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INTEGRATING ACTIVE LEARNING: ANALYSING TOOLS AND MATERIALS IN ENVIRONMENTAL STUDIES TEXTBOOKS FOR ELEMENTARY EDUCATION

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Abstract

This research analyses the tools and materials essential for facilitating operational-practical learning through elementary environmental studies textbooks. The school curriculum for environmental studies is based on constructivist learning and teaching theory, the main idea of which is that it is necessary and important for students to be active in the classroom. Teachers are encouraged to use practical teaching methods. Our study highlights the importance of selecting textbooks and supplementary materials that encourage active student participation and provide opportunities for hands-on learning experiences. The aim of the study is to identify the tools and materials that students often need to complete tasks that emphasise practical learning methods when working with textbooks. Using a descriptive, non-experimental pedagogical research approach, textbooks from four publishers approved by the Slovenian Council of Experts since 2011 were examined. The results show that the most frequently required resources for operational-practical tasks in textbooks include pens, workbooks, and various everyday objects such as packaging waste and kitchen utensils. Digital devices such as computers, tablets and phones are rarely mentioned, indicating a possible gap in the integration of modern technologies into environmental studies.

Keywords: *Textbooks, Learning, Tasks, Environmental Studies, Activity.*

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Introduction

The subject of Environmental Studies plays a key role in connecting students with the world around them. It also actively prepares them for life by teaching them about the natural and social environment and by developing their research skills. The subject brings together contents from several scientific disciplines, such as science, technology, social studies, geography, history, and others, allowing for a holistic and interdisciplinary approach to understanding the world (Environmental Studies, Curriculum, 2011).

The school curriculum for environmental studies is based on constructivist learning and teaching theory. Constructivism in education can be defined as a concept (Cobern, 1993; Hyslop-Margison & Strobel, 2007), as a didactic approach (Gerstenmaier & Mandl, 2001; Glasersfeld, 1995; Naylor & Keogh, 1999), and as a didactic system (Krapše, 1999). Constructivism in education is based on the idea that it is necessary and important for students to be active in the classroom. Their knowledge will be more solid and holistic if they build new knowledge on their own, on the basis of prior knowledge and experience, with the teacher's guidance, and integrate it into their existing conception of knowledge. In addition to taking an active role, learners should be enabled to process reflection on their learning and thus acquire reflective skills independently of the teacher (Martin, 2001; Maxim, 2018; Naude et al., 2014).

The teacher leads the learning process and is both a helper and a collaborator of the students. When planning lessons, he/she determines precisely how to stimulate individual activities and operations of students to ensure an effective learning process. Active learning is when learners carry out and regulate most learning activities (Maxim, 2018). Teachers should choose forms and methods of work that are more active for learners than the transmission approach to teaching (Šteh, 2004).

Therefore, primary education teachers can use various teaching materials to teach the subject of Environmental Studies. When choosing textbooks, teachers take into account their contents and methodological-didactic design. In addition, teachers also take into account other important factors such as the opinion of their colleagues, the guidelines of the head teacher or a professional group, the usefulness of the accompanying manuals, and the price of the textbooks (Hus, 2013; Ivanuš Grmek et al., 2021). A quality

textbook can support students and teachers in learning and teaching (Swanepoel, 2010) that is why choosing a quality textbook is essential.

For this reason, we have decided to analyse the tasks in the textbooks in more detail. We have focused on those tasks that direct students towards operational-practical learning methods, as the nature of the subject of learning about the environment is such that it requires active acquisition of knowledge, which is facilitated in particular by operational-practical learning methods.

This paper introduces a research study centered on identifying the educational resources necessary for students to perform textbook tasks.

Textbooks for the subject of Environmental Studies

Hus and Čagran (2008), in a study on didactic characteristics of textbook sets on the subject of Environmental Studies, examined the representation of teaching methods in a selected textbook set from three different publishers. Based on the results obtained, they concluded that the textbook sets preferentially emphasised traditional methods such as explanation, discussion, demonstration, and work with text. In contrast, modern teaching methods, which follow constructivist principles of teaching, were noticeably less present in this textbook set. According to teachers, project and fieldwork methods, which are rarely used in pedagogical practice, were the least present in the textbook set (Jančič Hegediš and Hus, 2019; Mithans et al., in press).

