

## ASSESSMENT OF 4<sup>TH</sup> GRADE GEOGRAPHY TEXT BOOKS

IOANA CHIRCEV

"Onisifor Ghibu" High School, Cluj-Napoca, Romania, e-mail: [ioana\\_chircev@yahoo.com](mailto:ioana_chircev@yahoo.com)

LILIANA CIASCAI

Faculty of Psychology and Sciences of Education, Department of the Didactics for Exact Sciences, Babeş-Bolyai University, Cluj-Napoca, Romania, e-mail: [liliciascai@yahoo.com](mailto:liliciascai@yahoo.com)

OANA-RAMONA ILOVAN

Faculty of Geography, Department of Regional Geography and Territorial Planning, Babeş-Bolyai University, Cluj-Napoca, Romania, e-mail: [ilovanoana@geografie.ubbcluj.ro](mailto:ilovanoana@geografie.ubbcluj.ro)

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### **ABSTRACT**

*Our study presents the analysis results of five 4<sup>th</sup> grade Geography text books. We realised the analysis taking into account the following: the quality of scientific content, the didactic processing of scientific content, the quality of editing, and that of figures. Results showed that those text books, despite observing the current school curriculum, had the following deficiencies: insufficient didactic processing of contents, lack of relevant figures and of correlating maps with the written text, poor graphic quality and contents errors, the last one being a very serious problem. Solving those problems could be done through close collaborations between authors, reviewers, and the editing houses.*

**Keywords:** *map, photo, schematic drawing, chart, criterion*

### **INTRODUCTION**

The object of our study was the analysis of five 4<sup>th</sup> grade Geography text books. The questions we asked at the beginning of our investigation were the following: What were the features of a school text book in order to be useful to the didactic process? Which was the profile of the analysed Geography text books?

The Romanian literature in this field is relatively poor in studies referring to the quality of school text books (Baranyai, Stark 2011; Lalau, 2014, Pop-Păcurar & Ciascai, 2010). Therefore, most teachers, while referring to the quality of school text books, pointed out only several issues: the correspondence of school text books with school curriculum, the scientific correctness of content, the presence of exercises and assessment items, and the quality of the paper and of the paperback for school text books (Lalau, 2014).

In this study, we want to offer to authors of school text books and to editing houses some landmarks for the analysis of school text books and even a clear signal about the necessity of thinking over again the creation process of school Geography text books.

## **THEORETICAL SUBSTANTIATION**

In Romanian specialised literature the school text book is defined as “an official document of educational policy that ensures putting into practice the school curriculum in a way that focuses on presenting knowledge and capabilities at a systemic level, through diverse operational didactic units, especially from the pupil’s/university student’s perspective: chapters, subchapters, lesson/course groups, seminars; lessons/courses, seminars; learning sequences, etc.” (Cristea, 1998, p. 300 *apud* Dulamă, 2010, p. 65). As a complex document, it has a series of functions: informative, formative, didactic, instrumental, of self-instruction, and motivational.

M. Ionescu and M. Bocoş consider that school text books are “operational tools for students because text books give details, structure, and operationalise systematically the topics recommended in the school curriculum, for each subject matter and for each grade, organising and systemising them in chapters, subchapters, themes, and lessons. Information is processed, integrated, and structured from the perspective of didactic logic (while observing scientific logic), in conformity with didactic, psychological, and praxeological principles” (2009, p. 190).

The literature in the field pointed out a series of planning criteria, as well as of analysis and assessment for school text books: the quality of the scientific content; the quality of the didactic transposition for the scientific content; the quality of the editing; the quality of the figures (Cucoş, 2002; Gerard & Roegiers, 2008; Miekley, 2005; Păcurar-Pop, Ciascai, 2010; Richadeau, 1979; Seguin, 1989). One could extend this list or give more details: “accessible language, learning paths, longitudinal coherence and continuity, interdisciplinary and transdisciplinary openings, varied ways of presenting contents, traditional and alternative assessment and self-assessment techniques, clarity of graphical representations, diversity of images” (Dulamă, 2001, p. 30).

