.

Narrative as a device that favors the process of reflection on being a teacher was present at different stages of training: throughout the participant's life, after completing the pedagogy course, and during the mathematics degree. Of the total number of works in this axis of analysis, three use authors who discuss narratives in their theoretical charts, such as Bolívar, Bueno, Chené, Dominicé, Josso, Larrosa, Nóvoa, Passeggi, Souza, and Suárez.

The works addressed various aspects, such as teacher learning, professional development, the constitution of teacher identity, and the impact of mathematics subjects in the Pedagogy course on the practice of female professors. To this end, the data emerged from the use of written and oral narratives, reflective narratives, and (auto) biographical narratives based on training memoirs.

They are clearly a relevant source for knowledge construction, as they mobilize memories and meanings around the object or phenomenon under study. Furthermore, such narratives reinforce the premise that "memory is a starting point and a destination ... it makes and remakes, distances, and brings together.

It uses objects, clues, images, and words as true passports to scenarios of pleasure, relief, and pain, brought to the current situation" (Placco & Souza, 2006, p. 29).

In teacher training, narratives are an interesting possibility, as they can make

possible to uncover models and principles that structure pedagogical discourses that make up teaching behavior and thinking, and to review crystallizations about practice. This is because the act of remembering and narrating enables the actor to reconstruct experiences, reflect on their journey and their formative devices, as well as create space for an understanding of their practice. (Souza & Cordeiro, 2007, p. 47)

For the author of the narrative, the distance from the moment of writing enables him to theorize about his experience, which can become an emancipatory process by positioning him as the protagonist of his development. To do so, the professor must "critically analyze himself, separate the biased perspectives present in his journey, question his beliefs and prejudices, and ultimately deconstruct his historical process to better understand it" (Cunha, 1997, p. 3).

Thus, using narratives as devices for research and teacher training allows one to "revisit and remake the collection of our memories, which can result in different approaches, new points of view, encouragement, and boldness" (Placco & Souza, 2006, p. 31). Both the participant and the researcher carry out this movement, which brings institutional, cultural, and emotional marks that influence changes and growth in professional development.

Works that use narratives as devices for data production

This third axis refers to using narratives as sources of data to understand experiences surrounding objects or phenomena. Researchers can rewrite oral or written narratives and combine them with other methods to reveal evidence of the formation of knowledge based on students' and/or teachers' relationships with mathematics. Fifteen works were situated on this axis, as indicated by the authors' use of expressions such as "data that emerges" and "data produced" from narratives and other devices.

Most of the works indicate narrative as a tool for investigating formative processes. These include revisiting lived stories, impressions, and feelings about teaching and its pedagogical ideology (Gama & Gurgel, 2001; Jaramillo, 2003); meanings constructed about the curriculum (Xavier & Freitas, 2023); and teacher identity (Cardim & Grando, 2008; Carneiro, 2015). Ferreira, 2011; Gama & Fiorentini, 2008; Losano & Fiorentini, 2019), experiences and learning processes (Azevedo, 2013; Barreto & Fiorentini, 2021; Coelho, 2012; Oliveira, 2011; Paula & Lopes, 2023; Silva, 2008), and continuing training (Bertucci & Souza, 2009). They all consider narrative a source of research, using tools such as mind maps, memoirs, interviews, biographical interviews, life stories, research diaries, field notes, document analysis, questionnaires, and classroom narratives.

Research in this area shows how this device improves understanding of teaching processes, curricula, practices, and the feelings and aspirations of those involved in the research.

The contexts of the investigations included the initial training of mathematics professors in geometry, supervised internships, continuing education, and the contributions of study and research groups.

Additionally, only five studies present theoretical references linked to narrative research. These references include Bolívar, Clandinin and Connelly, Cunha, Josso, Larrosa, Passeggi, and Souza and Cordeiro. Conversely, many studies that use narratives as a data collection method are not linked to authors from the theoretical framework of narrative research adopted in this article.

All the studies indicate qualitative research as the methodological approach and generally combine more than one method for producing data. For example, Azevedo (2013) states that the data emerged from narratives elaborated by the participants, in addition to the researcher's diary and questionnaires. This method is similar to that of the other authors in this category.

Written and oral narratives whether combined with other methods or not, facilitate the development of experiential knowledge that is both situated and localized. They reveal each individual's unique perspective, reaction, and emotional response. These narratives become part of the academic world, bringing value and authority to those who speak about their experiences, reactions, and feelings. Thus, conducting research using the "narrative" method is researching "with," rather than "about," schools, teaching, and teaching and learning mathematics—a growing trend in mathematics education research, as seen in the work of Anped's Working Group 19.

Works that use the term “narrative” in other research settings

In this line of analysis, we gathered the works of WG 19 that use the term "narratives" from a different perspective than discussed in this article or other research scenarios. That is, the authors do not define themselves as narrative researchers, mention using narrative as a research or teacher training tool, or use narrative as a data production tool. However, as we engaged with their work through repeated readings, we deemed it important not to dismiss them.

This group of studies comprises fifteen works, and their authors position themselves within qualitative research. They use the term "narrative" as a toolbox for investigating various themes.

We believe they adopt a dictionary-based interpretation of the term.

"Action, effect, or process of narrating, recounting, or exposing a fact, event, or situation (real or imaginary) through words; narration." Literature: prose text whose characters appear in fictional, imaginary situations; fiction. (Online Portuguese Dictionary [n.d.]).

Nevertheless, we believe that these works are similar to narrative research in some way due to their richness in listening and shedding light on perspectives on being and existing in a mathematical education process. This can be seen in film narratives, children's literature, digital platforms, and excerpts from interviews and/or diaries.

