

TEACHERS' PERCEPTION OF THE BOOKS OF SUBJECTS OF ELEMENTARY REALIA WITH AN EMPHASIS ON FOREST ENVIRONMENT TOPICS

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Abstract: The research paper shows primary education teachers' opinions on the content of elementary realia subjects, more specifically of the subject Elementary Realia for the 1st and 2nd grade of primary schools, which emphasizes topics related to forest environment and environmental protection. Theoretical outcomes of the study are rooted in attempts of anchoring the content of the syllabus for this subject in standardized documents, hence in the Syllabus in the National Education Program, while highlighting the ever-changing content and formal instability of this subject. Due to these reasons, we were observing how primary education teachers perceive the content of this subject. We were evaluating what subjective characteristics teachers assign to natural science topics, that are related to forest environment and environmental protection.

Keywords: Elementary realia subject, elementary realia, cognitive processes, forest pedagogy

Introduction

The subject of Elementary realia in Slovakia is taught in 1st and 2nd grade of primary schools and represents a prerequisite for other subjects such as Natural Sciences and Homeland Studies that are taught in 3rd and 4th grade. However, the syllabus of this subject currently lacks content stability. The focus is on a pupil's education with an emphasis on learning and understanding a pupil's closest natural and social environment. The subject of Elementary realia is very specific in its nature since it does not only educate a pupil but also includes components of upbringing, pupil's language competency development as well as family education. When teaching this subject, one must consider several factors. Pupils come from various environments, from different family and living backgrounds, being used to different ways of spending their free time. Other factors are that pupils have different vocabulary levels and different levels of ability to set their own value system. These are the reasons, why the process of anchoring the content in the syllabus for the Elementary realia subject is so unique and can be challenging.

As a part of our research question for the project *Forest Pedagogy and Education to Sustainable Development in pre-primary and primary education* (see www.lesnapedagogika.sk), we conducted several partial pedagogy studies. These studies focus on primary education Elementary realia textbooks analyses, strategies in teaching natural science topics, evaluation of teachers' and tutors' opinions and experience with forest pedagogy, or on ongoing experimental study related to the application of forest pedagogy programs in pedagogical praxis. In this research paper, we present some of the research results, that document primary education teachers' opinions on topic proposals, their representation and recency in current Elementary realia textbooks. We were also observing how teachers perceive the topics of the forest environment, by which we can develop a child's relationship with its natural environment and the need for its protection. Moreover, we can help a child to see its natural environment as a place for spending its free time. We build upon assumption, that children in the first years of primary education strive to discover things and phenomena, which encourages them to think about how these things work. Elementary realia subjects are based exactly on this kind of conceptual thinking, that emphasizes the development of pupil's cognitive functions.

1 Transformations in the Elementary realia subject

As mentioned in the introduction, the Elementary realia subject is a unique subject taught in 1st and 2nd grade of primary

school. Despite this fact, we need to prompt, that in Slovakia authors address Elementary realia subject only rarely. A great addition to the subject of Elementary realia was an expert publications and teaching materials from K. Navratilova (1996), that does not lose its recency. Alternatively, mentionable addition was a historical summary of this school subject published by J. Kopacova (2011) or by A. Douskova (2003), the coauthor of the Elementary realia textbook.

Navratilova (1986) states that school subjects about nature and society were introduced to schools' education programs gradually with the start of the modern age, however mostly with the beginning of humanism period. Elementary realia were not part of primary education or taught as an individual subject, rather they were a part of school subjects like Mother Tongue Studies, specifically, part of Reading. It was only later when they started to appeal that pupils should be besides trivia subjects also taught natural sciences. In Slovakia, the development of teaching content about nature and society in primary education was on the same level as in the Czech Republic. However, in the Czech Republic, as K. Navratilova (1986) states, live discussions on this topic and opinion diversity were conducted, which Slovakia lacked. Pupils were introduced to knowledge about nature and society in a subject called *Exercising speech and mind*. The lectures for this subject were held three times a week. This is supported by J. Kopacova (2011), as she clarifies, that three lectures a week were occurring in the 1st through 3rd grade of primary school, but it was indeed taught as a part of Mother Tongue Studies. In 1927 a new syllabus was created. These understood subject of Elementary realia as the centre of primary education. It was only in 1933, when this subject was established as an individual school subject, however not for long. M. Nogova (2008) states, that later on, Elementary realia subject was again part of mother tongue studies as a result of political changes in 1948 and only far ahead in 1960 subject of natural science was established under the name Study of Things. Already then, the education praxis has shown that pupils mastered the knowledge that was provided to them already in pre-primary schools, which resulted in their decreased motivation to learn. There were attempts to change this negative phenomenon by a reform in 1976 when the subject was again renamed to the distinct subject of Elementary realia, and it was perceived as a complex integrated subject. As stated by J. Kopacova (2011), we can agree that the goal of the Elementary realia subject was to prepare pupils for being able to observe natural and social phenomena in their everyday life experiences and to be able to name and utilize objects in nature. In this period, concepts of visualization and observation have again returned to schools. The teaching process was supposed to aim for a true understanding of the surrounding world. The topics were established around seasons of the year. To remind, these goals required, like any other school reform, primarily a change in a teachers' approach in the teaching process of this subject. Unfortunately, this fact did not receive enough attention.

