

# Tamil Mathematical Manuscripts and the Possibility of a Social History of Mathematics Education in India

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## Objectives and significance of the study

In a country like India, where usually history of mathematics has largely been confined to the task of unearthing a 'glorious past', based on a corpus of written sources, highly restricted in terms of circulation, how different could be similar knowledge traditions in regional contexts?

In this paper, I intend to share certain methodological issues, which I encountered in my attempt to write a social history of math education in the Tamil speaking area of south India. As part of this attempt, I encountered a corpus of Tamil manuscripts on mathematics. These manuscripts have not yet drawn the attention of historians of any kind except for a group of Tamil enthusiasts who have published certain editions of these texts, more as a tribute to their language than to subject these texts to a critical enquiry guided by any disciplinary interest. The primary objective of this paper is to reconstruct a history for one such set of manuscripts in Tamil. Encuvati, Ponnillakkam and Nellillakkam are part of the corpus. These manuscripts have explicit pedagogic connotations in their organizational structure. The idea then is to relate these manuscripts to their institutional roles, in what were called the 'Tinnai' schools, the elementary schools of south India in the early modern period.

## Research design and procedure

There are several versions of these manuscripts. Ideally, the foremost job for a historian would be to collate available texts to provide a critical frame for historical analysis. In the absence of such an attempt, for the purposes of this paper, I have chosen a printed edition of Encuvati, Ponnillakkam and Nellillakkam, published by one of the early Tamil publishers in the early part of the nineteenth century, which was in turn stored in the India House Collection. The initial task was to decipher the notational system in order to recognize the logic of organization of the texts. The entire text had to be translated in a form that would be useful both for dissemination as well as to enable a process of recovering the pedagogic context, in which such a text could have been used. It required much effort to look for the use of the numerical practices, as recorded

in these texts, in other forms of past records. Inscriptions and palm leaves were identified that had extensively used the same system of arithmetical practice. The context for the manuscripts emerged gradually. Available information and sources were collected on educational institutions of Tamilakam, the Tamil speaking area of south India. The elementary schools, called the Tinnai schools came closer as the sites of transmission of arithmetic of the kind recorded in the manuscripts.

Three kinds of historical reconstruction were required.

- a) History of the nature and extent of the 'Tinnai schools'
- b) History of the texts in relation to the curriculum of the Tinnai schools
- c) History of arithmetical practices in the non-institutional contexts of a village society

## Findings

From a narrative that evolved out of such an exercise, I would like to share certain issues that emerged, which I thought are significant for subsequent attempts at a social history of mathematics education, a field still in its infancy in India.

The use of memory, not as a skill but as a distinct modality of learning arithmetic was conceived and practiced as evident in these texts. What could be the relationship between memoria and cognitive transformations involved in a history of arithmetic conceived, say, in terms of the movement from first order to higher order representations? I have contemplated ways to address this issue.

Organization of pedagogic manuals and modalities of learning can be conceived as integral to larger socio-historical processes. Use of language becomes central to such transmissions. The relationship that Tamil, as a language had with this body of arithmetical knowledge, whose orientation, in turn was thoroughly local socio-economic transactions, has the potential to offer valuable lessons.

Social distribution of competence and characterization

of mathematical abilities are issues that, I think, are crucial in reconstructing a social history of mathematics in a country like India, which has deeply embedded social hierarchies. However, the history of mathematics, has always considered its task to be: identify levels of reflection or abstraction (otherwise characterized as meta-cognitive levels) that allow for further mathematical developments, and then, situate secondary is-

ssues related to processes of standardization and institutionalization. The idea of cognitive universality and social competence need to be situated in a historical context, in relation to the Encuvati manuscript corpus.

The problems that I faced in integrating these strategies will constitute the focus for my paper.