Textbooks for learning about the environment differ in terms of promoting constructivist elements, which include guidelines for students towards more active forms of learning (Hus, 2013). Thus, some textbooks support teachers in implementing more active forms of teaching and learning than others.

The study was carried out in Croatia, focusing on the inclusion of specific aspects of cognitive processes and knowledge dimensions in textbooks and workbooks for the subject "Learning about the environment" (called "Nature and Society"). The findings show differences between the questions analysed in these textbooks and workbooks. The questions that stimulate the lowest level of cognitive processes (such questions range from 59% to 81% in the textbooks and from 42% to 71% in the workbooks) and the lowest di-

mension of knowledge (from 50% to 73% of the questions in the textbooks and from 42% to 75% of the questions in the workbooks) are predominant (Borić et al., 2015).

In a study exploring content-didactic and professional aspects of textbooks Čagran et al. (2018) found that all teachers rated environmental education textbooks as presenting professional examples with illustrations (100%). The majority also believe that textbooks use examples from everyday life (93%), address current scientific knowledge (83%), allow cross-curricular integration (80%), are appropriate to the developmental level of the students (73%), encourage active learning (73%), enrich vocabulary (67%), allow for integration (67%) and testing (64%) of students' prior knowledge, and encourage creative thinking (60%). Less frequently, teachers perceive that environmental textbooks encourage problem-based (47%) and critical (53%) thinking, increasing the level of difficulty to enable students to progress (47%), reflecting on their learning (47%) and self-reflection (43%).

In the context of the Environmental Studies subject, students should be able to develop the skills of comparing, classifying, ordering, measuring, recording data, predicting and inferring, experimenting, and communicating (Environmental studies. curriculum, 2011). Teachers are, therefore, sufficiently encouraged by the curriculum to incorporate operational-practical teaching methods into their teaching practice, including the research method, the method of practical work, movement, and other activities, the method of writing, the method of drawing, and the method of play. In these methods, students acquire knowledge through various practical activities (Valenčič Zuljan and Kalin, 2020).

Operational-practical methods and use of educational resources

Active learning is essential, as it has a holistic impact on the learner, activating them mentally and emotionally. Learning becomes much more effective when students explore, reflect, collaborate in groups, and formulate and test hypotheses on their own. The outcome is more durable knowledge that can be applied in new situations and helps to understand oneself and the world (Marentič Požarnik, 2019). Active learning is reflected in the methods of education. The focus is on the acquisition of knowledge

through the learner's direct activity and the use of different resources: discovery, self-creation of knowledge, developing one's own methods of acquiring knowledge, the ability to analyse the validity of the acquired knowledge, self-organisation, and self-control (Blažič et al., 2003).

Valenčič Zuljan and Kalin (2020) name methods in which students learn about learning content through various hands-on activities, including thinking activities, operational-practical learning methods. A review of various didactic texts (Blažič et al., 2003; Poljak, 1974; Lavrnja, 1996; Tomić, 1997) shows that didactics names and categorises these learning methods differently. Despite the lack of uniformity in the naming and categorisation of these teaching methods, it can be summarised that in the case of operational-practical teaching methods, the emphasis is on the learner's activity, expressed in the learner's independent performance of the experiment. The practical activities (microscoping, grinding, cutting, singing, sports activities, dance activities, dramatisations, role-plays, etc.) are all part of the learning process. Therefore, the operational-practical teaching methods include the teaching method of exploration, the teaching method of practical works, movement, and other activities, the teaching method of written works, the teaching method of drawing, and the teaching method of play (Valenčič Zuljan and Kalin, 2020).

In order to respect the principle of progression (Kramar, 2009), the above teaching methods distinguish between different levels of learner autonomy. The teacher can guide the learners by giving instructions that allow them to carry out activities independently. Alternatively, the teacher can explain all the steps beforehand, and the learners carry out the tasks independently. Alternatively, the learners can define the procedures and carry them out independently (Valenčič Zuljan and Kalin, 2020).