Another content reformation of the Elementary realia subject happened in the academic year 1991/1992 when the syllabus content was split into three areas – nature, society, human being. The year 1995 also brought a change to the content of this school subject, though, these changes were not significant. However, substantial content improvements were made with the introduction of school reform in 2008, and these were significantly contingent by the fact that the Elementary realia subject (with the upgraded name - Natural Science) was classified in the education area of Human and Nature. New activating methods, experimental and observation topics were also introduced with this reform, while those of which implementation in the classroom was promoting pupil's activity and execution in the classroom, were in majority. Exercise books slowly also found its way onto the market. Currently, there are five different exercise books on the market, however it is important to know that only one of these has an approval clause,

which is yet another proof of the formal instability of this school subject and its content. The last change to the Elementary realia subject was made in 2015 when this school subject again regain its name *Elementary realia*, however, the content did not change significantly. The content comprised predominantly of natural science topics. By the performed textbooks analyses (Duhancikova, Kollarova

2018), (Nagyova, Kollarova 2020) we too observed, that they consist predominantly of natural science topics. In the 1st grade of primary schools, these topics represent 82.20% and in the 2nd grade 74.60% of the textbook material. We consider this to be an important downside, as this school subject should be part of following educational areas: Human being and nature, Human being and society, Human being and world of labour. Therefore, we believe that this school subject should be meaningfully supported by educational-artistic activities, as emotions also play a role in this school subject. The school subject in its essence consists of both, natural and social sciences, which should be in balance.

One part of our research also showed that teachers express dissatisfaction with the time allocation for this school subject, which they consider insufficient – in the 1st grade it is one hour lecture a week and in the 2nd grade two hours a week. We indeed agree with these teachers, *because it is just a first-grader, who needs to develop a system in observed social and natural phenomena, that are becoming new objects in pupil's everyday observations in a changing school and natural environment*. Our opinions are supported by M. Klusak (2010), who claims, that the Elementary realia subject is understood as a subject that is not given any educational importance. He points out the low status of this school subject. He also emphasizes, that teachers who focus rather on the cognitive difficulty of this subject, forget about an emotional component, that leaves pupils with a feeling of uselessness of their work.

1.1 Some of Elementary realia textbooks specifics

Syllabus content should be processed in detail in textbooks. In the case of pupils of 1st and 2nd grades, it is more of an exercise book, since pupils do not yet master reading on the level, that would allow them to work with written text. Exercise book consists mostly of exercises.

Our goal in the presented research paper is not to evaluate the structure and content of these exercises, rather the topics in the syllabus. Exercise book supposed to serve as a specific learning tool for a student, that should fulfil functional educational requirements, or as J. Prucha (1998) similarly describes the expected purpose, it should fulfil didactic means in the education process. E. Petlak (2004) writes about 8 functions: motivational, communication, control and guiding regulation, developing and educational, application, integration and innovation function. Additionally, J. Skalkova (2007) claims, that currently, a textbook is created more by a content, that has some elements of exercise book, such as exercises for pupils' individual work, experimentation and observing or exercises for enriching pupil's experience. Current Elementary realia textbooks also take this form. P. Knecht (2008) states, that textbooks do not represent only syllabus content, but also determine which activities should pupils be able to perform based on this content. Consequently, textbook authors should be aware, that they have the opportunity to develop pupils' higher cognitive processes than just memory and comprehension. Indeed, we cannot view textbooks only based on their attractiveness for a pupil, but also have to consider textbooks' educational-didactic functions.

