



# MATHEMATICS TEXTBOOKS IN PORTUGAL: THE UNIQUE TEXTBOOK

---

Mária Almeida, Ag. Escolas de Casquilhos – UIED

Paula Teixeira, Ag. Escolas João de Barros – UIED

António Domingos, Faculdade de Ciências e Tecnologia da UNL – UIED

José Manuel Matos, Faculdade de Ciências e Tecnologia da UNL – UIED

# Why look at textbooks?



- Textbooks are a key source for the study of a school disciplines' history.
- Textbooks are sensitive to national contexts and can be seen as probes of the state and structure of mathematical education, its goals and its organization

# Introduction

- Today, in each Portuguese secondary schools, every six years, a group of teachers analyses the textbooks available on market and chooses the discipline's textbook to be used in the next six years.
- However, during a time scholastic legislation forced the adoption of a unique textbook, i.e., all Liceus (public secondary schools) had to use the same textbook per discipline and cycle. This is called the unique textbook period.

- This paper will discuss the process for the approval of the unique mathematics textbooks, in the period 1947 and 1974.
- We aim at deepening our understanding of the system created in order to adopt a unique book and its advantages and problems.

# Presentation layout



1. National context, Pires de Lima's educational reform (1947) and textbook-choosing proceedings.

2. The unique textbooks:

- ❖ Advantages and problems;
- ❖ The calls for the choice of unique Mathematics textbooks from 1947 to 1974: an example

3. Final remarks

# National context



- After the end of Second World War, political leadership in Portugal remained authoritarian and the country did not accompany the economic pace of the most developed nations.
- However, there was some development and a drive towards strengthening the industry that needed skilled manpower to succeed, which sets education as a priority.

# \*Pires de Lima's reform (17.09.1947)



## School system

- mandatory primary cycle (6-9 years old)
- secondary schools:
  - the technical schools
  - the Liceus
    - three cycles: 1<sup>st</sup> (10-11 years old) – 2 years (1<sup>st</sup>, 2<sup>nd</sup>)
    - 2<sup>nd</sup> (12-14 years old) – 3 years (3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>)
    - 3<sup>rd</sup> (15-16 years old) – 2 years (6<sup>th</sup>, 7<sup>th</sup>)

## Syllabus

Changed for all disciplines

---

\*Minister of Education

## Regarding textbooks

- The textbooks to be used in Liceus and private high schools needed to be approved by the Minister of Education.
- A disciplines' textbook for each year within a cycle would be the same for all Liceus and private high schools.
- The textbook could have one volume - with sections, one per year - or more than one volume.

This textbook would be chosen by the National Board of Education.

- ✓ The book would be used by teachers and students the following five years.
- ✓ During this five year time, the authors of a unique book could propose, in new editions, amendments they deem important.
- ❖ Textbook-choosing proceedings were created.

## Textbook-choosing proceedings

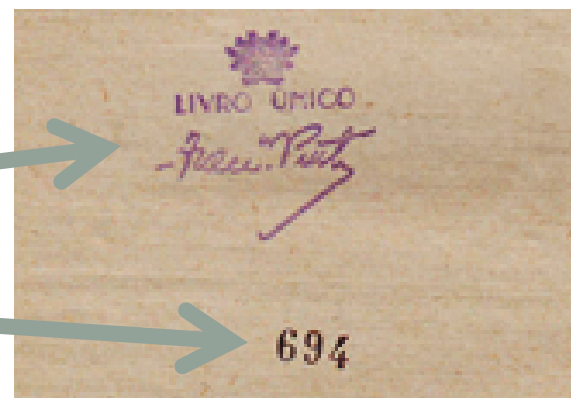
- A book approval depended on its consonance to the syllabus, scientific rigor and suitability to support teaching.
- The process of selecting a unique book begins with the opening of a call to which the authors present their books.
- Next, the National Board of Education appoints two schoolteachers (jury) to look over the books. Then it would get reports back on what these schoolteachers thought about the books.
- Finally, the National Board of Education come to a decision about the book to take, i.e., the unique book. And, announces it officially.

## Signs of textbook's authenticity



OFFICIALLY APPROVED AS UNIQUE BOOK  
(date of approval)

Official stamp and a number



# The adoption of a unique book: published outlooks



Articles published in the daily press, teachers' bulletins and mathematics journals.

- **Advantages**
- The low price of the books, which was officially enforced.
- **Problems**
- The time needed to write a good book.
- The length of time of an adoption.
- Gather a jury with enough competence for the job.

- A mathematicians' opinion, published in the *Mathematics Gazette*:

this [book choosing] system can relegate to oblivion some good books for the work of students and teachers. (...) its notorious the huge responsibility of both authors and jury, the former in writing the books and the latter in evaluating and approving them, for they are endorsed for five years.

(Barros, 1950, p.19)

Barros (1950) criticisms about the first Algebra's Book approved, for the 3<sup>rd</sup> cycle:

- The book lacks quality, so it should not have been approved as unique book.
- How is a teacher supposed to teach well by using books that aren't good?
- Sometimes it seems the book is written by somebody who doesn't know what he is talking about.
- Some definitions aren't accurate.
- The exposition of some contents is correct and clear, but the explanation of other are very confusing and totally or partially incorrect.

