



REVISTA DO PROGRAMA DE PÓS-GRADUAÇÃO EM
EDUCAÇÃO MATEMÁTICA DA UNIVERSIDADE FEDERAL
DE MATO GROSSO DO SUL (UFMS)

Volume 12, número 29 – 2019

ISSN 2359-2842

A reading: the studies of the Thematic Symposium “Oral History and Mathematical Education” of the National (Brazilian) Meeting of Oral History

Uma leitura: os estudos do Simpósio Temático “História Oral e Educação Matemática” do Encontro Nacional de História Oral

Antonio Vicente Marafioti Garnica¹

RESUMO

Este artigo apresenta uma leitura das comunicações orais apresentadas nas duas edições (2016 e 2018) no Grupo Temático “História Oral e Educação Matemática” do Encontro Nacional de História Oral (ENHO).

PALAVRAS-CHAVE: Leituras, Narrativas, História, Formação de Professores.

ABSTRACT

This article presents a reading of the oral communications presented in both editions (2016 and 2018) in the Thematic Group “Oral History and Mathematical Education” of the National (Brazilian) Meeting of Oral History (ENHO).

KEYWORDS: Readings, Narratives, History, Teacher Education.

A (long) introduction

Orality has always been a great ally of research. Although at certain times and moments some agents expressed doubts as to the reliability of oral sources - “The deponent can always lie”, it is said - they have always served to make decisions, to parameterize searches, to exemplify, to offer another point of view, to propose arguments. The link between memory,

¹ Professor of the Department of Mathematics, Faculty of Sciences, UNESP-Bauru, and Graduate Programs in Mathematical Education (UNESP-Rio Claro) and Education for Science (UNESP-Bauru), vicente.garnica@unesp.br

orality and history has always been a hotly debated topic. Some research communities - such as sociologists, anthropologists, and those working in social psychology, for example² - have long been open to the prospect of incorporating orality into their research protocols. Historians - perhaps because of the strong mark left by Ranke's positivist historiography, reinforced by the important systematizations of Langlois and Seignobos, for example - showed greater resistance.³ It is interesting to remember that France - the cradle of the significant historiographical revolution that, planted in the 1920s to this day, underpins the most contemporary ways of conducting and grounding historiographical operations - has proved to be one of the territories more resistant to the development of what, today, we call Oral History and its mobilization in historical works. No one, however, denies the importance that attentive listening to oral testimonies has had for historians, both those of antiquity, such as Herodotus and Thucydides, and for the more contemporary ones, such as Michelet, in presenting their elaborations so far vital for understanding the field of research that, according to Bloch, is concerned with men who, in community, live in time.

Both Thompson and Joutard⁴ agree that the cumulative effects of the sixteenth and seventeenth centuries, and notably the advent of the printing press, have unleashed a variety of resources, both qualitative and quantitative, for historiography. Since then, many printed documents have been produced by various professionals. Documents that valued customs, laws, traditional practices, commerce, finance, agriculture and, in general, the daily life of the population. The field of history has grown prodigiously with such publications. Various forms of historical texts have been produced, such as the study of popular culture, the historical novel, biography and autobiography, but there has not been a professional division between the processes of information creation, theory building, social and historical analysis. This separation and specialization of the working method, historical analysis and social theory will only be imposed in the nineteenth century. Anthropologists conduct itinerant research in colonies, and sociologists survey “modern” societies and, then, several methods emerge, such

² In this sense, see Weber's (1996) article on Oral History and Social Sciences - with an emphasis on Anthropology.

³ This resistance choreography also occurs - and with very similar movements - in mathematics education. While in the history of historiography we can find acidic texts on alternative approaches - the case of microhistory seems striking: some classical historians referred to this historiographical tendency as the attempt to “give microphones to ants” (GARNICA, 2010) - in Math Education one of the clearest resistance came from researchers of the history of mathematics, for instance.

⁴ Here we follow the article Thompson and Joutard: two Voices on the Voices of the Past, by Rolkowski and Silva (2006).

as empirical survey, participant observation, sociological survey conducted from interviews, the technique of joint interview etc. Still, historians who used orality to write history were rare. This only occurred in exceptional or off-border contexts, such as in Africa, where British and French researchers made various records of native traditions.

