ARPHA Proceedings

Proceedings TSNI-2021, 0834-0846
doi: 10.3897/ap.e4.e0834

Textbook: Focus on Students' National Identity

Interpreting textbook as a Global Polycode Text in Primary Comprehensive School

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Abstract

The article regards the issue of a school textbook considered as a book for the new types of reading comprehension and interpretation against the modern digital environment. The issue proves relevant due to textbook impacting the educational process as well its compliance with the updated literacy standards. The latter claim textbook to have a nonlinear structure, to present the data in a multimodal way as well to be quite informative. It appears promising to consider textbook as a global polycode text, thus, there are two reasons for that. Firstly, textbook structure comes in the form of a multi-level semiotic space, in which each of the elements is rich in information, and, therefore, significant. Secondly, textbook interpretation urges some specific activity beyond the scope of operating with a language sign which involves data search, selection, comparison and comprehension. Textbook interpretation is mostly nonlinear which implies different strategies and modes of information processing. It is an integral skill in the framework of educational activities and requires students' psychophysical readiness. The study revealed textbook interpretation hardly comes close to traditional text reading. It is efficient in different grades of primary schools due to mastering skills of operating and decoding links formed while signs and symbols are interrelated. The skills considered are formed non-linearly, and their state reflects the readiness of students of a particular class to carry out sign-symbolic activities, guided by the goals and objectives of educational activities. The author emphasizes a gap in academic sources tackling this issue, which contributes to theoretical and practical relevance of the study.
Keywords: reading a textbook, textbook on Russian language, polycode texts.

Published by Moscow City University and peer-reviewed under responsibility of TSNI-2021 (Textbook: Focus on Students' National Identity)

Introduction

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Today witnesses academic studies directed towards a new information space of a multimodal type, which is designed to systematically change the traditional mechanisms and forms of the educational process.

Such trends impact various levels and constituents of the education system, e.g. there appears a variety of options for students to obtain educational competences through the intermediary of means for educational accomplishments being optimized.

A textbook serves as one of such means. The relevance of studying the possibilities of working with a textbook for younger students is associated with the new standards of literacy in the international community (Universal'nye kompetencii, 2020). The latter focus on multimodal literacy that is regarded in foreign sources in the context of transiting from the ability to work with printed information sources to the one that implies working with different other than printed types of information.

Along with various text types (graphics, cartoons, visual materials, infographics), that are popular with younger students, that is textbook that can contribute to successful training process and accomplished educational result (Shulekina et al., 2020; Yildirim, 2016)

The primary focus is on the way students interpret the textbook text to ensure the studies of different subjects are fruitful. Traditionally, reading implies working with texts and in case of a textbook there are separate, mostly fictional abstracts to read. Consequently, the findings here look at reading and interpreting the textbook by younger students from a new angle. Вопрос о том, как читают учебник в начальной школе, практически не ставится в той формулировке, которую предлагает настоящее исследование. The author suggests looking at this process from the perspective of a special textbook

Purpose and objectives of the study

The purpose of the study is to regard the features of textbook interpretation by primary school students in a comprehensive school.

The objectives are as follows:

1. To experimentally test what skills provide interpreting a textbook at primary school;
2. Compare the way textbook is interpreted by primary school students of different grades to determine the major trends in the way skills of working with textbook are developed;
3. To outline the applied output of this research, to find the ways of further research.

Literature review

Today is witnessing new patterns of textbook being incorporated into the informational and educational environment to realize its innovative potential (Monakhov et al., 2018). It is digitalization of the educational process that provides all the essential grounds for that.

Modern educational environment looks at the textbook from various angles. Our research focused on

textbook as a polycode unit that ensures diverse texts do not merely constitute the textbook space but rather interrelate as a system, thus, realize their functions to hit an integral goal of students' training, education and development. This allows textbook developers to model it as a learning tool (Daniel'yan, 2007; Kholodnaja & Gelfman, 2016; Edwards, 2019). It is through the intermediary of textbook that school children learn not to mechanically extract information, but to purposefully select it, process it, and apply the acquired knowledge.

