

An Analysis of Competence Development in Portuguese Geography Textbooks *

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Abstract

The objective of this paper is to present certain results of my doctoral research, concerning the application of “Competence Pedagogy” in the teaching of geography in Portugal, particularly an analysis of Portuguese geography textbooks in order to improve our understanding of how they incorporate, or do not incorporate, this new pedagogical approach. It presents, therefore, a theoretical introduction to these issues, a description of the research methodology based on a typology of textbook analysis from a Portuguese research project – “Textbooks, E-textbooks and Students Activities”. Databases constructed in *FileMaker* for textbook analysis are described and examined through content analysis and statistical analyses. Finally, some implications of the research results are presented. This article also seeks to stimulate the debate about pedagogic approaches in geography textbooks, to describe and evaluate the current situation in Portuguese geography textbooks, and specially to stimulate the international debate about curricula directed at competence development in geography teaching.

Keywords: Geography Textbooks, Competence Pedagogy, Geography Curricula, Integrator Textbook, Geography Teaching in Portugal

Introduction

This paper presents some of the data and conclusions obtained through an analysis of Portuguese geography textbooks (in the 3rd cycle of Basic Education in Portugal, corresponding to pupils aged between 12 and 15 years old) in order to know the degree to which active-oriented teaching methods and the development of competencies are being implemented.

**This paper is based in the presentation, entitled in Portuguese “Serão os Manuais Escolares de Geografia suficientemente competentes para desenvolverem as competências geográficas nos nossos alunos? – um estudo centrado em manuais escolares de Geografia de 3.º ciclo do Ensino Básico” (Martinha, 2010d) in XII Iberian Colloquium of Geography that was held in Porto in 6th-9th Oct. 2010.*

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As we have stated in other contexts, “any educational researcher who begins with the challenge of “research in textbooks” faces with the problem of the enormous volume of publications related to this theme [...] demonstrating the importance that the scientific community has in it. Internationally, projects and research institutions about textbooks research such as Project MANES (<http://www.uned.es/manesvirtual/portalmanes.html> available in 05.01.11), Institut Georg Eckert (<http://www.gei.de/index.php?id=794&L=0&id=abbilder> available in 05.01.11) or IARTEM – International Association for Research on Textbooks and Educational Media (<http://www.iartem.no/> available in 05.01.11) amongst others” are instructive. (Martinha, 2010b – author’s translation and actualization). In this context, important studies have also been made by UNESCO (UNESCO, 2005a, 2005b).

According to recent research studies (Roegiers and De Ketele, 2004 and Peyser, Gérard and Roegiers, 2006) textbooks, apart from what is often considered, may be an element of effective application of *the development of competencies*, that is, an integration of acquired skills and not an “obstacle” to its application, as they are sometimes considered, because as reported by Peyser, Gérard, Roegiers (2006) “the traditional textbook image is just about the opposite of the integration concept”.

So, in research on textbooks, there are several approaches that we can follow in this field. One approach, which currently receives considerable attention from researchers, is related to the dimension of “teaching methodology” in analyses about the degree of correlation between the pedagogical guidelines, which influence the development of textbooks, and the reality that these textbooks provide.

It is important here to highlight the words of Roegiers and De Ketele (2004) who said that the “*problem of the introduction of a pedagogy of integration in textbooks is presented in a different way as to the way it was put in the curriculum for class practices or practices acquisitions assessment* (in Roegiers and De Ketele, 2004 [author’s translation]). Whilst indicating the steps for setting up an *integrator textbook*, which according to these authors are: definition of some contents, insertion of some integration activities, elimination of redundant contents and inclusion of specific activities for competencies development and restructuring of textbooks.

Research that follows this line is currently being developed by the project “Textbooks, e-Textbooks and Students Activities” for various school subjects in Portugal, including, Geography, in which we collaborate. Indeed, the existence of organized research in this area clearly shows the importance that the scientific community, teachers, and society give to this issue.

Strongly related to this issue of promoting the use of “more active” methodologies in textbooks, there are some studies that are aimed at understanding how textbooks can develop PBL - Problem Based Learning - that from the point of view of theory relates largely to Competence Pedagogy.