The roots of the supremacy of written documents for the writing of history lie mainly in the systematic academic formation of the historian, originated in Germany by von Ranke, which stimulates medieval documentary work. From that point on, the work of the historian suffers an elliptization that aims at the preservation of the values of the upper classes. This approach was slow to change even as the field of interest of history widened. Although no longer in the management classes, historians have long been subjected to the age of bureaucracy, state power, science, and statistics.

Although a shift in focus cannot be considered, Joutard recalls that even in France the use of oral sources has not been completely neglected. Motivated by curiosity about popular cultures, dialects and their relationship with nationality, some newspapers began to conduct interviews. In addition, the search for statistics led the government to conduct a series of questionnaires with municipal officials. It is in this dialectical process surrounded by information and interpretation between history and community that the purpose of history is transformed.

This brief (historical) retaking of the uses of orality in research shows, at the same time, two very important faces for the characterization of Oral History as a research approach: its proximity to historiography and, at the same time, its detachment from historiography. In other words, although orality has been fundamental to the innovation of scientific methods (including historical studies) with regard to the creation of research sources, oral history does not necessarily have to be linked to the development of historiographical studies - which remains quite clear given the plurality of areas that have benefited from this approach. On the other hand, even though Oral History takes care of the creation of (historiographic) sources, the created sources do not necessarily need to participate of a historiographic project.

Recreating points of view respecting individual experiences and subjective perceptions is at the origin of what has been conceived by Oral History. This expression “Oral History” arises among Americans, although very clear focuses of common practice can also be detected in Europe.

Between advances and resistances, it is natural that these orality-based approaches were increasingly systematized and incorporated into so-called "scientific" research. From the initiatives of the Chicago School - created in 1910 - with Life Stories⁵, the use of orality and biographies in academic research has apparently declined for nearly 40 years, resurging powerfully with the hermeneutic turn of the social sciences of the 1970 decade. Before the 1940s, however, a definitive impetus was given to these perspectives by Allan Nevins⁶, who, although often remembered as a mark of the rise of modern Oral History, refuses this paternity by stating that Oral History was born of the needs, the circumstances and the technological innovations (fundamentally the portable recorder) proper to a specific historical moment⁷.

The expansion of industrial activities and the attention - given mainly by Anthropology - to the "excluded" in this process of industrialization in the contemporary world, intensify the use of recorded memories as a resource for research, in a series of case studies. It is no longer a matter of privileging the great public personalities, which even Oral History sponsored in its beginnings, but of turning our gaze to the particularities of the marginalized. It is rather in the interwar period that Oral History begins to consider, as its main focus, marginalized populations and discrepant cases in the prevailing social norm. Thus, biographies emerge as a privileged instrument, although the most strongly detected intention is to study, through particularizations, the processes and contours that allow, create, maintain and reproduce marginalization, deviation, exception. It is in its development process that Oral History, expanding its focus, begins to study groups and populations of middle segments, which give a clearer picture of reality.

Currently there seems to be widespread interest in the processes involving memories, whether individual or collective, voluntary or involuntary; We live in a historical moment in which the mass media society intends to homogenize - and has been violently doing so - all

⁵ According to Guérios (2011), "The methodology of life history /.../ would have appeared in the Social Sciences in the 1920s, with the studies of the so-called 'Chicago School'. The biographical interviews made it possible for these scholars to address topics such as social changes related to migratory processes (as in the case of Thomas and Znaniecki's classic *The Polish Peasant in Europe and America*, often considered the first work to use autobiographical accounts as research material) and the careers of individuals considered deviant or delinquent (in studies such as Clifford Shaw's *The Jack Roller*) - that is, research subjects in which the social belonging of the observed subjects is not given *a priori*."

⁶ This is mainly due to the recordings Nevins made with American personalities, notably those that resulted in Henry Ford's biography.

⁷ He states: "Oral history is born of modern invention and technology. /.../ Let us begin by reevaluating the myth that I founded Oral History. Oral History become a patent necessity, and would have been brought to life in various places, would have blossomed under various and different circumstances anyway." (Dunaway & Baum, 1996)

forms of knowledge and social communication. In this scenario Oral History plays (or can play) a singular function. Studies in Oral History have in common the tendency to avoid the “objectification”, the “factualization” - and, definitely, the “heroification” - of the deponent individuals, trying to preserve them in their integrity as subjects, registering a rich plurality of points of view. According to Paul Thompson, notably three factors distinguish and validate the approach to history from oral evidence: orality makes possible to emphasize, by making more dynamic and living, some elements that would otherwise be inaccessible; Oral evidence makes it possible to understand, correct or complement other forms of recording - when they exist - and finally, oral evidence brings with it the possibility of transforming “objects” of studies into “subjects” by preventing, as in “classical historiography”, that the actors of history are understood at a distance and (re) elaborated in a “scholarly form of fiction”.