The importance of active learning for students' acquisition of the material makes it essential for textbook designers to include this in their considerations, as pointed out by Polak (1983), who stressed that students best acquire, understand, form, and consolidate their knowledge through their own activity. Therefore, it is crucial that this principle be considered in the design of textbooks, which should contain a variety of activities, including sensory, practical, expressive, and reflective ones. A textbook designed according to this principle enables students to acquire operational, applied, practical, functional, and active knowledge that they can successfully use in practice.

The use of different teaching methods also entails the use of different tools for their successful implementation. A literature review on teaching aids shows that didactics uses different terms for teaching aids. Šilih (1970) uses the term teaching aids to refer to all teaching aids used in the classroom. Andoljšek (1973) distinguishes between teaching aids and learning aids. Teaching aids are used to help students acquire new knowledge, while learning aids contribute to this. It is often difficult to distinguish between teaching aids and learning tools, as a teaching aid can become a teaching tool. Podhostnik (1980) also divides teaching resources into teaching materials and teaching aids. Teaching aids are used to help learners acquire new knowledge while teaching aids are used to help learners acquire knowledge indirectly. Tomić (2000) uses the term knowledge and information sources, divided into primary and secondary sources. Under secondary resources, he classifies learning aids, subdivided into visual, auditory, and textual learning aids and technical aids and technical devices. Blažič et al. (2003) uses the term medium for the teaching resources used by teachers in the classroom. Media also include the teaching resources teachers and students use to realise the learning objectives. The decision on the medium is closely linked to the decision on using a particular teaching method.

In our research, we understood teaching aids in the sense of the handbook of the Slovenian Institute of Education (2020), which defines teaching aids as resources that serve as a prerequisite for the delivery of instruction.

Purpose of the study and research questions

Our research aimed to recognize and analyze tasks that promote operational-practical learning methods in the textbooks for Environmental Studies in Grades 1-3. This paper presents only the results concerning the tools and materials most often needed by students to perform tasks that promote operational-practical learning methods.

Main research questions:

1. What are the most commonly required tools and materials in operational-practical learning methods within Environmental Studies textbooks for elementary students?

2. How do the requirements for tools and materials vary across different grades and publishers in operational-practical learning methods for environmental studies?

Methodology

The research used a descriptive non-experimental method of pedagogical research. The choice of a descriptive non-experimental method in this study is grounded in its appropriateness for systematically examining the presence and variety of tools and materials in Environmental Studies textbooks without altering the environment or influencing variables.

Research sample

The textbooks included in the survey are textbooks published by four publishers since 2011 and approved by the Slovenian Council of Experts. The textbooks are anonymised and randomly marked with A, B, C and D.

Data collection and processing process

The instrument was built on criteria that allowed us to analyse the tasks that lead to operational-practical work. We identified and categorised the tools and materials needed to carry out the task. We aimed to discern patterns that suggest a pedagogical preference or neglect of certain resources, adjusting categories to encapsulate the diversity of tools effectively. The analysis process involved a comparative approach, examining how different textbooks across grades and publishers varied in their recommendations, thereby identifying trends and outliers that could indicate broader instructional implications.

Results

In the following section, we present the results concerning the tools and materials most often needed by students to implement tasks that promote using operational-practical learning methods by grade.

1st grade

Table 1.

Resources for tasks oriented towards operational-practical learning methods, depending on the publishing house for 1st grade