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In Romania, the assessment chart for the project of a school text book that was created in 2013 by the Ministry of National Education (<http://www.edu.ro/index.php/articles/2853>) on the basis of the Methodology for the assessment/reassessment, approval, buying, and managing school text books in the pre-university system of education, included the following categories of criteria in assessing alternative text books: observing the curriculum; correctness of scientific content; didactical approach of the scientific content; contribution of content to the betterment of the teaching-learning-assessing process; organising contents in order to form competences according to the school curriculum; language quality and accessibility; quality of editing; the style and unity of the project for a school text book. The criteria that could lead to a rejection refer to lack of accordance with the school curriculum and a discriminatory character of the text book contents. For each above mentioned criteria category they formulated three criteria.

### MATERIAL AND METHOD

*Material used in research.* We analysed five 4<sup>th</sup> grade Geography text books:

- *Geografie. Manual pentru clasa a IV-a* [Geography. Text Book for the 4<sup>th</sup> Grade] (2006). Authors: Manuela Popescu and Ștefan Pacearcă, Editura Aramis, Bucharest;
- *Geografie. Introducere în geografie. De la localitatea natală la planetă* [Geography. Introduction to Geography. From the Native Settlement to the Planet] (2008). Author: Octavian Mândruț, Editura Corint, Bucharest;
- *Geografie. Manual pentru clasa a IV-a* [Geography. Text Book for the 4<sup>th</sup> Grade] (2006). Authors: Marcela Peneș and Ioan Șortan, Editura Marcela Peneș, Bucharest;
- *Geografie. Manual pentru clasa a IV-a* [Geography. Text Book for the 4<sup>th</sup> Grade] (2006). Authors: Elena Ban, Nicolae Cruceru, Dorina-Maria Borza, Livia Buchilă and Olguța Morariu, Editura Niculescu, Bucharest;
- *Geografie. Manual pentru clasa a IV-a* [Geography. Text Book for the 4<sup>th</sup> Grade] (2011). Authors: Viorela Anastasiu, Celina Iordache, Dan Dumitru, Editura Didactică și Pedagogică, Bucharest.

In the chosen examples, we referred to contents grouped in three chapters: "*Geography Elements of the Nearby and Local Horizon*"; "*Elements for the Geography of Romania*"; "*Romania in Europe and in the World*".

In order to assess textbooks we used an assessment tool represented by an assessment grid focusing on four categories of criteria. We explained each of these criteria using sub-criteria. For each sub-criterion, we offered points

between 1 and 5, where 1 represented the lowest and 5 the highest, because extending this to 10 would have made the assessment more complicated.

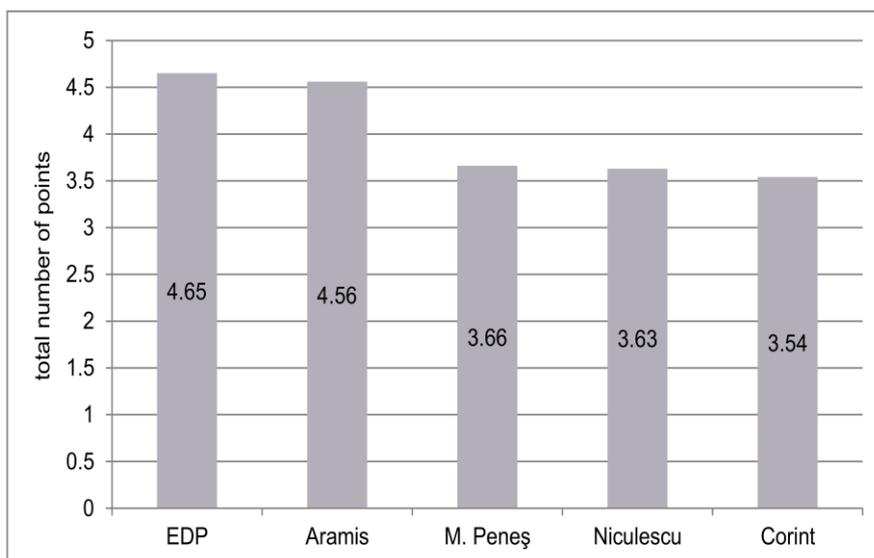
## RESULTS

In table 1, we presented the average number of points according to categories of criteria for the analysis of school text books.