In our point of view, Alessandro Portelli's is an Italian author that, more than Thompson and Joutard, discuss the political function of oral history. The works of Alessandro Portelli (PORTELLI, 2003; 2016) on the Ardeatine Pit Massacre, conducted through interviews with former Italian resistance fighters, the Partisans, are emblematic. This Massacre concerns the shooting of 335 civilians on 24 March 1944 in retaliation for the attack on the previous day that killed 33 Nazi officers (“*Ten civilians for each officer killed*” was the Nazi slogan). Four days after the summary, nonjudgmental shooting, the pits, as the ancient caves of the city of Rome became known, were knocked down so that the rubble hid the bodies without having to bury them. The current narratives of the Italian state deny or relativize this massacre.

There are numerous examples of the same kind, such as the Armenian genocide not yet recognized by the Turkish government, or the defense of the “alternative truths” of the Trump government. The creation of ideologically vectorized narratives with no historical foundation - quite the opposite: they are new narratives created in the absence of evidence and from the negation of history - is therefore a more than proven feature of extreme right regimes. It is not by chance, therefore, that Sandro Portelli uses Oral History as an anti-fascist political instrument, and it is not by chance that we bring this theme to the agenda in this article. We wrote this text in Brazil in 2019, where the current political leaders - without worrying at all about coherence or consistency - claim, for example, that Nazism was a left-wing political movement and that Brazilian dictatorship and Holocaust are both inventions. Interestingly, these claims about Nazism and the denial of Holocaust were revitalized and took shape in Brazil shortly after the President's visit to the Holocaust Museum in Israel, which shows disregard for

historical evidence and reinforces the perspective of the work of Hanna Arendt on the impotence of history that had once been seen as the master of life, a sure guide to how the past had to illuminate the present and help organize the future. Today's far-right governments, which are multiplying across Europe and the Americas, have the guideline of turning left-hatred, revanchism, violence and resentment into state politics in a narrative of good guys and bandits of the dichotomous "we against them". It is this state of affairs that makes Oral History even more relevant: it is necessary to create and preserve collections of differentiated memories in order to prevent new narratives, without ballast, being propagated with impunity or without opposition.

This Oral History of which we speak emerges as a method of investigation with procedures more fully configured (or in the process of more stable configuration, as its methodological reflection begins) between the 1960s and 1970s. It deals with addressing the social event without previous classifications, choosing to open several discursive planes, considering the tensions between the particular stories and the culture that contextualizes them. The subject, who constitutes himself/herself in the exercise of narrating himself/herself, explains himself/herself and gives hints, in his interpretative plot, for understanding the context that he/she constitutes and which constitutes him.

It is also in the 1970s that Latin America began to participate more intensely in the Oral History movement. In Brazil, although there are records of research developed according to this approach in earlier times (linked to Sociology and Social Psychology), the Brazilian Association of Oral History (ABHO) was founded in 1975 and the application of this resource by universities and other institutions is from the 1980s. The creation of ABHO arose from the interest of some historians and sociologists, having as one of the main motivators José Carlos Sebe Bom Meihy, who at that time was returning from the International Congress of Oral History, held in Mexico.

From that moment on, Oral History is gaining ground in different areas of knowledge, and in the early 2000s reaches Mathematical Education. The very clear option for qualitative research approaches has always characterized Mathematical Education, and interviews, for example, make up much of the research strategies in this area. However, the methodological approach of Oral History should not be reduced to the use of interviews (even though interviews are a basic strategy for the composition and subsequent recording of oral sources). Although we know some works prior to the 2000s developed with resources very close to what we have

called Oral History⁸, it is with the creation of the Oral History Mathematical Education Research Group (GHOEM) that the incorporation of this approach into this field of research becomes more visible⁹. This is so much because the Group brings together some of those authors who had previously worked with Oral History, and because it already begins with a significant representativeness of researchers from different Brazilian regions, naturally constituting itself as multi-institutional, allowing it to be a vector. disseminator and, at the same time, motivator for other research and for the creation of other research groups focused on the study and application of Oral History in Mathematical Education.