	1st grade				
Publisher / Tools and materials	A	B	C	D	Total
Paper	5 (9.80%)	1 (16.67%)	3 (3.85%)	9 (5.88%)	18 (6.25%)
Pens	2 (3.92%)	1 (16.67%)	15 (19.23%)	32 (20.92%)	50 (17.36%)
Workbook/workbook supplements	1 (1.96%)	0 (0.00%)	17 (21.79%)	32 (20.92%)	50 (17.36%)
Magazines/newspaper/ calendar	1 (1.96%)	0 (0.00%)	0 (0,00%)	3 (1,97%)	4 (1.39%)
Adhesive	3 (5.88%)	1 (16.67%)	4 (5.13%)	7 (4,58%)	15 (5.21%)
Scissors	5 (9.80%)	1 (16.67%)	4 (5.13%)	10 (6.54%)	20 (6.94%)
Art materials	5 (9.80%)	0 (0.00%)	0 (0.00%)	4 (2.67%)	9 (3.13%)
Packaging waste (yoghurt pots, etc.)	5 (9.80%)	0 (0.00%)	4 (5.13%)	7 (4.58%)	16 (5.56%)
Building blocks (Lego, wooden blocks, etc.)	2 (3.92%)	0 (0.00%)	0 (0.00%)	1 (0.65%)	3 (1.04%)
Wooden stick	1 (1.96%)	0 (0.00%)	2 (2.56%)	2 (1.31%)	5 (1.74%)
String	1 (1.96%)	0 (0.00%)	0 (0.00%)	1 (0.65%)	2 (0.69%)
Soil	1 (1.96%)	0 (0.00%)	1 (1.28%)	3 (1.96%)	5 (1.74%)
Seeds	2 (3.92%)	0 (0.00%)	1 (1.28%)	1 (0.65%)	4 (1.39%)
Plants	2 (3.92%)	1 (16.67%)	1 (1.28%)	1 (0.65%)	5 (1.74%)

Foods (e.g. apple, bread, flour, etc.)	2 (3.92%)	0 (0.00%)	7 (8.97%)	8 (5.23%)	17 (5.90%)
Kitchen utensils (containers, spoon, etc.)	5 (9.80%)	0 (0.00%)	8 (10.26%)	10 (6.54%)	23 (7.99%)
Meter/thermometer	1 (1.96%)	1 (16.67%)	1 (1.28%)	0 (0.00%)	3 (1.04%)
Water	0 (0.00%)	0 (0.00%)	6 (7.69%)	9 (5.88%)	15 (5.21%)
Maps/globe/compass	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
Computer/tablet/phone	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0,00%)
Other	7 (13.73%)	0 (0.00%)	4 (5.13%)	13 (8.50%)	24 (8.33%)
Total by publishers	51 (100.00%)	6 (100.00%)	78 (100.00%)	153 (100.00%)	288 (100.00%)

Table 1 shows that, in Publisher A, in order to carry out the tasks oriented towards operational-practical learning methods, students need 51 tools, which can be classified into 18 different groups. Students in 1st grade most often need the tools in group 2 (e.g. paper, old objects, cork stoppers, tacks, plastic eggs, marbles, etc.).

This is followed by the tools such as sheets, scissors, various art materials, packaging waste, and kitchen utensils needed to complete the five tasks in the textbook. For the tasks oriented towards operational-practical learning methods, students in 1st grade do not need water, a map, a globe, a compass, a computer, a tablet, or a telephone.

In Publisher B, students need the fewest tools to complete the tasks oriented towards operational-practical learning methods, only 6 (a paper, a pen, glue, scissors, a plant, and one tool from the meter/thermometer group).

In Publisher C, students need 78 tools, classified into 15 different groups, to carry out the tasks that lead to operational-practical learning methods. The most frequently needed items are workbook/workbook supplements and various pens. In none of the tasks focusing on operational-practical learning methods do students need magazines, newspapers, or calendars, art materials, building blocks, string; maps, a globe or a compass or computers, tablets, and telephones in this publishing house.

For the tasks oriented towards operational-practical learning methods, students need the most tools to work with the textbook from the publisher D - 153, which can be classified into 18 different groups. The most frequently needed items are workbook/workbook supplements and various pens. Similarly, in none of the tasks focusing on operational-practical learning methods do students need maps, a globe/compass, computers, tablets, or telephones.