Concluding, he says the author has to make amendments.

# Calls for the approval of unique Mathematics textbooks from 1947 to 1974

- Our study encompassed two parts.

Firstly we examined daily national legislation printed at that time, in order to identify:

- 1) the opening date of all the calls for the approval of a Mathematics textbook that occurred in the chosen time span;
- 2) the list of textbooks presented to the call and the name of their author(s);
- 3) the approved textbook – the unique textbook.

After we search in the Historical Archives of the Ministry of Education trying to locate :

- 4) the name of the schoolteachers nominated to evaluate the textbooks;
- 5) the reports on the textbooks.

# Mathematics textbooks

## 1<sup>st</sup> cycle

1<sup>st</sup> year

Mathematics Textbook

2<sup>nd</sup> year

Geometry and Arithmetic Textbook

## 2<sup>nd</sup> cycle

3<sup>rd</sup> year

4<sup>th</sup> year

5<sup>th</sup> year

Algebra Textbook, in one volume  
Geometry Textbook, in one volume

## 3<sup>rd</sup> cycle

6<sup>th</sup> year

7<sup>th</sup> year

Algebra Textbook, in one volume  
Trigonometry Textbook, in one volume

Analytic Geometry Textbook

Rational Arithmetic Textbook

# Calls for Algebra textbook

(2<sup>nd</sup> cycle)



Year	Call	Number of books	Unique book
1948	No	----	----
1949	No	----	----
1950	Yes	2	No
1951	Yes	6	No
1954	Yes	7	Yes
1959	No	--	--
1960	Yes	4	Yes
1965	Yes	1	Yes

# Calls for Geometry textbook

(2<sup>nd</sup> cycle)



Year	Call	Number of books	Unique book
1948	No	----	----
1949	No	----	----
1950	Yes	2	No
1952	Yes	4	Yes
1957	Yes	2	Yes
1962	Yes	1	Yes
1967	Yes	1	Yes

- The tables show that:
  - ✓ in some of the calls there was not an approved unique book.
  - ✓ the first unique Algebra textbook was approved in 1954 and the Geometry textbook was approved in 1952.
  - ✓ the number of textbooks at first was low, it raised and it decreased to one.

# The reports on the textbooks

- The textbooks proposed to a call were individually evaluated by two mathematics schoolteachers.
- The evaluator reported on the scientific and pedagogical value of the textbook. In the report he could propose amendments he deem necessary for the approval or he could consider that the book wasn't worth of approval.
- Each evaluator had to grade the textbooks accordingly to their scientific and pedagogical value.

# Algebra textbooks reports (1950)



- The evaluator José da Silva Paulo wrote

doesn't appear to be possible, for any of the [two] books, to recommend changes that improve them (...) since a big part of some chapters had to be rewritten.

He disapproved both textbooks.

- The evaluator Armando Cassiano pointed out some defects, but he disapproved none of the two textbooks.

# Geometry textbook and Algebra textbook covers (2<sup>nd</sup> cycle)



# The textbooks

- The textbooks encompassed three parts (one per year), initiating with an exposition related to the syllabus.
- Relating to the contents presentation: definition, example, theorem statement, demonstration, ..., ending with a large number of exercises.
- The textbooks include references.
- The Geometry textbook includes historical notes on geometry origins and mathematicians biographies.

# Final remarks

The analysis shows that:

- the decision to establish a unique book raised some public discussion.
- some difficulties arouse when the new approval system was put in practice.
  - In the first times, authors needed time to write textbooks (syllabus changed) so some of the first calls had few proposals.
  - Sometimes, the positive aspects pointed by one of the jury members were reason for disapproval by the other jury element.
  - The length of time of an adoption discouraged the authors to write and submit new textbooks
- there were times when there wasn't an approved unique textbook, even if scholastic legislation required it.

## Primary sources

*Decreto-lei* n.º 36 508, de 17 de Setembro de 1947 [Decree-Law n.º 36 508, 17 September, 1947]

Barros, L. (1950). “Crítica de livros. O livro único de Álgebra – 3.º ciclo”. *Gazeta da Matemática* n.º 70/71, Março – Junho de 1958, pp. 44-46. [Book review. The Algebra unique textbook – 3<sup>rd</sup> cycle”. *Mathematics Gazette* n.º 70/71, March – June, 1958, pp. 44-46]

## Secondary sources

Almeida, M. (2007). *A sombra da Matemática... Um contributo para a compreensão desta disciplina no 3.º ciclo liceal (1947-1974)*. [In the shadow of mathematics. A contribution to the understanding of this discipline at 3<sup>rd</sup> cycle of Liceus (1947-1974)]. Unpublished Masters dissertation. Universidade Lusófona de Humanidades e Tecnologias.

Almeida, M. (2013). *Um olhar sobre o ensino da Matemática, guiado por António Augusto Lopes* [A perspective on mathematics teaching guided by António Augusto Lopes]. Unpublished Doctoral dissertation, New University of Lisbon.



Thank you!