The authors of one of current Elementary realia textbooks R. D. Adame and O. Kovacikova (2015) state, that pupils in the 1st grade of primary school are introduced to a real-world of nature by observing natural phenomena. Moreover, pupils also adopt knowledge from the areas of public administration or get to know the geographical aspects of the country. The authors of another current Elementary realia textbook L. Zigova, A. Jancichova and A. Douskova (2006) also explain contents of

educational areas, while stating that by the social contents, a pupil acquires a basic understanding of oneself in various situations, creates social contacts and develops own self, relationships, tolerance and cooperation skills. Natural science contents provide pupils with a knowledge about living nature, where pupils get to know living nature's characteristic features, as well as non-living objects in nature. The exercises in the textbook help pupils to familiarize themselves and observe changes that occur in nature, which leads them to understand these changes in nature, in the life of plants and animals, by which pupils learn to wisely use and protect the nature. Here we appreciate the fact that authors view the content comprehensively. They understand the underlying condition of acquaintance – contact and communication with both, people and nature. They also understand the need to develop pupils' ability to protect nature, by which they can also stimulate their personal competencies.

As stated above, the events occurring in nature are the main part of this school subject. Despite this, we would only hardly find terms such as *forest, forest environment, coniferous trees, forest animals and their feeding* in the National Education Program. Among others, the following goals of the Elementary realia subject are listed in the National Education Program (2017):

- develop self-observation ability in a way, that pupils can obtain new and enrich existing information and knowledge from everyday situations
- create own argumentative-based judgement
- cooperate in solving simple observation activities, while a part of cooperation requires actually knowing and effectively utilizing one's knowledge when drawing conclusions
- be able to argue using own experiences, so-called development of scholar discussion to given topic, that is adequate to pupils' age

We believe that if teachers rigorously headed towards these goals, pupils would not have issues to understand living objects and phenomena and to be aware of the consequences of their own responsible or irresponsible behaviour towards themselves, nature and towards other people. Already in the pre-primary period, we observe the development of environmental literacy. Children in this age are able to identify the diversity of animal and plant world, describe ways of nurturing some animals as well as describe the human body, name the origin of water or air in nature and comprehend why are those necessary for our living. We can find several answers and connections to these topics in the teaching on forest example. Nevertheless, A. Wiegerova (2003), co-author of another textbook recalls that the emphasis in the teaching process of the Elementary realia subject is placed on pupil's future application and understanding of these concepts in real life, rather than overloading pupils with the facts. We can utilize teaching in the forest environment to reach this goal or alternatively by inviting external lecturers – forest pedagogists. We believe that just like the process of acquiring literacy is conditioned by experiencing, similarly, the process of acquiring environmental literacy cannot omit the factor of experiencing.

2 Forest pedagogy in and outside the school

In Slovakia, we offer the option to invite foresters – forest pedagogists to Elementary realia lectures, however, many teachers do not know about this possibility. Therefore, it is also one of our research projects goals, to better promote this possibility. Above mentioned cooperation with external lecturers and institutions can improve our pupils' natural sciences literacy ranking, who currently ranked among the last third of the OECD countries (Slastanova, 2014, Lakatosova, 2015). Teachers' mission should be to understand that in environmental literacy we must pay attention to pupil's ability to form values and develop attitudes towards the natural environment. It is not enough when pupil only acquires new knowledge by classroom lectures. Rather, a child needs to be able to develop attitudes

based on this knowledge presented in classrooms. The right way to do so maybe just the forest pedagogy education programs based on experiential learning in the school system as well as outside the school environment, that can be taught by foresters.

Forest pedagogy or teaching about forest and forest environment by a forester – forest pedagogist, should not represent any competition to classroom-based learning, but rather an enrichment element in the education process. This approach to education should provide an opportunity for both groups, pupils and teachers, to learn and acquire new knowledge while forming an understanding of the forest's needs and the need for environmental protection - including protection of plants, animals, soil, water and air resources, as well as understanding the importance of foresters' work. L. Marusakova (2010) defines forest pedagogy as a part of environmental education. It is education about forest ecosystems and education of human beings towards sustainability on the forest example. Forest pedagogy activities are provided by certified forest pedagogists. They utilize activating methods, forms of experiential learning and project-based teaching methods in the education process. This kind of education has also a significant impact on human's emotions. Two group of authors D. Chlposova, V. Jaloviarova (2019) as well as Loyova, Marusakova, Jaloviarova (2018) speak about forest pedagogy as a concept, that utilizes forest as a unique living textbook.