**Table 1.** The points obtained by the five school text books

Category of criteria	Average number of points				
	Aramis	Corint	M. Peneş	Niculescu	EDP
Quality of scientific content	4.4	3.5	3.3	3.3	4.4
Quality of didactic processing for scientific content	4.6	3.2	2.9	2.6	4.8
Quality of editing	4.73	4.47	4.33	4.13	4.67
Quality of figures	4.5	3	4.125	4.5	4.75
<i>Final number of points</i>	<i>4.56</i>	<i>3.54</i>	<i>3.66</i>	<i>3.63</i>	<i>4.65</i>

The calculus of the total number of points allowed for a hierarchy of text books (Figure 1).



**Fig. 1.** Total number of points obtained by each text book

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Figure 1 showed that the best in this hierarchy was the EDP text book, followed by that of the Aramis Editing House, as both of them reached an average number of points over 4. The other three text books had an average below 4 indicating certain deficiencies for the respective criteria categories. The last in the hierarchy was the text book of the Corint Editing House. For a good place in the hierarchy in the case of the first two text books the difference was made by the good quality of texts, adapted to students' age, the quality of figures, and the variety of exercises. The text book of the Corint Editing House presented the following deficiencies: poor quality graphics and maps were almost impossible to use, contents were not relevant for students and exercises could not be solved or realised.

The calculus of the average number of points according to categories, for the five text books, allowed for the identification of the most problematic issues (Table 2).

**Table 2.** The average number of points for each item category calculated for the five text books

<b>Category of criteria</b>	<b>The average number of points for the five text books</b>
Quality of scientific content	3.78
Quality of didactic processing for scientific content	3.62
Quality of editing	4.46
Quality of figures	4.18

According to table 2, the most deficient features were the quality of didactic processing for scientific content (3.62 points) and the quality of scientific content (3.78 points).

## DISCUSSION OF RESULTS

We discussed the profile of the analysed text books.

Editura Didactică și Pedagogică [the Didactic and Pedagogic Publishing House] (EDP) proposed a text book whose main quality was the abundance of exercises, of varied problems and practical applications meant to help teachers in structuring all moments during a lesson. Relevant figures completed the picture of a well done lesson.

The deficiencies were similar to those in the other text books: an abundance of new, difficult, and insufficiently explained concepts. The main weakness of this text book was the poor didactic processing of certain

contents (Figure 2). Terminology was pretentious, and not adapted to students' age. For instance, in order to characterise soils, the authors introduced five new concepts in just one phrase: "The clay and sandy soils contain a small quantity of organic substances and for increasing their fertility people use fertilizers" (Anastasiu, Iordache, Dumitru, 2011, p. 22). Phrasing mistakes appeared, such as: "Temperature is higher in the fields and it decreases gradually in height, having very low values in the mountains" (Anastasiu, Iordache, Dumitru, 2011, p. 44). The correct phrasing would have been: the temperature values are higher in the fields and decrease gradually at the same time with the increase of landforms height, so that in the mountains it has very low values. We also considered that replacing geographical drawings with their description was bad for the didactic process: "Rivers that flow into other rivers are called tributary streams, and their meeting point is called a junction. All rivers flow through a riverbed between banks" (Anastasiu, Iordache, Dumitru, 2011, p. 22).