An important and interesting historical review on the research of textbooks was conducted by Norman Graves and Brendan Murphy, who argued that "*despite the recent growth of access to multimedia and the Internet, the textbook remains the principal teaching resource used in the geography classroom*" (Graves and Murphy, 2000).

Indeed, François Gérard recently made a presentation about the issue of the development of competencies in textbooks (Gérard, 2010) and in this context, textbooks portray themselves as being "mediators" of the curriculum as it is reported by John Hopkin who says that "*authors and publishers are very influential in mediating National Curriculum policy*" (Hopkin, 2001).

Thus, with the implementation of a curriculum geared towards the development of competencies in Portugal, embodied in the *National Curriculum for Basic Education of 2001* and in the *Guidelines of the Geography Curriculum – 3rd Cycle of 2001*, there is now, a need for a reflective analysis of the repercussions in geography textbooks.

Therefore, with the aim of understanding this aspect in geography textbooks, a set of 18 Portuguese geography textbooks was selected for analysis, to consider those that were published as a complete collection for the course of studies being used in the academic year 2009/2010. These textbooks were analyzed using a database constructed specifically for this purpose (in *FileMaker*) using the same categories of analysis applied in Duarte et al. (2008, pp. 10-11).

After registering the analysis of the activities from the textbooks in the database, a statistical and content analysis was conducted.

Amongst the various conclusions made by this analysis, the following, in particular can be highlighted:

- The number of activities varies greatly from textbook to textbook, with situations in which the values in one textbook are about double that of another, also there are demonstrations of different approaches, which the authors should question the usage of activities in geography textbooks;
- In general terms, what dominates Portuguese geography textbooks are very straightforward, less cognitively demanding, and less "challenging" activities for pupils to do. The most demanding activities, those which appeal to problem solving, such as project work, discussion and research, have a very low weight, ranging between 1% and 8%, depending on the textbook.

As a corollary to this research, we present a reflection on the adequacy of geography textbooks in terms of the principles of "Competence Pedagogy" based on the results and information that were collected throughout the analysis process of the textbooks selected for this investigation (for example, the fact that almost all of these

textbooks have received scientific-technical review, but only few have been pedagogically reviewed).

We intend that this research will invigorate the scientific community's discussion of geography teaching around the practical implementation of "Competence Pedagogy" and around the design and use of geography textbooks following a teaching-learning oriented method that incorporates towards the development of competencies.

Method

This research used a mixed method that employed both quantitative and qualitative methods. In quantitative terms, we calculated the proportions of each activity type in every analyzed textbook. Our qualitative approach was a content analysis of all activities in the textbooks, in the way that was developed by Laurence Bardin, through a process of categorization (Bardin, 1979). The information from the content analysis was recorded, at an early stage of the research, in a *FileMaker* database.

In this database, we recorded the values (in absolute values) for each descriptor analysis, grouped together with each type of activity and inserted examples of each. With these values, we calculated their respective proportions for every textbook and compared the various textbooks amongst themselves. The examples were included to better illustrate and characterize each type of activity. In our database, we disaggregated the values that were in the textbooks from those belonging to projects of the activities books.

FileMaker was chosen to support this analysis because it is an easy program to use; it is a program that works on both Windows and Macintosh; it allows the insertion of images (which are very useful in textbook analysis) and allows data to be exported to other programs.

The analytical categories we decided to use were those defined in "Textbooks, E-textbooks and Students Activities" because we determined they had a good fit with our research objectives. The content of the project and some of its results are presented by Claudino (2009 and 2010) and Duarte et al. (2008 and 2009). In this field of research, we have also published some papers (Martinha 2009, 2010a, 2010b and 2010c).

We choose the textbooks that have a "collection" (those whose title is currently available for all years of the course) because this is representative of the successful adoption by schools and also because the textbooks collections provide access to a considerable editorial/authorial diversity.

The analytical categories, of the project "Textbooks, E-textbooks and Students Activities", which were adopted, are listed in Table 1.