Theoretical evidence (Pozdeeva, 2016; Sclafani, 2018; Melenteva, 2019; Ergen et al., 2019) suggests that the approach which implies working with textbook as merely "reading it" has already grown obsolete. A modern textbook is to be regarded by all the participants to the educational process as a constituent of new informational and digital environment, which encourages students of different grades to master networking and information selecting skills. The latter promote competent use of the opportunities that open up and organically integrate into the information society. Such a trend explain why the majority of foreign studies focus on multimodal texts. It is the latter that reflect not only the structural uniqueness of texts, but also the motivational strategies that help to encourage students to read

Textbook interpretation is inherently specific. It much differs from traditional reading as it is majorly nonlinear as well as implies various strategies and information processing modes are employed. It also relies on the material being intuitively followed and in general is considered as an integral skill in the framework of educational activities. The psychological basis of such reading pattern implies automatic search and orientation modes of deciphering various texts that make up every single text in the textbook. Primary school education considers search and orientation skills to be an essential component if of the intelligent information processing algorithm within the framework of a new still dominating kind of activity which is studying. It is these skills that are embedded in the matrix of educational activities as a means of economical, yet at the same time effective information selection. It proves impossible to master more sophisticated patterns of working with textbook literally interpretation of various types lacking the abovementioned skills. Such a platform gives the student the opportunity to tackle a variety of tasks in the future, covering all types of creative procedures provided for in the school textbook, and sometimes going beyond it.

Such a complex effort calls for a certain psychophysical readiness from the student, an indicator of which, according to psychological studies, can be the formation / non-formation of sign-symbolic activity. Interdisciplinary approach connects the latter with primary school students advancing in language skills as well as speech and intellectual skills that have essentially a sign-symbolic orientation. The formation of sign-symbolic activity by the beginning of school education normally provides the student with an adequate perception and correct decoding of the sign-symbolic information means in the textbook (Shulekina, 2019).

Textbook design correlates with the sign and symbol multimodal system. It features various signs located and interrelating in a certain way (Romashina, 2014; Shulekina, 2018), which results in information clusters, schemes, models and layouts forming a complex and demanding structure that calls for much intellectual effort.

Indeed, textbook texts being highly informative encourages students from the very first grade to solve challenging tasks that ensure training process is efficient. Success relies on school children willing to engage in independent search of relevant information, its processing, selection and arrangement according to the pre-planned educational objective as well as to form a system of textbook tips and guidelines that promote efficient information search. It is the cognitive platform of students' studies which comes as sign and symbol cognitive function developed and a system of educational and cognitive activities enhanced that provides for sophisticated educational activity. Such newly formed functions enable a student to master such skills that rely on sign and symbol algorithms while it is the polycode textbook structure that fully corresponds to students' cognitive abilities and encourages them to study.

Methodology

The study focused on four categories of school children being students of 1st, 2nd, 3d and 4th grades of Moscow comprehensive schools. Recipients were selected by simple random sampling. The study involved 375 primary schoolers. Table 1 contains all the findings. All recipients were characterized by normal mental development, lack of pronounced problems in educational activities, and high adaptive capabilities in various educational situations.

Table 1.

Participants to the experiment

	1 grade	2 grade	3 grade	4 grade	Total
Total number of the participants	139	118	61	57	375
- girls	65	52	26	19	162
- boys	74	66	35	38	213
Age	6-8 y.o.	7,5-9 y.o.	8,6 – 10 y.o.	9-11,2 y.o.	

All participants were to answer the same questions formulated in the framework of the technology suggested (Shulekhona, 2018). The questionnaire included 35 open-ended questions:

1. Do you like pictures, tables and schemes in the textbook?
2. Do they help or hamper you to study?

3. Do pictures, tables and schemes help you to learn something new?
4. Do you interpret tasks in the textbook or leaf through it more often?
5. Will you find a textbook interesting without tables and schemes?
6. Do you pay attention to icons in tasks?
7. Do icons help or hamper you to study?
8. Do you have your favourite icons?
9. Do you like it when icons differ from task to task?
10. Would you like to offer an icon of your own? Which one?
11. Can you read?
12. Do you find it easy to read tasks yourself?
13. Do you need your teacher's help with reading tasks?
14. Can you write?
15. Do you find doing written tasks easy or difficult?
16. Do letters in the textbook look the same or different?
17. Is it comfortable for you to connect them into words and later on into sentences or even short stories?
18. Do you like it when different tasks are typed differently?
19. Have you come across words or sentences types in colour?
20. Do words typed in colour help you to study?
21. Do you find it easy to do tasks on your own?
22. Do you find it easier to ask the teacher for help or to look at the example in the textbook?
23. Would you like each task to have its own example?
24. Do examples help or hamper you to study?
25. Can you complete all tasks in the textbook on your own, without anyone's help?
26. Do you find it easy or difficult to interpret tasks in the textbook?
27. Have you come across unfamiliar words in the textbook? Which ones?
28. Does it take you a lot or little time to complete a task if you have read it yourself?
29. Do you always have a complete understanding of how to complete the task?
30. Do you often find yourself reading and rereading the same task?
31. Do you often come across your favourite characters in the textbook?
32. Do you find it interesting to look at the pictures/ to lead through the textbook or to read texts?
33. Will you get upset or even cry over the list textbook or not?
34. Do stories and poems from the textbook appeal to you?
35. Have you found yourself in the same situations as described? Remember and describe any of them.