In 2016, the 13th National Meeting of Oral History (ENHO) was created with the Thematic Symposium “Oral History and Mathematical Education”, which is coordinated by Ivete Maria Baraldi (from UNESP) and Diogo Franco Rios (from UFPel). The Symposium, coordinated by the same pair of researchers is held at 14th ENHO. The importance of this Symposium for Mathematical Education is unequivocal: it is the concretization of a discourse that has always animated Mathematical Education, namely, the need for interlocutions with other areas, since only in these interlocutions do we realize an object that, in its own right. In essence, it is interdisciplinary: the teaching and learning of mathematics in different times and spaces. It has been said that we are not merely an interdisciplinary field of knowledge, we are so because our own object of study, in its different and multiple perspectives, is interdisciplinary. Only in dialogue with other “disciplines” can the interdisciplinary manifest itself. Transcending the mere search for bibliographic references of another areas (a fragile – but current notion of an interdisciplinary posture) participation in forums such as the National Meeting of Oral History makes this exchange of references alive and significantly broadens our arsenal of sources and the possibilities of encounters which, in turn, broadens our perspectives, resizes our problematizations and allows us to deepen our understanding of “our” object in contact with each other. Hence the need to attend, in addition to our events, those national, international and sectorial meetings of Education¹⁰. Moreover, the circulation between these

⁸ An inventory of early work on Mathematical Education using Oral History can be found in Garnica (2006). More recent systematization, elaborated by several authors, about the most usual procedures, themes and the foundations of Oral History in Mathematical Education can be sought in Garnica (2019).

⁹ It is important to emphasize that GHOEM is not a precursor to research using oral history in mathematical education, nor were its members, even at the time of its inception, the only researchers to develop research in this regard. What is claimed is that, for a number of circumstances, the creation of GHOEM clearly marks the presence of Oral History as a methodological strategy in Mathematical Education.

¹⁰ More general events of Education, which deal with public policies, inclusion, history, research methodologies, philosophy, reading and writing, literacy, training modalities etc. In the case of Oral History in Mathematical

other (and sometimes new) spaces allows us to evaluate our own production, a theme to which the sequence of this text will be devoted.

Oral History and Mathematical Education at National Oral History Meetings

It is true that the 43 papers presented in the two editions of the National Meeting of Oral History cannot represent, either in number or in terms of the distribution of research among Brazilian researchers, groups, institutions and regions, all the many works in Mathematical Education. today held in Brazil mobilizing the Oral History. Even so, the thematic diversity present there gives a good parameter of the vitality and potential of this methodological strategy for our field, allowing some considerations that may even be extended to a larger universe, that of national productions.

Most of the works presented at the Thematic Symposium of the National Oral History Meetings have as their central theme the formation of teachers, and deals with this theme from a historiographical point of view, analyzing the creation and development of instances of teacher education in a very wide setting, reaching spaces from the municipality of São José dos Basílios, in Maranhão, through the undergraduate courses in Rio Grande do Norte until reaching Barreiras (Bahia), the Pantanal region (in Mato Grosso do Sul), Upper Araguaia region and the cities of Cuiabá and Barra do Garças (in Mato Grosso), also including the study of some courses in Western Santa Catarina. The state of São Paulo is represented in studies on the training of mathematics teachers who work at the Faculties of Technology of the State of São Paulo (the FATECs) and those linked to the Vocational Gyms of the 1960s. From Minas Gerais comes the study about the courses of Supplement, which is a clipping of a research about the Education of Youth and Adults in the city of Contagem, and a research related to the teaching of Mathematics in the city of Mariana. From Mato Grosso Uno we study the Bachelor Degree Courses, the modular project of teacher training and the Campo Grande Normal School. From Paraná come studies related to PNAIC, National Pact for Literacy at the Right Age, and public policies in Paraná - case of the State Curriculum Guidelines. From Paraná and São Paulo there are papers on the PIBID, Institutional Program for Teaching Initiation Scholarships, a Federal

Education is also noteworthy our participation in the CIPA - International (Auto) Biographical Research Congresses, composed of groups from different areas of knowledge. In these events, the presence of mathematical educators interested in oral history and the use of narratives in research has been increasingly significant.