Table 1.

Textbook analysis categories of the project "Textbooks, E-textbooks and Students Activities" and its descriptors (in Duarte et al., 2008, p. 10-11 [Author's translation])

Textbooks Analysis Categories	Descriptors
Activities of type 1 – Memorization and/or Transposition Activities	<ul style="list-style-type: none"> • <i>Indicate</i> • <i>Enumerate</i> • <i>Copy</i> • <i>Distinguish</i> • <i>List</i> • <i>Find</i> • <i>Underline</i> • <i>Transcribe</i>
Activities of type 2 – Exploration and Production of Documents Activities	<ul style="list-style-type: none"> • <i>Describe</i> • <i>Characterize</i> • <i>Identify</i> • <i>Exemplify</i> • <i>Compare</i> • <i>Sort</i> • <i>Interpret tables, diagrams, pictures</i>
Activities of type 3 – Recast Activities	<ul style="list-style-type: none"> • <i>Count</i> • <i>Report</i> • <i>Comment</i> • <i>Explain</i> • <i>Explicit</i> • <i>Correct</i> • <i>Extend</i> • <i>Summarize</i> • <i>Reconstitute</i> • <i>Synthesize</i> • <i>Transform</i>
Activities of type 4 – Problematic Situations/Experimental Activities/Projects/Knowledge Production	<ul style="list-style-type: none"> • <i>Discuss</i> • <i>Assess</i> • <i>Boost/participate in projects</i> • <i>Search</i>

The acquisition, organization and handling of the data were originally registered in a database constructed for the purpose of this study in *FileMaker* (Figure 1), where it was defined to identify the textbooks, and then an analysis was made of all descriptors cited and percentages of each type of activity were calculated. The database also included a brief commentary and provided some examples of the activities in the textbooks.

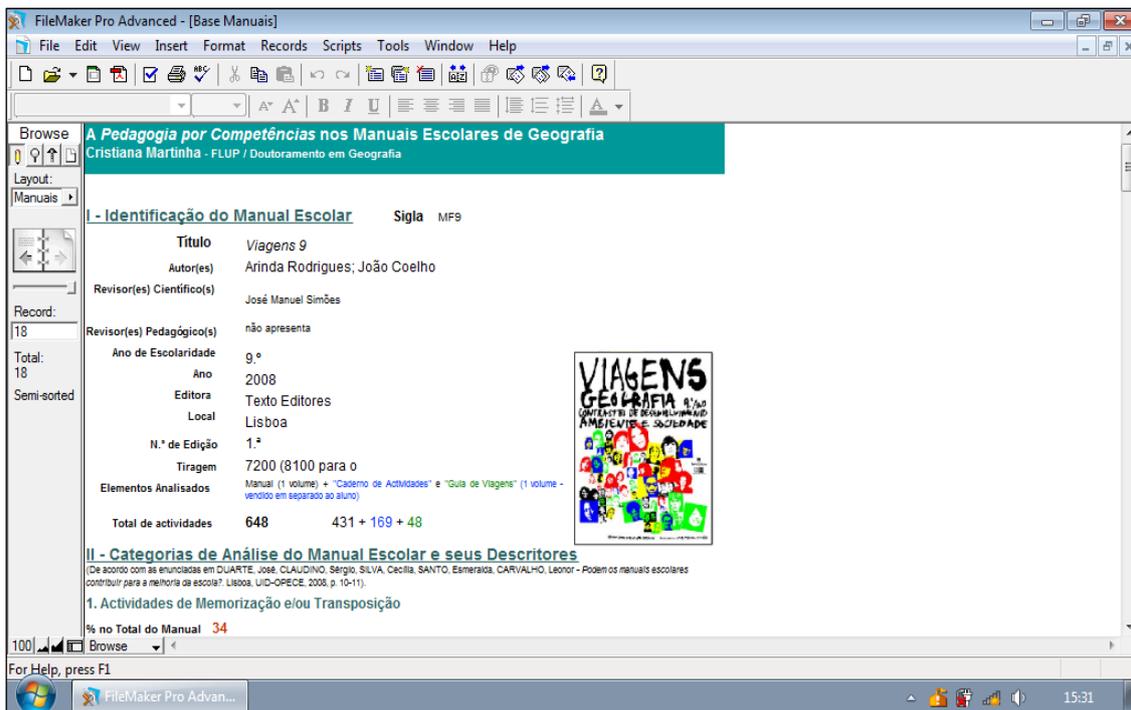


Figure 1. A Print screen of the database for textbook analysis in FileMaker. The database is in Portuguese and this image contains only one part of it, to illustrate that it is a very useful tool for textbook analysis