2nd grade

Table 2.
Resources for tasks oriented towards operational-practical learning methods, depending on the publishing house for 2nd grade

	2nd grade				
Tools and materials \ Publisher	A	B	C	D	Total
Paper	6 (12.77 %)	4 (11.43 %)	3 (10.34 %)	1 (11.11 %)	14 (11.67 %)
Pens	7 (14.89 %)	4 (11.43 %)	3 (10.34 %)	1 (11.11 %)	15 (12.50 %)
Workbook/workbook supplements	1 (2.13 %)	0 (0.00 %)	0 (0.00 %)	0 (0.00 %)	1 (0.83 %)
Magazines/newspaper/ calendar	0 (0.00 %)	2 (5.71 %)	0 (0.00 %)	1 (11.11 %)	3 (2.50 %)
Adhesive	1 (2.13 %)	3 (8.57 %)	1 (3.45%)	0 (0.00 %)	5 (4.17 %)
Scissors	1 (2.13 %)	2 (5.71 %)	1 (3.45 %)	0 (0.00 %)	4 (3.33 %)
Art materials	2 (4.26 %)	2 (5.71 %)	1 (3.45 %)	0 (0.00 %)	5 (4.17 %)
Packaging waste (yoghurt pots, etc.)	7 (14.89 %)	4 (11.43 %)	1 (3.45 %)	1 (11.11 %)	13 (10.83 %)
Building blocks (Lego, wooden blocks, etc.)	1 (2.13 %)	1 (2.86 %)	0 (0.00 %)	0 (0.00 %)	2 (1.67 %)
Wooden stick	1 (2.13 %)	0 (0.00 %)	0 (0.00 %)	0 (0.00 %)	1 (0.83 %)
String	1 (2.13 %)	1 (2.86 %)	0 (0.00 %)	0 (0.00 %)	2 (1.67 %)

Soil	2 (4.26 %)	0 (0.00 %)	0 (0.00 %)	0 (0.00 %)	2 (1.67 %)
Seeds	3 (6.38 %)	0 (0.00 %)	0 (0.00 %)	0 (0.00 %)	3 (2.50 %)
Plants	1 (2.13 %)	1 (2.86 %)	1 (3.45 %)	0 (0.00 %)	3 (2.50 %)
Foods (e.g. apple, bread, flour, etc.)	4 (8.51 %)	1 (2.86 %)	5 (17.24 %)	0 (0.00 %)	10 (8.33 %)
Kitchen utensils (containers, spoon, etc.)	2 (4.26 %)	1 (2.86 %)	6 (20.69 %)	1 (11.11 %)	10 (8.33 %)
Meter/thermometer	1 (2.13 %)	0 (0.00 %)	0 (0.00 %)	0 (0.00 %)	1 (0.83 %)
Water	2 (4.26 %)	2 (5.71 %)	2 (6.90 %)	0 (0.00 %)	6 (5.00 %)
Maps/globe/compass	1 (2.13 %)	1 (2.86 %)	1 (3.45 %)	2 (22.22 %)	5 (4.17 %)
Computer/tablet/phone	1 (2.13 %)	1 (2.86 %)	0 (0.00 %)	2 (22.22 %)	4 (3.33 %)
Other	2 (4.26 %)	5 (14.29 %)	4 (13.79 %)	0 (0.00 %)	11 (9.17 %)
Total by publishers	47 (100.00 %)	35 (100.00 %)	29 (100.00 %)	9 (100.00 %)	120 (100.00 %)

Table 2 shows that, in order to complete the tasks oriented towards operational-practical learning methods in Publisher A, students in 2nd grade need 47 tools from 20 different groups. The most frequently needed items are pens and packaging waste. In none of the tasks focusing on operational-practical learning methods do students need magazines, newspapers, or calendars from this publisher.

In Publisher B, students need 35 tools from 16 different groups to complete the tasks that lead to operational-practical learning methods. The most frequently needed items are paper, pens and packaging waste. In none of the tasks focusing on operational-practical learning methods do students in this publisher need any of the tools from the group of notebooks, workbooks, workbooks, or annexes from workbooks. In that respect, they also do not need wooden sticks, soil, seeds, or tools such as a tape measure, a ruler, and a thermometer.

In Publisher C, students need 29 tools from 12 different groups to complete the tasks that lead to the operational-practical learning methods. The most frequently needed tools are those used in the kitchen. In none of the tasks orienting to operational-practical learning methods do students in this publishing house need any of the tools from the group of workbooks/workbooks supplements. Furthermore, they also do not need magazines, newspapers, or calendars, building blocks, wooden sticks, string, soil, seeds, or tools such as a tape measure, a ruler, and a thermometer.