Government policy aimed at the formation of future teachers - today facing serious problems for its continuity - that promotes a rapprochement with the schools of the Educational Public System and its teachers. This plurality of themes results in very different accents narratives that deal with situations and circumstances whose common signs, as already argued (GARNICA, 2008), are urgency, lack and transience. Creating collections in which these narratives are available is vital for, for example, the evaluation and proposition of public policies, so that, in this sense - varied, plural, chaotic and misshapen - one speaks of a Mapping of the formation and performance of teachers who teach / taught mathematics in Brazil.

It would be impossible to think of this mapping as an extension, strictly speaking, of the cartographic mapping of Physical Geography, whose function is to represent, in a set of scales and relevance, a static reality. But if we make this static idea of cartography more flexible, choosing to create purposefully mobile, reshaped, dynamic, kaleidoscopic maps - in the sense that its configuration changes with each new look, each new reading - if we choose to think of a cartography that creates maps necessarily unfinished and full of blanks that grow larger the more they are filled ... we can think of this collection of testimonials¹¹ that portray situations, circumstances, practices and desires as a mapping on the education and performance of teachers who teach / taught mathematics in Brazil.

To this cartographic richness that can be pointed out in the papers presented at the National Meeting of Oral History, we must add the always healthy perspective that the methodological guidelines are not static nor can they be made fixed and merely procedural routines. Some of the works presented at the event - about a dozen, if not more, since there are scattered or concentrated theoretical-methodological elaborations in almost all works - have Oral History itself as their theme. The convenience of having a way of proceeding already made classic is not the path we follow. Instead, we choose to develop, or deepen, or create our own reflective methodological scenarios that could better respond to our themes and field. That's why we need to study Oral History itself, exploring pragmatic and theoretical options and

¹¹ The inspiration comes from Borges' proposed collection in which all elements have in common only the fact that they have nothing in common with any other element in the collection. It is diversity - not convergence and the pursuit of generalization - that feeds much of oral history projects. In fact, if we consider geographical diversity here to speak of this mapping, it is convenient to note that even the notion of region in this mapping is (should be) made more flexible, not just responding to the guidelines of the usual physical-political division: region is thought, in the Chammas trail, explored by Baraldi (2003), as a space sewn by historicity, a conception that will later be combined with Morais's (2017) elaborations on History to be characterized not only by temporality but, essentially, by a spatiality-temporality link.

assessing the limits of each option. We do this developing a dialogical posture with other communities of many distinct areas, in order to be able to create our repertoire of theoretical and methodological ideas. The researchers who mobilize Oral History in Mathematical Education - fortunately - seem to be going against the colonizing and homogenizing tendency.

The researchers who incorporated Oral History into their research in Mathematics Education, as far as I understand, did not “invent the wheel”: they started from encounters with Oral History practiced in Sociology, History, Anthropology, the Arts and many others. fields, but chose to appropriate these encounters in order to create strategies deemed more appropriate to their studies of mathematics teaching and learning. This is how an oral history of its own arises, reflecting its previous inspirations but not limited to them: an oral history in (and for) mathematical education.

In seeking to understand how, for example, testimonials created for certain research may be used for other research, as may be reread; when questioning procedures and reasons for using Oral History in works whose deponents are deaf or do not have, for whatever reason, the language that usually allows and embodies (usual) interviews; by proposing a variation in the foundations from which textualisations can be read / analyzed; in trying to understand the power of narratives, rather than understanding and defining what narratives are or should be; by assuming - and theorizing about - the narratives of themselves, the biographies, as very important sources for Mathematical Education; by problematizing the moment of the interviews; in promoting these and many other reflections on the method, as we can read in the works of the Thematic Symposium “Oral History and Mathematical Education”. A creation of a method such as that is a continuous working process that transcends mere appropriation. This allows us to talk about a methodology which is trajectory, a movement fed by the reflections on works already done, regardless of area, theme and particular intentions of each study. Continuously thinking about the method and publicly discussing it are among the main features of the group of researchers who work with Oral History in Mathematical Education.