Findings

Table 2.
Distribution of Activity Types In Analysed Textbooks, by Percentage

Textbooks	% of activities of type 1	% of activities of type 2	% of activities of type 3	% of activities of type 4	Total
MA7	36	46	17	1	100
MA8	40	38	21	1	100
MA9	28	34	35	3	100
MB7	42	29	21	8	100
MB8	37	13	45	5	100
MB9	46	23	24	7	100
MC7	39	36	21	4	100
MC8	31	43	24	2	100
MC9	33	37	24	6	100
MD7	42	34	21	3	100

MD8	30	39	27	4	100
MD9	35	34	26	5	100
ME7	46	25	24	5	100
ME8	43	28	25	4	100
ME9	41	26	29	4	100
MF7	34	39	21	6	100
MF8	23	47	24	6	100
MF9	34	35	25	6	100

Analysis of the textbooks, the distribution of the activities in the textbooks by type of activity is as follows (Table 2 and Chart 1).

From this table it can be concluded that in general terms, the types of activities most frequently presented in textbooks are classified by types 1 and 2 (the simplest activity in terms of cognition). The more complex activities that contribute more to developing competencies in pupils (activities of type 4) have very low values, ranging from 1% in MA7 and MA8 and 8% in MB7.

Looking at the collection (Chart 1) we can conclude that the collections that have a more balanced distribution of activities are the collections MB and MF because they have a higher proportion of activity of type 3 and 4. The collection that has the lowest balance is MA, where the activities of types 1 and 2 (the simplest) have a large proportion and the ones of type 3 and 4 have very low values.