*The text book of Aramis Editing House* stood out (Figure 2) due to a writing style adapted to scientific standards and according to the school curriculum. The offered syntheses and abstracts were relevant, concise, and correct. The number of the new introduced concepts in each chapter was appropriate to students' educational needs. Relevant figures accompanied the text. For instance, the lessons in the chapter dedicated to the local horizon were planned as a series of questions, exercises and explanations at the level of children's understanding. Teachers could teach about the line of the horizon and about the cardinal points starting from questions related to the figures in the text book, questions that placed students in the situation to action and to realise a practical activity.

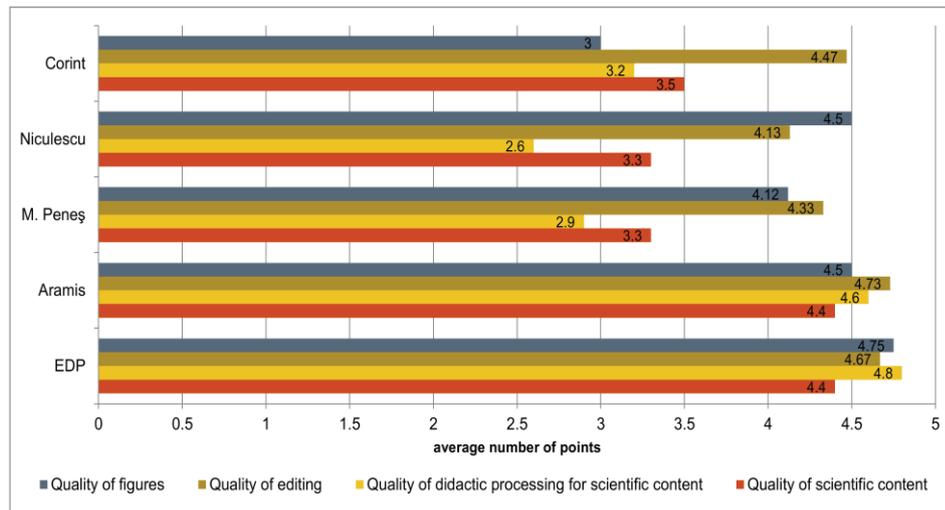
In addition, students could realise exercises easily, without teachers' advice, encouraged for independent learning: "Draw the plan of your classroom. Measure the length of walls, windows, door, desks, and of the other objects in your classroom. On your plan, 1 m equals to 1 cm. First draw the walls, the windows, the door, and then the furniture using the conventional signs in figure 2" (Popescu, Pacearcă, 2006, p. 9).

The major problems of this text book were the insufficient presence of interdisciplinary approaches and content mistakes. Here is an example: "The revolution movement is called the Earth's rotation movement around the Sun" (Popescu, Pacearcă, 2006, p. 18). We consider that school text books should introduce the essential features of concepts because "a wrong original determines deficient learning and correcting is more difficult than learning" (Dulamă, 2000, p. 73).

*The text book published by Marcela Peneş Editing House* (Figure 2) displayed plenty of practical applications in the first chapter ("Elements of the Nearby and Local Horizon"). Those were presented often in an amusing and interesting way for students. Here is an example of an exercise for learning conventional signs by means of writing according to geographical dictation: "A [road] crosses our locality on the East-West direction. The [building] of the mayor's hall and the [building] of the school lie in the northern part of the [road]. In the southern part of the [road] lies a [lake].

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In the most northern part, the [road] crosses a [bridge] over a [river] flowing from the East to the West” (Peneş, Şortan, 2006, p. 15). In the original text, the words in square brackets were replaced with conventional signs and students had to know them in order to be able to complete the respective fragment.



**Fig. 2.** The profile of the analysed Geography text books for the 4<sup>th</sup> grade

The main problem of this text book was descriptivism. This text book was abundant in texts such as: “In the North, Romania is neighbouring Ukraine. Starting from the proximity of Halmeu settlement, the border heads to the East, crosses the Carpathians and continues until the proximity of Dărăbani settlement” (Peneş, Şortan, 2006, p. 22). This type of text was useless because it contained information that students could identify by themselves from a map.