A significant part of these thinking initiatives include the questioning of narratives, a theme that attends, implicitly or explicitly, all the papers presented in these two editions of the Thematic Symposium of the National Meeting of Oral History. It is true that what has been called Narrative Research, in its many and varied fronts, has developed exponentially in Mathematical Education. Oral History is one way of producing and studying narratives and is therefore part of this movement. Perhaps the main distinguishing feature between Oral History

and these many other ways of producing and analyzing narratives is the assumed intention that Oral History has to produce historiographic sources, although not all the sources produced serve to trigger historiographical operations. This implies specific care with (and during) registrations, which in turn implies specific procedures that, as we have already argued, are not (and should not be) sacralized, as they can be reformulated and made more flexible in the light of each research, each researcher, of each situation and deponent. The differentiation between producing narratives in oral history and the many other ways of creating narratives, in turn, also implies the need, required of the oralist, to defend a conception of history that will be the basis for the narrative record and its use.

The use of narratives (and, consequently, the use of Oral History) can - we have already referred to this - be aimed at developing historiographical works - which, as we have already discussed here, characterizes the largest portion of works presented at the Thematic Symposium - but it can be on other fronts of which there are also significant examples in the works of the Symposium. Two of these fronts - which are shown in the collection of studies discussed at ENHO - are research on Inclusive Education¹² and those that promote and advocate the use of Oral History as a training strategy to be taken to classrooms (including certainly the Mathematics classrooms and the Mathematics Degree classrooms).

Finally, we could not fail to register, when proposing this reading of the works presented at the Thematic Symposium “Oral History and Mathematical Education”, that all who moved this forum in its two editions are young researchers, most of them in the process of formation. “Initial” for research: undergraduate, master's and doctoral students. Even the doctoral researchers who participated, coordinated and / or presented their studies at the Symposium, even though they have a well-established career, obtained their doctorates in the 2000s, when the approach of Oral History in Mathematical Education began. This factor should not be overlooked, as it says so much about the vitality and potentiality of these research initiatives and their researchers.

References

¹² In the ENHO Thematic Symposiums the works that deal with Inclusive Education focus on the deaf, but we know that there are works on this bias focusing on other groups (people with intellectual disabilities, visual impairment etc.).

BARALDI, I. M. **Retraços da Educação Matemática na região de Bauru (SP):** uma história em construção. Tese de Doutorado em Educação Matemática. Rio Claro: Universidade Estadual Paulista, 2003.

DUNAWAY, D.K. & BAUM, W.K. (ed.). **Oral History – An Interdisciplinary Anthology.** New York: Altamira Press, 1996.

ENCONTRO NACIONAL DE HISTÓRIA ORAL (13.: 2016: Porto Alegre, RS). **História oral, práticas Educacionais e interdisciplinaridade:** caderno de resumos. GRECHI, A.L. e RODEGHERO, C.S. (orgs.) São Leopoldo: Oikos – 2016.

ENCONTRO NACIONAL DE HISTÓRIA ORAL (14.: 2018: Campinas, SP). **Anais.** Disponível em <www.encontro2018.historiaoral.org.br>. Último acesso em 16/06/2019.

GARNICA, A.V.M. História Oral e Educação Matemática: um inventário. **Revista Pesquisa Qualitativa.** 1996. Disponível em <https://editora.sepq.org.br/index.php/rpq/article/view/19>. Último acesso em 16/06/2019.

GARNICA, A.V.M. Um microfone às formigas: crimes, narrativas e histórias. **VIDYA.** Santa Maria, 29 (1), p. 35-47, jan./jun., 2010.

GARNICA, A.V.M. **Oral History and Mathematics Education.** New York: Springer, 2019.

GARNICA, A. V. M. Centros, periferias, resíduos de memória, espaços da cultura escolar no Brasil: intenções de estudo sobre os Grupos Escolares. TRAVERSINI, C., EGGERT, C., PERES, E. e BONFIM, I. (orgs.). **Trajetórias e Processos de ensinar e aprender: práticas e didáticas.** Porto Alegre: Edipucrs, p. 136-146, 2008.

GUÉRIOS, P.R. O estudo de trajetórias de vida nas Ciências Sociais: trabalhando com as diferenças de escalas. **Campos-Revista de Antropologia.** UFPR-Curitiba, 2011, 12(1), p. 9-29.

MORAIS, M. B. **Se um viajante... Percursos e Histórias sobre a formação de professores de matemática no Rio Grande do Norte.** Tese de Doutorado em Educação Matemática. Rio Claro: Universidade Estadual Paulista, 2017.

Submetido em Junho de 2019

Aprovado em Setembro de 2019