Among its many applications, one tool in this toolbox highlights the power of the narrative genre in identity formation. Mesquita (2004) used film narratives to understand how mathematics teachers are portrayed in films, which implies a way of being for these professionals. Passos and Oliveira (2005) identified the potential of narrative genres, such as fables and supplementary books, as tools for teaching mathematics.

The term is often associated with excerpts from semi-structured or structured interviews supported by observations, field diaries, and so on (Knijnik & Junges, 2013; Lopes, 2005; Oliveira, 2013; Oliveira & Fiorentini, 2015; Rios, 2013; Xavier & Freitas, 2021; Wanderer, 2008).

Some studies have used narrative devices after practical activities (Silva & Oliveira, 2021) or based on recordings (Lima, 2013; Luna & Figueiredo, 2019). Castro and Bacury (2021) used the term "narratives" to describe interactions that occurred on WhatsApp and Google Meet. Santos (2023) considered discussions recorded on the Moodle platform forum as narratives. The last two studies indicated relatively new resources that have created other forms of communication, which imply new subjectivities.

Four of these studies were conducted with subjects from initial teacher training courses in mathematics. Lopes (2005) and Castro and Bacury (2021) conducted their research in supervised internship settings. Oliveira and Fiorentini (2015) worked in a specialized mathematics didactics course, and Santos (2023) conducted research in the field of mathematics education.

While most participants were mathematics and pedagogy students, some studies focused on basic mathematics education students. Some studies also addressed the continuing education of mathematics teachers.

In this context, we do not consider the narratives to constitute "an archaeology of memory and meaning" (Clandinin & Connelly, 2015, p. 100). Rather, they offer multiple perspectives on the research participants' perceptions of their respective objects or phenomena. However, the narratives constitute a "way of narrating, of telling something" (Online

Portuguese Dictionary [n.d.]) and imply teacher training, identity, and mathematics education practices at different stages of education and in different media.

Final thoughts

This article is the result of research that contributed to a broader perception of the narrative research approach in the field of mathematics education. We identify with the works concerning the polysemy of the term and its potential for professional development, regardless of the axis.

In this metaphorical pause, we reaffirm that narrative research excels at valuing experiential knowledge. It provides access to first-order information, enabling a deeper understanding of the educational process. It also allows professors to reflect on their professional lives (Bolívar et al., 2001, p. 56). Narrative researchers access and relate experiences, both their own and those of others, to reveal the historicity of the object or phenomenon under study. Research participants access memories and experiences. Both review their beliefs and reflect on the conditions that allowed them to theorize about their experiences in the recurring movement between the past, present, and future.

The narrative research perspectives present in the works published at the GT 19 – Mathematics Education meetings of ANPED value narrative for data production, research, and training. These perspectives aim to develop teachers professionally by constituting a theoretical-methodological approach that theorizes lived experiences. There is a recurring theoretical reference, notably: Clandinin and Connelly, Benjamin, Bolívar, Josso, and Larrosa, among others.

By mapping and analyzing works addressing narratives published at WG 19 meetings on Mathematics Education since its inception, we observed their predominance in data production and the valuation of idiosyncrasy in the research process. The growth of narrative research as a theoretical and methodological choice based on researchers' statements in favor of it also showed a growing trend. Many works used the term "narrative" without relating it to data production or the formative process. These works present excerpts from interviews and written records following the development of practices, whether in-person or virtual.

Most of the works demonstrate the potential of narrative research. Those organized in Axis 1 "illustrate the importance of learning and thinking narratively when designing research problems, entering the research field, and composing field and research texts" (Clandinin & Connelly, 2015, p. 17). They also encourage us "to listen to our teaching, beyond the stories that we and our students tell" (Clandinin & Connelly, 2015, p. 47).

The studies in Axis 2 explore narrative as a research and teacher-training tool because of its ability to promote reflection on the past, present, and future. This allows us to "recover memory and remember the spaces and times we have traveled" (Bolívar & Segovia, 2019, p. 42), which constitute who we are as humans, students, professors, and researchers.

The works examined in Axis 3 emphasize the importance of conducting research "with" rather than "about" the phenomenon under investigation. These works highlight the variety of methods for producing data from a narrative perspective and bring the marks of its participants on aspects related to school, teaching, and the teaching and learning of mathematics to the final research text.

Finally, the works in Axis 4 address the term "narrative". Although they do not claim to be linked to narrative research, they are positioned within qualitative research. These works highlight the multiple uses of narrative terminology and its strength in film productions, children's literature, digital platforms, and excerpts from interviews and diaries.

Narrative research varies in form, approach, and device, and it has grown in many areas of knowledge, mainly due to its theoretical and methodological approach. This approach opens the field to theorizing lived experience and prioritizes the experiences of oneself and others throughout the research process. It allows for the composition of diverse stories around the object or phenomenon under investigation.

What stories has WG 19 told in its 25 years?

Based on works using narrative terminology, we see that WG 19 has told stories about caring for others without losing sight of the scientific nature of the process. The group has encouraged the academic community to reflect on mathematics education through training processes and practices that address teaching and learning mathematics at different stages of education and in different contexts. Additionally, WG 19 has disseminated mathematics education research at events organized by ANPEd, an education association.

Thus, based on our chosen topic, we understand that this article contributes by providing an overview of the theme and of how narrative research and the term "narrative" have been addressed in the work of GT 19 — Mathematics Education of ANPEd — over the past 25 years.

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