In countries like Austria, Germany, or Switzerland forest pedagogy has a longer history than in Slovakia. Therefore, these countries served as an inspiration for the growth of forest pedagogy in Slovakia. In 2001 around 500 foresters attended the course in Austria, which supports the claim that in Austria they put a great emphasis on forest pedagogy (Lasak, 2001). Moreover, in Austria, the forest pedagogy is also covered by the law. In the Czech Republic, first forest pedagogy courses took place in 2002 and followed the Austrian model. The training centre in the Czech Republic is Forestry High School in Hranice na Morave. In 2006 the forest pedagogy course was accredited by the Ministry of Education, Science, Research, and Sport of the Slovak Republic. Forest pedagogy courses for foresters are administered by National Forest Center – Institute of Forest Advisory and Education in Zvolen (NLC- UPLV Zvolen), which is the central institution mandated by the Ministry of Agriculture and Regional Development of the Slovak Republic to coordinate and direct the education program of forest pedagogy. National Forest Center in Zvolen (see www.nlc.sk), which is our partner and co-author of the above mentioned research project has an opportunity to raise qualified forest pedagogists thanks to its accredited education program. D. Kollarova, the co-author of this research paper, also participates in the education of these pedagogists by taking part in activating methods of creative drama as a part of National education program. Foresters complete 80 hours of lectures on how to educate children in pre-primary school and early primary school age in areas of natural science. Besides psychology of development, pre-primary and elementary pedagogy including didactic and education standards, they are also prepared in areas of activating or experience learning methods as well as project-based teaching. Czech foresters K. Bjacek and A. Sedivy (2018) understand the role and a figure of a forest pedagogist to be a competent expert on forest economics, who provides information about the forest, explains its functions and ecosystems through various programs aimed primarily to children that are focused on the understanding of the forest sustainability principles. D. Doudova (2018) similarly describes the job responsibilities of forest pedagogist, who educates a group of people by utilizing various forms of games and activities related to forest topics and allows them to experience an adventure in the forest environment as well as familiarize themselves with forester's role and duties.

Forest pedagogy is to a great extent an asset to education of children not only thanks to the knowledge about a forest that it offers but also thanks to the ability to raise awareness about forest environment and the need of foresters' profession. This can bring a significant increase in interest in the forest environment and an understanding of the need for forest

protection for the needs of human existence. To some extent, it will also refute existing medialized picture of forester's work, which is unfortunately often misinterpreted by teachers as well as parents.

3 Research – Teachers' opinion on Elementary realia subject contents

The above introduced theoretical part of the issue is our basis for theoretical starting points of the research. We defined them by analysing and synthesizing of professional literature on given subject matter. After narrowing down the research problem we formulated the goal of our research – To find out *how primary school teachers perceive the current Elementary Realia subject contents and what role could the forest pedagogy play in it?* There is no similar research focusing on teachers' opinions on Elementary realia subject contents in Slovakia. Its main advantage is that we can contribute to more precise subject contents with an emphasis on its didactic structuring.

3.1 Research strategy

We decided to use a quantitative-qualitative research strategy in our research. We chose the questionnaire method in the quantitative part of the research and the semi-structured interview for the qualitative part. Taking into consideration the descriptive nature of the research problem, we did not form the hypotheses. We used following research questions:

- What positives and negatives do primary school teachers attribute to structured contents of the Elementary realia subject?
- How do primary school teachers rate the Elementary realia textbooks with an emphasis on its content?
- What experience do the teachers have with the Forest pedagogy, and whether they think it should be part of the Elementary realia subject?
- How interested are pupils in learning about the forest environment?
- In which curriculum do they see a room for teaching about responsibility and long-term sustainability?

Within the questionnaire method, we created a research tool questionnaire. It consisted mainly of open-ended questions, but there were also the Likert scale data entries. In terms of the questionnaire method, we addressed 115 respondents. It was necessary for them to be from different regions of Slovakia and to have at least 5 years of experience in pedagogy to ensure that they have already taught the Elementary realia subject. 104 questionnaires were returned. After evaluating the data from questionnaires, we created a plan of individual interviews. It was a semi-structured interview. The questions were based on the questionnaire answers, that we needed to compare or specify. Therefore, we addressed the primary school teachers, who have been teaching for at least 5 years and have been teaching the Elementary realia subject for at least two years. The research group consisted of 12 participants.

