

Etnomathematics: conceptions, dynamics, and challenges

Thiago Donda Rodrigues¹ 

UFMS, Federal University of Mato Grosso do Sul, Paranaíba campus, Paranaíba, MS, Brasil



Book catalog data

BOOK, Maria Cecília Fantinato, Adriano Vargas Freitas.

Ethnomathematics: conceptions, dynamics, and challenges. Jundiaí: Editora Paco Editorial, 2018.

The book **Ethnomathematics: conceptions, dynamics and challenges** is organized by Maria Cecília Fantinato and Adriano Vargas Freitas, professors of the Federal Fluminense University - UFF, and was formed within the Ethnomathematics Group of the UFF – Getuff, coordinated by them.

The organizers justify the construction of this book due to the lack of Works on the academic production of Ethnomathematics in Brazil, and, in order to do so, they produce a ‘State of the Art’ investigation, taking the works of the Ethnomathematics Meeting in Rio de Janeiro (Etnomat – RJ), held in 2014, in the Education College of the Federal Fluminense University and organized by the Getuff as reference.

The paper has a preface written by Professor Ubiratan D’Ambrósio, who points it out as a demonstration of the vitality of the field of Ethnomathematics. The presentation was held by Darlinda Moreira, professor of the Open University of Portugal, that, in addition to presenting and effectively commenting the nine chapters of the paper, celebrates her distant academic and personal connection

Submetido em: 26/06/2021 **Aceito em:** 18/08/2021 **Publicado em:** 03/09/2021

¹ PhD in Mathematics Education at Universidade Estadual Paulista. Professor of the Mathematics undergraduate course and the Postgraduate Program in Mathematics Education at the Universidade Federal de Mato Grosso do Sul and the Postgraduate Program in Education at the Universidade Estadual de Mato Grosso do Sul. Vice leader of the Study and Research group in Mathematics Education, Diversity and Difference. Mailing address: Av. Pedro Pedrossian, 725. Bairro Universitário. Paranaíba/MS. Zip Code: 79500-000. Email: thiago.rodrigues@ufms.br

with Maria Cecília Fantinato, emphasizing the deserved tribute to Professor Maria do Carmo Domite. Darlinda Moreira states that the book is a contribution to the construction of collective views on the theme.

Ubiratan D'Ambrósio returns to the book with the opening chapter, affirming that he understands ethnomathematics as a research program, reflecting on its pedagogical implications. The author explains that the essence of his proposal

is to look at different ways of doing mathematics, considering the appropriation of academic mathematics by many sectors of Society and the way in which different cultures deal with mathematical ideas". (D'AMBRÓSIO, 2018, p. 22 e 23)

Thus, D'Ambrósio looks at how the groups *do* and *know* through "comparison, evaluation, classification, quantification, counting, measuring, representation, inference". (Ibidem, p. 23)

During a visit to Finland, searching for an expression in Finnish which represented what he was idealizing, that is, a field that researched ways of satisfying the needs of explaining, understanding, and learning, inherent to the movements of transcendence and survival of human beings from a dictionary, D'Ambrósio tells us that he created the following word: *alusta + sivistyksellinen + tapas-selitys* or *alustapasivistykselitys*. After that, he noticed that this word combination with Greek roots would yield: *ethno + techné + mathema* or Ethnomathematics.

The author reinforces that, in his conception of Ethnomathematics as a research program, it is much broader than simply 'the mathematics of native groups'. Thus, he finalizes his article explaining that:

all of the cultural systems, everywhere around the world, groups of individuals with myths and values commonly accepted and compatible behaviors [*ethnos*] developed appropriate *Technés* [ways, arts, techniques] of *mathema* [explanation, comprehension, learning]. (Ibidem, p. 30)

In the second chapter, Maria Cecília Fantinato pays a fair and emotional tribute to Professor Maria do Carmo Domite, highlighting the intense personal and academic relationship she had with her.