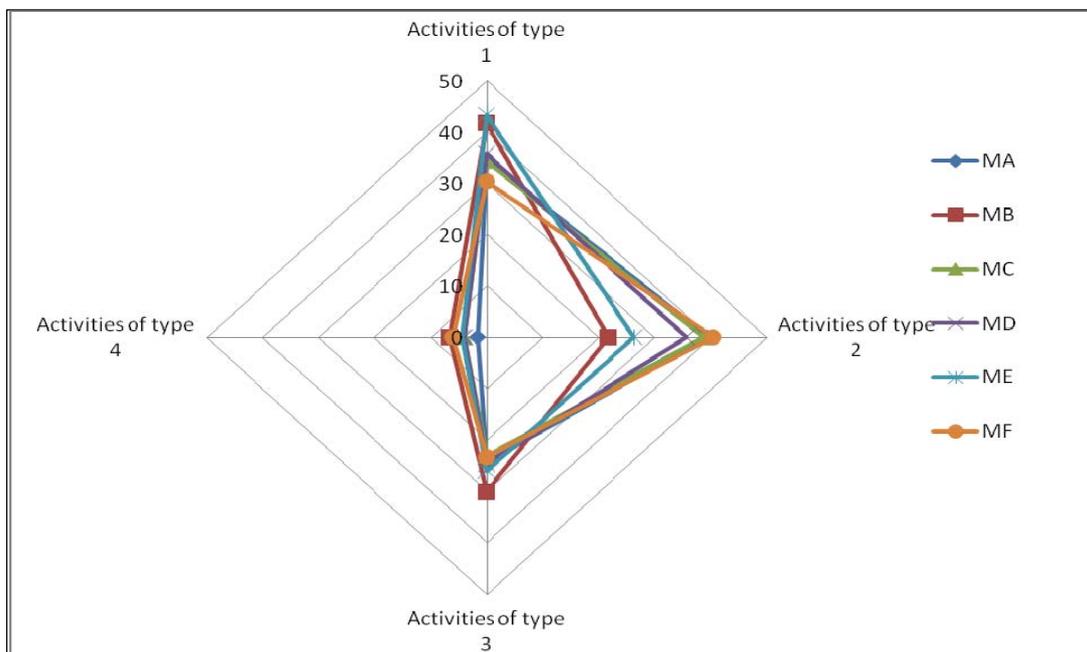


Chart 1. Distribution of the types of activities in the collections of analyzed textbooks; in percentage (each collection includes the volume of 7th, 8th and 9th grades)

However, it is important to mention that MA is the collection of geography textbooks which is most used by Portuguese teachers and schools. Therefore, are our schools/teachers leaning toward too much "dumping down" in the teaching of Geography? Are they really concerned about the development of competencies in pupils by opting for geography textbooks that are more basic and simple, and therefore less demanding on pupils, from a cognitive point of view? Viewing the situation of school grades, it is as follows (Chart 2, Chart 3 and Chart 4):

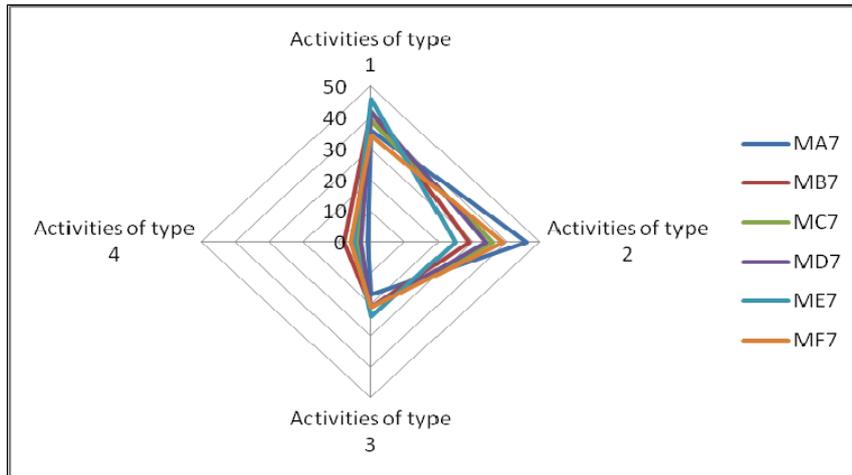


Chart 2. *Distribution, in percentage, of the types of activities in the analyzed textbooks for the 7th grade*

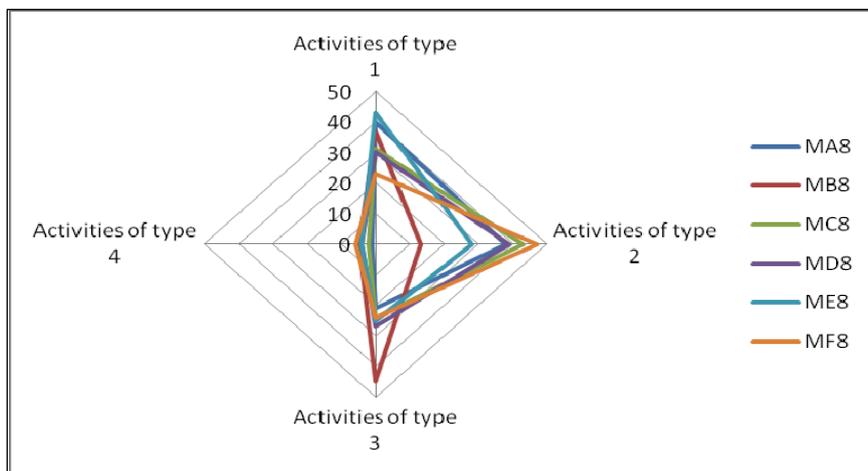


Chart 3. *Distribution, in percentage, of the types of activities in the analyzed textbooks for the 8th grade*