In 2nd grade, students need the least number of tools to complete tasks that focus on operational-practical learning methods in the textbooks from publisher D. They most often need tools such as a map, a globe and a compass, as well as a computer, a tablet, and a phone.

3rd grade

Table 3.
Resources for tasks oriented towards operational-practical learning methods, depending on the publishing house for 3rd grade

	3rd grade				
Tools and materials \ Publisher	A	B	C	D	Total
Paper	9 (9.68%)	1 (12.50%)	12 (14.81%)	2 (3,92%)	24 (10.30%)
Pens	9 (9.68%)	1 (12.50%)	19 (23.46%)	21 (41,18%)	50 (21.46%)
Workbook/workbook supplements	1 (1.08%)	0 (0.00%)	7 (8.64%)	19 (37,25%)	27 (11.59%)
Magazines/newspaper/ calendar	0 (0.00%)	0 (0.00%)	1 (1.23%)	0 (0,00%)	1 (0.43%)
Adhesive	5 (5.38%)	0 (0.00%)	0 (0.00%)	0 (0,00%)	5 (2.15%)
Scissors	5 (5.38%)	0 (0.00%)	0 (0.00%)	0 (0,00%)	5 (2.15%)
Art materials	6 (6.45%)	1 (12.50%)	0 (0.00%)	0 (0.00%)	7 (3.00%)

Packaging waste (yoghurt pots, etc.)	10 (10.75%)	1 (12.50%)	5 (6.17%)	0 (0.00%)	16 (6.87%)
Building blocks (Lego, wooden blocks, etc.)	2 (2.15%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	2 (0.86%)
Wooden stick	0 (0.00%)	1 (12.50%)	0 (0.00%)	0 (0.00%)	1 (0.43%)
String	2 (2.15%)	1 (12.50%)	0 (0.00%)	0 (0.00%)	3 (1.29%)
Soil	0 (0.00%)	0 (0.00%)	1 (1.23%)	0 (0.00%)	1 (0.43%)
Seeds	0 (0.00%)	0 (0.00%)	1 (1.23%)	0 (0.00%)	1 (0.43%)
Plants	1 (1.08%)	0 (0.00%)	1 (1.23%)	0 (0.00%)	2 (086%)
Foods (e.g. apple, bread, flour, etc.)	7 (7.53%)	0 (0.00%)	1 (1.23%)	1 (1.96%)	9 (386%)
Kitchen utensils (containers, spoon, etc.)	10 (10.75%)	0 (0.00%)	7 (8.64%)	0 (0.00%)	17 (7.30%)
Meter/thermometer	2 (2.15%)	1 (12.50%)	1 (1.23%)	2 (3.92%)	6 (2.58%)
Water	3 (3.23%)	0 (0.00%)	2 (2.47%)	0 (0.00%)	5 (2.15%)
Maps/globe/compass	2 (2.15%)	0 (0.00%)	1 (1.23%)	0 (0.00%)	3 (1.29%)
Computer/tablet/phone	1 (1.08%)	0 (0.00%)	6 (7.41%)	3 (5.88%)	10 (4.29%)
Other	18 (19.35%)	1 (12.50%)	16 (19.75 %)	3 (5.88%)	38 (16.31%)
Total by publishers	93 (100.00%)	8 (100.00%)	81 (100.00%)	51 (100.00%)	233 (100.00%)

In 3rd grade, students need the most tools from Publisher A to complete the tasks that focus on operational-practical learning methods. They need 93 tools from 17 different groups. The most frequently needed items are from a group entitled Other (ball, clock, etc.). In none of the tasks oriented towards operational-practical learning methods do students need magazines, newspapers or calendars, wooden sticks, soil, and seeds from this publisher.

In Publisher B, students need the fewest number of resources in 3rd grade to complete the operation-practice tasks; only 8 (a sheet, pens, art

materials, packaging waste, wooden sticks, string, one tool from the meter/thermometer group and one from the Other group).