First and second graders were asked questions orally, while third and fourth graders filled personal questionnaires in a written form themselves. All students were allowed to turn to a Russian language textbook which wasn't their side on the table.

The research features the population profile of opportunities for students to work with textbook from the students' angle. The conducted study aimed at finding out the features of interpreting a textbook and comparing the data obtained.

Qualitative analysis relies on the following parameters: the way signs are organized within the text, ability to work with polycode texts, self-studies, the way the materials are structured and differentiated, understanding of the examples, the way language material is structured, the way materials appeal to students and impact them personally, the way textbook encourages students and supports their self-assurance.

Quantitative analysis implied Studenta criterion.

Results

The findings of four surveys revealed basic skills that come in handy in interpreting textbook efficiently thus using it as a training tool.

1st grade

The evidence claims that modern first-graders are motivated enough to work with the textbook, enjoy leafing through it (44,6% of answers like «looking, leafing through it»), but rarely pay attention to different symbols in the texts, thus, they fail to use them while studying.

Along with that, some children demonstrate insufficient independence in working with textbook (44,6% of answers like «can do all tasks on my own»), preferring to turn to the teacher for help (51% of answers like «I will ask the teacher for help» и 36,7% of answers like «I will need the teacher's help»). 48,9% of students find some tasks difficult to comprehend. Moreover, students emphasize they fail to complete the tasks quickly enough while working with the textbook (42% of answers like «I do the tasks slowly»). Students also often claim they fail to understand certain words they come across while working with textbooks texts (49% of answers like «there were unfamiliar words»). Nevertheless, children's self-esteem in matters of the basic reading and writing skills is clearly overestimated (93,5% of answers like «I can read» and 93% of answers like «I can write»). First-graders never consider textbook as a relevant training and self-studying tool.

2nd grade

Second-graders are highly motivated to work with textbook. While working with textbook students mostly read it (69% of answers like «I read it»), minding a variety of semiotic textbook constituents and realizing their non-linguistic nature.

The majority of students treat various semiotic textbook systems contributing to its informative richness as quite formal. Only few of students work with textbook independently (43,2% of answers like «I can do all tasks on my own»). Consequently, 52,5% of students find some of the tasks difficult to complete on their own. The majority of students prefer to be self-reliant (56,8 % of answers like «I look at the example in the textbook»), though many of them turn to the teacher for help (43,2 % of answers like «I will ask my teacher»). They find themselves quite competent in reading and writing (98,3% of answers like «I can read» and 97,5% of answers like «I can write»). Textbook is still not considered as as a relevant training and self-studying tool.

3d grade

Third-graders are also highly motivated to work with textbook. The majority of students admit they not only interpret textbooks (57% of answers like «I read texts in the textbook»), they enjoy leafing through it (43% of answers like «I leaf through it, look at tasks»). Children mark a variety of signs in the textbook, though they regard them majorly as semiotic noise (23,5% of answers like «icons hinder my studies», 23,5% of answers like «I don't like it when tasks are written differently», 25,5% of answers like «words types in colour help me to study»).

Students are relatively independent while studying (80,4% of answers like «it's easy to da tasks on my own», 76,5% of answers like «I don't usually turn to teacher for help»), though still 51% of students admit they fail to understand how to do some tasks. The percentage of students who are self-reliant and of those who tend to ask the teacher for assistance is apparently equal (55% of answers like «I look at the example in the textbook» and 45% of answers like «I will ask my teacher» accordingly). Students claim they are rather quick with tasks (78,4% of answers like «I do tasks quickly»). They find themselves competent in reading and writing while they rate their writing skills higher (96,1% of answers like «I can read» and 98% of answers like «I can write»). Many students claim they came across words they found unfamiliar (58,8% of answers like «I came across some unclear words»). The value of the textbook in the value-need sphere of third-graders is uncertain.