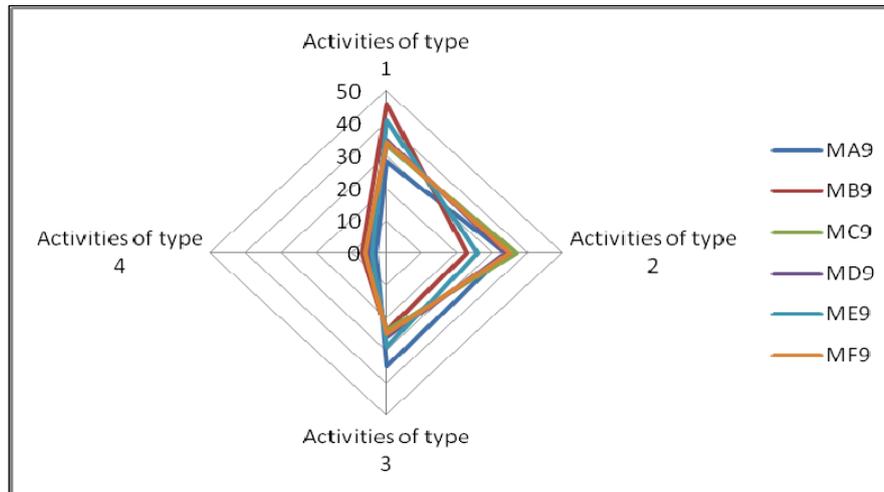


Chart 4. *Distribution, in percentage, of the types of activities in the analyzed textbooks for the 9th grade*

These charts show that in general terms, there is little evolution in terms of the types of activities over the progression of grades in school. There is only a slight increase in the activities of type 3, but not in type 4. This indicates that throughout the grades, the dominant activities in the textbooks examined are of types 1 and 2. Although it would be expected that with the advancing of the grades in school, that there should be an increase in the complexity of activities to promote the development of competencies in these textbooks, the situation changes very little over these three years in the cycle of studies.

Results and Discussion

This analysis of Portuguese geography textbooks concludes that they use a variety of approaches to present different types of activities. However, generally speaking, it should be noted that all of the textbooks analyzed promote few challenging or active activities for pupils to undertake. Therefore, the textbooks in current use contribute very little toward the development of geographical competencies, as specified by the curriculum.

This analysis complements a previous study in "Textbooks, E-textbooks and Students Activities" by employing its analytical instruments and including new descriptors for analysis, and presents new results based on geography textbooks that are currently in use in the Portuguese schools. Therefore, as Widdowson and Lambert commented, "*some books have better cause to be called 'activity books' or 'work books', given the balance of material within them*" (Widdowson and Lambert, 2005).

Moreover, this research on Portuguese textbooks confirms findings made by Zuzana Sikorova that, “*some experts found that textbooks control significantly only the content, particularly the selection and sequencing of topics (Gustafsson, in Johnsen 1993), others affirm that they control also the methodology of lessons (Sigurgeirsson 1992)*” (Sikorova, 2007) and also identified four types of activities which may exist in textbooks (such as the ones we used) that were: knowledge, orientation, comprehension and application (Sikorova, 2007).

At the IARTEM conference in 2007, two interesting articles were presented that dealt with textbooks content and use: one by Petr Knecht (2007) about the evaluation of geography textbooks made by pupils and another by Mike Horsley (2007) which states that, “*the term textbook pedagogy was initially used by Lambert (2000) in his discussion of research on the classroom use of textbooks and teaching and learning materials. The term refers (Lambert 2000; Horsley & Walker, 2006) to the ways that teachers use texts in the classroom, how they access and adapt texts, and how they create a context for their use*” (Horsley, 2007). So, we can conclude, as Shoko Kimura has done that:

“there are textbooks preferred by Geography teachers [that] link the activities to be undertaken by pupils. Moreover, these books rush the teaching strategies to develop the topic under discussion. Often there are comments that are textbooks very active and there are those who consider them guided by constructivism” (Kimura, 2008).