The author wanted to propose integrated exercises as in the comment on the following text: “Which is more beautiful than you among all the countries that God sowed on the Earth? Which other country adorns itself with more beautiful flowers and with more rich grain during summer days? [...] The fatherland is a remembrance about childhood days, about mother’s love, about the sound of the village church bell, about the smoke of the fireplace that warmed us while in cradle ...” (Alec Russo, “Cântarea României”) (Peneş, Şortan, 2006, p. 17). It was not clear where to identify the coalescence between Romanian literature and Geography, how one should answer the comment and how that exercise was beneficial for both subject matters.

We considered the *text book published by Niculescu Editing House* the least adapted to students’ age (Figure 2). The introduced concepts were numerous and got beyond students’ understanding (e.g. topographical map, cadastral plan, level curve). In practical applications authors did not take into account the curricula for other subject matters: the lessons “Practical

Applications in the Local Horizon" introduced calculi with negative numbers, but students studied them only in the 6<sup>th</sup> grade. The exercises for repeating new information were mere questionnaires testing students' memory or they were incomplete. Here is an example: "Read the legend of the creation of Bucharest town" (Ban *et al.*, 2006, p. 79). The text book did not include the respective legend and authors did not say what students should do after reading it.

Nevertheless, we noticed the organising of the contents in a system of numbered lessons, which, although rigid, might have offered teachers a useful plan in structuring. Another strength of this text book was the clear and short phrasing: "The farther the field, the closer to higher areas, soil quality (fertility) modifies, and it becomes less and less fertile" (Ban *et al.*, 2006, p. 36).

The main strength of *the text book published by Corint Editing House* was the structuring of contents according to a previous design: *Look at; Let's understand; Don't forget!; Terms; Applications*. This facilitated both teachers' study for the lesson and students' understanding process. We noticed a good structuring of the lessons analysing the local horizon, according to an easy algorithm for students: location, landforms, climate, hydrography, vegetation, fauna, population, and settlements. This type of characterisation of a geographical area was an introduction to the structuring of contents in the chapter on Romania. Moreover, learning that structure is helpful for students during gymnasium and high school.

The weaknesses of this text book were: superficial approach to several topics because of the desire to synthesise information, several incomplete exercises, lack of relevant maps and images, poor graphical quality of the whole text book, and some ambiguous phrasings (Figure 2). For instance, for the lesson "Climate, Hydrography, Vegetation, Animals and Soil – General Features", the four sub-themes had no clear delimitation, there was no correlation between text, images, and maps, and there were no practical applications (exercises).

In a text book, ambiguous phrasing creates confusion for students. We offer an example from the lesson "Hills and Plateaus": "The inclination of the land surface towards a single direction is the main feature of the Western Hills and of the Dobrudgea Plateau. Certain areas have a quite flat appearance and this gives the impression that they are plateaus" (Mândruț, 2008, p. 57). The Dobrudgea Plateau was a plateau according to its name so the second assertion was redundant.

## CONCLUSIONS

The strengths of the analysed text books were: strictly observing the school curriculum, proposing relevant exercises, and the presence of more or less well chosen practical applications.

The analysis of the five text books revealed a series of common

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problems: lack of relevant figures, lack of correlating maps with the text, and poor graphical quality. Possible explanations for these deficiencies could be the superficial treatment of image and design. Another minus of most of the text books was the insufficient processing of scientific content. So that the beginning of geographical education is successful we recommend authors and editing houses to focus more on scientific content and its didactic processing.

Starting from these observations we suggest that authors of school text books and editing houses should choose competent reviewers and work closely with those who use text books (students and teachers) getting them involved into enquires aiming at measuring the quality and usefulness of text books. On the other hand, we consider necessary teachers' training for assessing school text books.

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