Thus, the author brings us some moments of Maria do Carmo's life, the first being in the Ethnomathematics Study and Research Group – GEPEm, in the University of São Paulo – USP, which could count on the participation of Basic Education Professors, masters and doctorates students, and other participants. The group was managed by Maria do Carmo e Ubiratan D'Ambrósio.

Fantinato also highlights Maria do Carmo's pioneering spirit and leadership regarding the mobilization of people and important initiatives for Ethnomathematics. Among them, the author cites the organization of the first Brazilian Congress of Ethnomathematics - CBEm1, with the participation

of speakers such as Paulus Gerdes, Arthur Powel and Bill Barton and the leadership role played by Maria do Carmo in the following three editions of CBEm.

Maria Cecília Fantinato also reinforces that Maria do Carmo was responsible for the organization of the first books regarding Ethnomathematics. In addition, she also remembers the important role of Carmo in the formation of the Brazilian Ethnomathematics Association and her coordination of the Teacher Education Program for Indigenous Teachers for Early Childhood Education and initial grades (1st to 4th) of Elementary School.

Finally, Maria Cecília Fantinato brings up important concepts worked on by Maria do Carmo, such as **prerequisite**, **alterity** e **listening**, which reinforces the legacy left by the researcher to this knowledge area.

In chapter 3, Maria Cecília Fantinato, Andréa Thees and Natália Peixoto presents a panorama of the Etnomat-RJ and some results of the analysis performed in the papers published in the Etnomat-RJ, which had the goal of promoting discussions regarding the research challenges of the area.

This study made the construction of the book possible, through reading and discussing the 45 papers published in the conference proceedings, in which they were able to have an overview and glimpse the scenario of research in Ethnomathematics in Brazil. Along this path, we found that the production of Ubiratan D'Ambrósio is a practically unanimous reference in the works.

In chapter 4, Fábio Lennon Marchon and Claudio Fernandes da Costa approach the theoretical conceptions mobilized by the work of Etnomat-RJ, highlighting its main characteristics.

Considering that D'Ambrósio's ideas were the ones most used in the papers, the authors present some of their analyses and discuss the evolution of its Ethnomathematical conception, reflecting upon some characterizations and understandings.

Later, Fábio Lennon Marchon and Claudio Fernandes da Costa describe all the texts of the tables and communications performed in the event, briefly presenting each paper, and discussing the theoretical framework of each one, especially the concept of Ethnomathematics used. The authors also highlight the citation of productions by Gelsa Knijnik and Paulus Gerdes.

In this chapter, there is still the problematization of D'Ambrósio's 'etymological definition' of Ethnomathematics, broadly used in the papers of the event, but with different meanings. They also bring forth the conceptual uncertainty and the theoretical dispersion in the field, which can "fragilize the defense of the search for theoretical and philosophical fundamentals of Ethnomathematics, deducing that the use of the construction 'etno+matema+tica' is an 'almost-definition'". (MARCHON; COSTA, 2018, p. 63)

In chapter 5, through the event's proceedings, Maria Cecília Fantinato, Adriano Vargas Freitas, José Ricardo and Souza Mafra present us an analysis about the research methodologies used

by the papers of the Etnomat-RJ with the goal of problematizing the methodological characteristics of research in this field. To do so, they conducted a survey on the research approaches and data collection procedures used, obtaining an overview of the theoretical and methodological references used in the works.

Later, the authors characterize the qualitative approach, predominant in the papers of the Etnomat-RJ, and then, they pointed out and discussed the 4 most recurring types of research in the papers: ethnographic research, case study, bibliographic and/or documentary study and theoretical essays.

We agree when the authors state that:

regardless of the tools and [research] paths chosen, there is a need to maintain open attitudes and attentive looks for other meanings and practices involving mathematical knowledge (FANTINATO; FREITAS; MAFRA, 2018, p. 137).