In Publisher C, students need 81 tools from 15 different groups to complete the tasks that lead to the operational-practical learning methods. The most frequently needed are different pens. In none of the tasks focusing on operational-practical learning methods do students need adhesive, scissors, art materials, building blocks, wooden sticks, or string in this publisher.

Students need 51 tools from seven different groups from Publisher D to carry out the tasks oriented towards operational-practical learning methods. This is the publisher where they most often need pens.

Discussion

The textbook is an essential educational tool in transmitting knowledge to new generations (Palló, 2006). For the teacher, the textbook is "one of the teaching tools that help to achieve optimal learning outcomes" (Kovač et al., 2005, p. 31). It is also important to note that the choice of textbook influences the choice of didactic strategies and the selection of content (Hadar, 2017).

In this paper, we present part of a more extensive study to obtain more detailed information on the tasks that guide operational-practical learning methods in environmental science textbooks. We decided to analyse textbooks because textbooks are teachers' most frequently chosen teaching material in environmental cognition.

When analysing the tasks in textbooks that focus on operational-practical learning methods, we found the following regarding the use of aids in implementing such tasks. In all three grades, the most frequently used resources are pens that students use to carry out the tasks oriented towards operational-practical learning, which is desirable from the point of view of economy since pens are tools that are easily accessible to students.

In 1st and 3rd grades, they often also need the tools from the workbook/workbook supplements group, which is encouraging, as the more active use of the textbook makes it easier for students to become familiar with its structure and content and, consequently, to use it for independent learning.

The least frequently used tools in all three grades are the computer, the tablet, and the phone. Bahat and Lukša's (2019) study showed that the least

widely used active learning strategy is the use of modern information and communication technology. This fact is worrying, as our lives are heavily intertwined with digital technology (Broza et al., 2023) and, consequently, digital literacy is one of the key competences that we need to develop (Council Recommendation on key competences for lifelong learning, 2018). In relation to digital literacy, Juvan et al. (2016) highlight the exceptional role of educators as role models. It is up to them to ensure that children acquire ICT skills and develop their digital competences. It is therefore important to integrate modern media into the educational process at primary level. Textbooks can also play an important role in encouraging teachers to use them, as Hung Lau et al. (2018) note that the textbook primarily serves as a tool for teachers to deliver lessons.

Conclusion, Limitations and Further Research

International research show the positive impact of active teaching methods on student achievement (Kozina & Vršnik Perše, 2015) and the influence of textbooks on teachers' methodological practices (Hadar, 2017). Therefore, active learning and critical selection of learning resources are important for quality teaching practice.

Considering these findings, further research should be pay attention to studying textbooks and their impact on direct pedagogical practice.

This research has provided a more detailed insight into the tools and materials most students need in tasks that promote operational-practical learning methods. By identifying the tools and materials most frequently advocated in these textbooks, the study seeks to contribute to a nuanced understanding of how educational resources can align with and support broader learning outcomes and competencies outlined in national and international educational frameworks.

Furthermore, the findings alert textbook authors to the shortcomings in promoting modern didactic approaches and can help textbook authors plan and integrate tasks and materials that promote the use of active teaching methods and forms.

Recommendations on the selection of textbooks, workbooks, and other learning materials by the Slovenian Institute of Education (Slovenian Institute of Education, 2022) are that the teacher should select textbooks and

sets of learning materials that encourage active participation by students (research learning, problem-based learning, etc.).

Student activity can also be encouraged through textbooks as long as they include activities that focus on operational-practical learning methods. Supplementing textbook tasks with the use of affordable additional aids/materials or tools can be an added advantage, as this brings students into even more direct contact with the materials. In Environmental Studies, in line with the didactic recommendations for teaching this subject, it is also essential to encourage students to observe and explore our world. Students should be allowed to learn about their environment through practical activities that develop specific processes. In this way, students actively acquire knowledge, influencing their understanding (Ivanuš Grmek et al., 2009). This can only be ensured by highly qualified teachers continuously undergoing professional development (Branković and Popović, 2018).