4th grade

Fourth-graders are also highly motivated to work with textbook (93% of answers like «it's interesting for me to read textbooks»), which is due to them being principally involved in reading tasks (77,2% of answers like «I read textbook»). Students notice semiotic variety in the textbook while they can easily work with the schemes in the textbook (52,6% of answers like «words in colour help me to study», 96,5% of answers like «drawings, schemes, tables help me to study», 86% of answers like «drawings, schemes, tables help me learn something new»).

Students pay much attention to examples in tasks (96,5% of answers like «examples help me to study»). 98,2% of recipients emphasize they find it is easy to interpret textbook (+ 96,5% of answers like «I can

easily read tasks on my own», 77,2% of answers like «I can easily do tasks on my own»). Nevertheless, they admit sometimes they find it difficult to work independently (24,6% of answers like «I need teacher's assistance», 40,4% of answers like «I can complete all the tasks myself», 49% of answers like «I don't always get it how to do the tasks»). Students are both self-reliant and turn to teacher for help (49% of answers like «I will look at the example in the textbook» and 51% of answers like «I will ask my teacher» accordingly). Students are rather quick with tasks (75,4% of answers like «I do tasks quickly»). They find themselves competent both in reading and writing (98,2% of answers like «I can read» and 98,2% of answers like «I can write»).

The survey revealed students often find it challenging to understand some words they come across in the textbook (77,2% of answers like «there were unfamiliar words»), though they fail to recall and name exact words. The textbook takes its place in the value-need sphere of children - they realize its value and relevance.

On comparing first-graders' skills of working with textbook with the one of the fourth-graders' it proves clear that textbook interpretation relies on different skills relevant for different age groups and grades.

Let us consider the way students change their attitudes to working with textbook comparing answers in the groups to follow: 1-2 grades, 1-3 grades, 1-4 grades.

The analysis of first- and second-graders' answers revealed statistically significant and conditionally significant differences (figures differ by 5%) differences, that explained serious changes in the development of children's textbook skills by the second grade:

- Second-graders tend to change their way of working with textbook ($P \geq 0,05$) – students prefer reading to leafing through it;
- Skills of independent interpretation of textbook tasks are developing ($P \geq 0,01$), which is confirmed by the growing trend to refuse gradually from teacher's help while completing tasks ($P \geq 0,05$), as well as by strengthening the role of example for the independent work with textbook (with $P \geq 0,01$);
- Second-graders are better in completing written tasks (при $P \geq 0,05$);
- Second-graders are less interested in symbols and icons in comparison with first-graders (with $P \geq 0,01$);
- Second-graders are growing more difficult with interpreting unfamiliar words from textbook texts (with $P \geq 0,01$) in comparison with first-graders.

The next step was to compare answers of the first-graders with those of the third-graders. The analysis of the answers revealed statistically significant and conditionally significant differences which resulted in the tendencies to follow:

- Third-graders opt for semantic reading to mere leafing through the textbook (with $P \geq 0,05$);

- Written tasks are growing more comprehensible and easy to complete (with P≥0,01);
- Third-graders are growing less interested in symbols and icons supporting textbook tasks (with P≥0,05);
- Third-graders more often than first-graders notice text abstracts typed differently (with P≥0,05), still they do not see it as a supporting tool (with P≥0,01).
- Textbook interpretation is growing more effective (with P≥0,01) which results in the growing self-reliance while performing tasks (with P≥0,05);
- Third-graders are quicker than first-graders in performing tasks (with P≥0,05);
- Thematic arrangement appeals to third-graders much less than to first-graders (with P≥0,01).

Comparison of first-graders' and third-graders' answers demonstrated which changes take place in the process of textbook interpretation by the end of primary comprehensive school. Significant (including conditionally significant) differences appear in the issues to follow:

- Fourth grade sees semantic reading prevailing over leafing through the textbook (with P≥0,01);
- Students grow more self-reliant concerning interpreting textbook as a whole (with P≥0,01) as well as separate tasks (with P≥0,01); students often have to reread one and the same task for better comprehension (with P≥0,05);
- Fourth-graders happen to come across unfamiliar words more often than first-graders do (with P≥0,01);
- Students get better oriented in textbook structure: fourth-graders happen to notice icons (при P≥0,05) and other symbols more often (with P≥0,01);
- Students grow less interested in the variety of symbols supporting tasks (with P≥0,01), they tend to avoid such an abundance (with P≥0,01);
- Fourth-graders are quicker and more self-reliant in performing tasks (with P≥0,05);
- Fourth-graders are better than first-graders in performing written tasks (with P≥0,05).