In chapter 6, José Ricardo and Souza Mafra, João Bosco Bezerra de Farias, Marcela Cruz and Telma Alves highlight the conceptions of Education assumed by the works of Etnomat-RJ. The text reveals that the conceptions assumed are based essentially on the ideas of D'Ambrósio, for whom “the development of an education conception essentially goes through the production of constructs that use an ethics that preserves the knowledge and abilities of all.” (MAFRA; FARIAS; CRUZ; ALVES, 2018, p. 144)

After reflecting on education within the scope of Ethnomathematics, the authors discuss the: ‘Traditional knowledge and multicultural aspects’, ‘teacher training’ and ‘teaching practices’ approaches present in the Etnomat-RJ papers, bringing to light the matters and reflections addressed by the texts.

As the authors, we also understand that Ethnomathematics aligns to the multiculturalist and holistic conception of education, respecting and valuing the different ways of knowing the many learning styles. The authors also consider that the works show that it can enable new attitudes for the teachers who are interested in changing their teaching practice.

Chapter 7, written by Adriano Vargas Freitas, Alexis Silveira, Claudia de Jesus Meira and Eliane Lopes Werneck de Andrade, an analysis of the papers of the Etnomat-RJ that draw a relation between Ethnomathematics, and the Education of Youth and Adults (EJA) is presented, highlighting the inherent challenges in recognizing the diversity of students, improving teaching and learning processes enhanced by Ethnomathematics, the issue with the curriculum and also teacher training.

We are aligned with the authors when they discuss about the diversity in the EJA, in the sense that it is “an education for a heterogenous public historically marked by exclusion and with diverse

specificities and very peculiar characteristics” (FREIRAS, SILVEIRA, MEIRA, ANDRADE, 2018, p. 173), also considering the importance of recognizing the diversity present in EJA so that we have an equitable and fair education.

We also recognize, as do the authors, the potential of Ethnomathematics in the construction of a curriculum of EJA which respects and values non-school knowledge, as well as its role in training teachers to work in EJA, in order to articulate School Mathematics with non-school knowledge, developing coherent activities for the target audience's age group and respecting the different forms of cultural manifestation of these students, which strengthens the social insertion of all.

In chapter 8, Eliane Lopes Werneck de Andrade, Claudia de Jesus Meira and Gisele Américo Soares bring forward the relation of Ethnomathematics with the subjects and their practices and knowledge developed in daily life and/or their work practices in the work of Etnomat-RJ.

During the text, the authors reinforce that the Etnomat-RJ was marked by the “diversity of social practices, presented in various contexts - indigenous, maroon, rural and prison -, experienced by many subjects – crab catchers, seamstresses, riparian population and artisans” (ANDRADE; MEIRA; SOARES, 2018, p. 197) and that the ethnomathematical perspective “allows us to look at the contexts/subjects [...] and realize a proper relation of their culture, their wisdom, their activities and the mathematical activity”. (Ibidem, 197)

The authors also present and discuss some papers highlighting the cultural and work knowledge of the socio-cultural groups addressed and the ways in which the school deals with this knowledge. They claim that these issues are potentially strong in the pedagogical process, being able to “dive into cultural roots and practice cultural dynamics” (Ibidem, p. 213). Considerations with which we agree.

In the last chapter, Maria Cecília Fantinato, Adriano Vargas Freitas and Fabio Lennon Marchon readdress the most important reflections developed in the previous chapters. In their final considerations, the authors reinforce the different understandings and interpretations of what is Ethnomathematics. They point out that the conceptualization has many times caused obstacles in the field, alerting us that this field has been getting close to “[...] other proposals, specially related to modelling processes of situations that involve some sort of mathematical knowledge” that, many times “aim to mechanize and homogenize teaching and learning processes through prescriptions of didactical sequences”. (FANTINATO; FREITAS; MARCHON, 2018, p. 225)

Reviewing this book, in addition to an academic exercise, provided us with an important enrichment in our update as researchers, because, although the results presented are from the analysis of the work of the Etnomat-RJ, given the consistent national and international participation in the

event and the quality of the work done by the Getuff, we were able to have a relevant overview of the perspectives being developed in this field and its theoretical and methodological paths.