In interpreting the results, it is important to bear in mind some of the limitations of the study, which can be attributed to the mono-method research approach based on a qualitative analysis of the textbook material. This limitation does not detract from the credibility of the findings but rather suggests the need for further research and development monitoring of teaching practice in the research area, including other qualitative research approaches such as interviews and focus groups with teachers, and, especially, a combination of qualitative and quantitative methods.

In further research that can contribute to the continuous improvement of teaching environmental studies, it would be useful to conduct a longitudinal study to evaluate the enduring impacts of operational-practical learning methods facilitated by textbooks on student learning outcomes, particularly focusing on the retention of knowledge, skill application in various contexts, and the development of critical thinking and problem-solving skills.

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АНАЛИЗА АЛАТА И МАТЕРИЈАЛА У УЏБЕНИЦИМА ИЗ ПРЕДМЕТА ЗАШТИТА ЖИВОТНЕ СРЕДИНЕ У ОСНОВНОМ ОБРАЗОВАЊУ

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Сажетак

У овом истраживању анализирамо алате и материјале који су кључни да би се олакшало оперативно-практично учење кроз уџбенике из предмета Заштита животне средине за основну школу. План и програм за овај предмет заснован је на теорији о конструктивистичком учењу и подучавању, чија је главна замисао да је неопходно да ученици буду активни током наставе. Наставнике се потиче да користе практичне наставне методе. Наша студија наглашава важност избора уџбеника и додатног материјала који потичу активно учешће ученика и омогућавају непосредно искуство учења. Циљ студије јесте идентификација алата и материјала који су често потребни ученицима да би извшили задатке који наглашавају практичне методе учења када се користе уџбеницима. Користећи се приступом описног, не-експерименталног педагошког истраживања, испитали смо уџбенике четири издавача које је од 2011. године одобрило Словеначко стручно вијеће. Резултати показују да се у сврху обављања оперативно-практичних задатака најчешће користе хемијске оловке, радне свеске те разнолики предмети за свакодневну употребу, попут омота кутија и кухињског прибора. Дигитална средства, попут компјутера, телефона и других електронских уређаја помињу се ријетко у овом контексту, што указује на недостатке у интеграцији савремених технологија у процесу проучавања заштите животне средине.

***Кључне ријечи**: уџбеници, учење, задаци, заштита животне средине, активност.*

ИНТЕГРАЦИЯ АКТИВНОГО ОБУЧЕНИЯ: АНАЛИЗ ИНСТРУМЕНТОВ И МАТЕРИАЛОВ В УЧЕБНИКАХ ПО ИЗУЧЕНИЮ ОКРУЖАЮЩЕЙ СРЕДЫ В НАЧАЛЬНОМ ОБРАЗОВАНИИ

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Резюме

В этом исследовании мы анализируем инструменты и материалы, необходимые для облегчения оперативно-практического обучения с помощью учебников по предметам охраны окружающей среды в начальной школе. Учебная программа по этому предмету основана на теории конструктивистского обучения и преподавания, основная идея которой заключается в том, что учащиеся должны быть активными во время занятий. Учителям рекомендуется использовать практические методы обучения. Наше исследование подчеркивает важность выбора учебников и дополнительных материалов, которые способствуют активному участию учащихся и обеспечивают прямой опыт обучения. Целью исследования является выявление инструментов и материалов, которые часто необходимы учащимся для выполнения заданий, которые подчеркивают практические методы обучения при использовании учебников. Используя подход описательного, не экспериментального педагогического исследования, мы изучили учебники четырех издателей, изданные с 2011 года и одобренные Словенским экспертным советом. Результаты показывают, что для выполнения оперативно-практических задач чаще всего используются шариковые ручки, рабочие тетради и различные предметы повседневного использования, такие как упаковка коробок и кухонная утварь. Цифровые средства, включая компьютеры, мобильники и другие электронные устройства, редко встречаются в данном контексте, что указывает на недостатки в интеграции современных технологий в процессе обучения охране окружающей среды.

Ключевые слова: *учебники, обучение, задания, охрана окружающей среды, активное обучение.*