Discussions

Semantic aspect of reading being the priority (Aerila & Merisuo-Storm, 2017; Shea & Ceprano, 2017), a number of researchers focus only on the way students comprehend the contents of language texts. Though such an approach is definitely insufficient as reading comprehension skills assessment seeks the answer to the question «what do they read», while interpreting text as a polycode with the following assessment urge to answer the question «how do they read» or «what helps them to read».

Similarly to traditional reading skills, the skills that provide for the textbook interpretation are formed and improved. This may resemble a race in which some skills demonstrate sufficient stability, while others break out ahead and take on the principal workload. Previous distillations represent (Shulekina &

Dmitrieva, 2019) that such aspects of textbook interpretation as independent reading, willingness to work with textbook as a training tool, efficient use of examples supporting tasks along with students' self-assessment are dominating.

Moreover, we managed to summarize our experimental observations and briefly describe the features of textbook interpretation in each grade of elementary school.

It is the exterior of icons and symbols students come across on textbook pages (pictures, icons, tables, schemes, etc.) that appeal to students most. All in all, students are merely willing to work with textbook as they lack general academic and specific skills implemented by first-graders during independent studies. Screening reading prompted by quite surface motifs prevails.

The research claims second grade proves transitional in terms of visible progress in developing sign-symbolic activities and, consequently, reading. Second-graders already adapted to the training process see textbook as a learning tool as well as start applying a system of aids to assist working with the latter. Nevertheless, they still opt for strategies typical for first-graders. Screening reading is growing more purposeful.

Third grade sees the major progress in students related to boosted academic performance (the pace of task implementation, self-regulation). Students grow less sensitive to signs and symbols as there is discord in such aspects as them being ready to switch from the exterior of symbols to their functional potential and practical skills.

Primary school leavers are in a full command of the traditional textbook reading pattern. Their experience and expertise urge to address learning objectives. Notwithstanding, students fail to use the multimodal textbook resource to the full regarding them as semiotic noise or avoiding them. Reading is growing more sophisticated while students remain motivated

Skills of working with textbook being advanced call for a specific training pattern that relies on specific mechanisms of attracting younger students to operate with icons and symbols, especially in the first two school years. Such practice is typical for foreign educational system: techniques for learning to decipher various sign systems students may come across at different levels of training are implemented into the curricula (English language arts and literacy, 2017).

Conclusion

Interpreting textbook as a polycode text relies on the skills related to deciphering and operating with symbolic means of the textbook. The skills under study are formed nonlinearly while their condition reflects if students of a certain grade are ready for sign and symbolic activities, aiming at the goals and objectives of educational activities.

The research discovered a sustainable advance of several textbook interpretation skills that serve as

students' progress indicators. Thus, primary school sees students growing more independent in reading meaning more self-reliant in working with textbook; more willing to work with textbook being a learning tool; more efficiency in turning to examples while performing tasks; more self-confident.

It proves promising to implement new educational technologies enabling to advance the educational process in primary school and make it more differentiated into the educational system. Educational challenges (e.g, while interpreting textbook as its direct constituent) often come as the result of strict requirements to learning outcomes against the background of unevenly formed psychological readiness of children to achieve them. It is modern educational technologies that contribute to addressing this issue efficiently. These technologies are provided for by educational, psychological, psycholinguistic grounds of comprehensive and vocational training schools as well as make up new tool kits and support students in educational activities.

We cannot but emphasize that interpreting textbook as a polycode text requires further analysis being insufficient under studies. Few empirical sources explain inability to summarize the data into a single concept that could reflect the mechanism of this way of reading. The author hopes the study is highly promising as of the issue under study.

Acknowledgements

I especially want to thank the dedicated team of my colleagues coming as coauthors of the manuscripts that have been published so far. I feel proud and privileged to cooperate with you together with having you as friends.

I would like to extend my personal thanks to my colleague Olga Vladimirovna Dmitrieva for her assistance in mathematical data processing. It is due to her contribution that our manuscripts are of much relevance and special interest.

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