We finalize by highlighting what had already been discussed in the book and in the review, that is, the fact that Professor Ubiratan D'Ambrósio is a practically unanimous reference in his work in Ethnomathematics. This shows the power and importance of his ideas for the area, which really need to be respected and celebrated by all of us. However, this fact should also alert that we need to consider any flaws and incompleteness so that we can also make our theoretical and methodological contribution to the area.

Acknowledgment

This study was financed in part by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil (CAPES) - Finance Code 001.

References

- ANDRADE, Eliane Lopes Werneck; MEIRA, Cláudia de Jesus; SOARES, Gisele Américo. Olhares sobre diversidades, resistências e Práticas Laborais: o que revelam os artigos do Etnomat-RJ. In. FANTINATO, Maria Cecília. FREITAS, Adriano Vargas. (Orgs.). **Etnomatemática: concepções, dinâmicas e desafios**. Jundiaí, SP: Paco Editorial, 2018.
- D'AMBRÓSIO, Ubiratan. Como foi gerado o nome etnomatemática ou alustapasivistykselitys. In. FANTINATO, Maria Cecília. FREITAS, Adriano Vargas. (Orgs.). **Etnomatemática: concepções, dinâmicas e desafios**. Jundiaí, SP: Paco Editorial, 2018.
- FANTINATO, Maria Cecília. FREITAS, Adriano Vargas. (Orgs.). **Etnomatemática: concepções, dinâmicas e desafios**. Jundiaí, SP: Paco Editorial, 2018.
- FANTINATO, Maria Cecília; FREITAS, Adriano Vargas. MAFRA, José Ricardo e Souza. Aspectos metodológicos das pesquisas em Etnomatemática: um olhar sobre os trabalhos do Etnomat-RJ. In. FANTINATO, Maria Cecília. FREITAS, Adriano Vargas. (Orgs.). **Etnomatemática: concepções, dinâmicas e desafios**. Jundiaí, SP: Paco Editorial, 2018.
- FANTINATO, Maria Cecília; FREITAS, Adriano Vargas. MARCHON, Fabio Lennon. Concepções, dinâmicas e desafios da Etnomatemática. In. FANTINATO, Maria Cecília. FREITAS, Adriano Vargas. (Orgs.). **Etnomatemática: concepções, dinâmicas e desafios**. Jundiaí, SP: Paco Editorial, 2018.
- FREITAS, Adriano Vargas; SILVEIRA, Alexis; MEIRA, Claudia de Jesus; ANDRADE. Eliane Lopes Werneck. Panorama da EJA na atualidade: um recorte sob a perspectiva de trabalhos do Etnomat-RJ. In. FANTINATO, Maria Cecília. FREITAS, Adriano Vargas. (Orgs.). **Etnomatemática: concepções, dinâmicas e desafios**. Jundiaí, SP: Paco Editorial, 2018.
- MAFRA, José Ricardo e Souza; FARIAS, João Bosco Bezerra; CRUZ, Marcela; ALVES, Telma. Etnomatemática e suas relações com a educação: um panorama das pesquisas dos anais do Etnomat-

RJ. In. FANTINATO, Maria Cecília. FREITAS, Adriano Vargas. (Orgs.). **Etnomatemática: concepções, dinâmicas e desafios**. Jundiaí, SP: Paco Editorial, 2018.

MARCHON, Fábio Lennon; COSTA, Claudio Fernandes. A base teórica Etnomatemática das pesquisas no Etnomat-RJ. In. FANTINATO, Maria Cecília. FREITAS, Adriano Vargas. (Orgs.). **Etnomatemática: concepções, dinâmicas e desafios**. Jundiaí, SP: Paco Editorial, 2018.