It goes to say that, these types of textbooks can be inserted in the category of “open-ended” textbooks reported by David Waugh who contends that they: “*have a limited structure; are less formal; encourage a variety of approaches; give greater flexibility for the teacher/pupils [and are] likely to be more time-consuming to implement*” (Waugh, 2000) in an article that is complemented by one by David Lambert’s in the same volume (Lambert, 2000) and also in other studies (Lambert, 1999). Results along the same line were concluded by Injeong Jo and Sarah Bednarz who stated that “*the results indicate that textbook questions focus on low-level spatial concepts more frequently than high-level spatial concepts; few questions require students to create various kinds of spatial representations; and textbook questions only rarely encourage higher-order cognitive skills*” (Jo and Bednarz, 2009).

From this perspective, we reiterate the reflections about methods in textbooks (continuity and changes in pedagogical processes) made by William Marsden (2001) and those made by Eyüp Artvinli who concluded with his research, about Turkish geography textbooks, that “*when it is considered that the aim of curriculum is to reach “geographic skills”, this textbook should be renewed according to geographic skills*” (Artvinli, 2009). Therefore, there are several important points for reflection and discussion:

- The analyzed textbooks mainly have very straightforward and less challenging activities for students, an educational approach that does not promote the development of competencies;
- Textbook authors and editors seek to publish a great number of activities for students, but the activities are not very challenging;
- The procedures for certification of textbooks should consider and evaluate the types of activities that appear in geography textbooks;
- Curriculum changes and educational paradigms should not merely occur in programs but they should also be directly integrated into the content of textbooks.

Conclusion

The general conclusion of this project is that Portuguese textbooks in Geography are very "basic" and rather poorly targeted towards the development of competencies in pupils. However, this research showed that individual textbooks differ substantially and that despite a general trend toward a basic approach, there are textbooks that provide students with a range of activities that are more diversified and more cognitively challenging than others. So, it is very important for teachers to have access to this type of information about the various textbooks' content and approach to Geographical education. In this context, M.^a Helena Esteves says that:

Considering the curricular reorganization of Geography in primary education, textbook publishers felt the need to rethink the textbooks in order to support the subject. And, as it happened in the National Curriculum, textbooks "lost weight" in terms of content and tried to invest in activities, to make the subject more closely linked to active methodologies" (Esteves, 2006 [Author's translation]).

However, it was demonstrated through this research that the "investment" in activities presented in textbooks was toward including many activities, rather than addressing the current and increasing need for challenging and active activities for pupils in geography textbooks in Portugal.

It is precisely this "watering down" of the activities in geography textbooks that make us believe that they are not very effective in helping to develop geographical competencies in our pupils in Portugal. In this context more international research regarding is needed. Thus, there several lines of research that should be developed further:

- It would be interesting to conduct a comparative study of textbooks, regarding the types of activities that they contain, in several countries for the same levels

of education. It would be very useful to know the differences or similarities between countries;

- It would be quite informative to conduct this kind of research in other countries;
- It would be important to "cross check" the data from this research with reports from teachers of Geography in Portugal in order to know the reasons that lead them to adopt the more basic Geography school textbooks, because in Portugal there are teachers who choose the textbooks that a school adopts;
- It would also be instructive to assess pupils' opinions to determine what kind of "use" they give these textbooks.

Considering these studies, we must emphasize that it would be beneficial for researchers to alert and advise editors and authors of textbooks that their texts should contain more activities aimed at developing competencies in pupils, and offer concrete examples of this approach to Geographic education. Moreover, (in countries where available) governments that have commissions for textbook certification should also consider the recommendations from these kinds of textbook research. Finally, teachers should be trained and/or reminded of why it is important to choose and actively use textbooks that promote the development of competencies in their pupils.

Biographical statement

Cristiana MARTINHA is currently a PhD student in Geography in University of Porto, developing a doctoral thesis related to the integration of the "Competence Pedagogy" in Geography Teaching in Portugal. She is also a researcher of CEGOT (Center of Studies in Geography and Spatial Planning) of Portugal. Her focus areas are: Competence Pedagogy in Geographical Education; Geography Textbooks analysis (in content and in a pedagogical view); Geography Teacher Training; Geography Curriculum; History of Geographical Education.

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