3.2 Research outcome and its interpretation

At first, we will state to which topics of the **Elementary realia subject** the teachers (participants) attribute **importance**, and which topics would they amend or exclude. We used the questionnaire with open-ended questions for collecting opinions. We received two proposals from each respondent. We evaluated total of 108 answers. According to the occurrence of their frequency, these were the prevailing suggestions – teachers would suggest adding the topic *Seasons* for the first grade and *Animals in the forest* for the second grade. On the other hand, these topics were recommended to be excluded from the subject contents – *Light and shadows* for first grade and *Filtration and evaporation of water* for second grade.

Regarding the addition of topics to improve the subject contents connected to the topic *Animals in the forest*, there was a frequent request to add following topics for the first grade: *About family*,

Animal families, Months of the year, Holidays in the year, Me as a personality. On the contrary, they would suggest excluding following topics: *Pendulum, Time and its measurement, Transparency.* Regarding the second grade, they would recommend adding the topics *Nature Conservation, Health Care, Living and Inanimate Nature, Pets.* And they would suggest excluding the topics *Plan - how not to get lost, Dissolving substances, Exploring the universe, How fog is formed.* It follows that teachers would suggest adding several topics that are more related to living nature, which includes both humans and animals. On the contrary, physical or chemical experiments were suggested to be excluded. The question is whether these topics are difficult to grasp, or is it really, as we stated in the theoretical background, that teachers perceive these topics negatively because the experiments are supposed to be performed in the classrooms.

However, the answers of the respondents also showed that some of the topics are considered to be inappropriate for pupils due their age. The answers were also supported by using a qualitative method – an interview. Here, the participants decided not only on adding some topics, but also on moving the topics to another grades. The most frequent topic in the Qualitative data was topic *Time*, which they would recommend for second grade. They explain their statement by saying that lots of pupils struggle to learn to tell the time by using analogue clocks. The pupils of the first grade already understand the concept of time, therefore it is often used in teaching methods when measuring time by using hourglass, clapping, pendulum or counting. They even enjoy making hand clock or playing with it, but they have trouble determining the real time. This appears not to be a problem with digital clock. Interviews with the participants also confirmed that they would recommend the subject matter of *Substances and their states, Dissolution and Melting* for higher grades.

There was a consensus between the answers from questionnaires and interviews. It was suggested to add *topics focusing on environmental education of pupils.* Although it was not the most frequent suggestion. We consider this to be a matter that needs our attention. Some of the respondents said that it is necessary to devote more time to *teaching about their own regions, districts or villages.* They think that pupils should *get to know the nature, parks, history and traditions of their surroundings.* Apart from the above topics, they had no more comments on the changes of the subject contents. They rather focused on the scope, concept, time allocation and logical arrangement of topics, because according to them, there is no system. This was also confirmed by the participants in the qualitative part of the survey. They agreed that the curriculum is for 3 lessons per week, rather than 1 or 2.

Concerning the previous entry, we were also interested in what they consider to be positive or negative regarding its contents. The interview results showed that the respondents have an extensive experience in teaching this subject. That helped us to identify positives and negatives. As shown by the research data, they attribute more positives to this subject. They stated that it helps to develop pupils' personality, their knowledge, skills and it also shapes their perception as well as behaviour. *It also helps them to fully use their knowledge and skill set. It encourages them to perceive themselves as part of nature and the society. At the same time, it forces them to accept and adhere to certain standards of behaviour. They perceive and distinguish ecological as well as biological contexts and by using already acquired knowledge they acquire and consolidate responsible behavior not only towards themselves, but also towards their surroundings, people, animals and nature.*

They consider the fact that the topic covers several areas of everyday life, its activities, nature and the environment in which they live, to be significantly positive. Respondents also appreciate that almost all the topics of Elementary realia subject are related to everyday life, to nature, i.e. to the pupil's immediate surroundings. They perceive this as one of the reasons why it is easier for pupils to learn the curriculum. They

also appreciate that it stimulates their scientific thinking and scientific approach to life, nature, surroundings, landscape and homeland. There was a great number of answers suggesting to focus more on topics such as *Environment, Plant care, Excessive use of chemical substances, and How not to pollute the environment, not only for humans but also for animals.* Respondents stated that pupils are very interested in learning about these topics. They want to talk about it and suggest various examples of how to fight against environmental pollution. There is a need to carry out qualitative research that would focus on the opinions of children, pupils and students and examine what subjective characteristics they attribute to environmental protection.

Another positive aspect of the contents of Elementary realia subject is according to the teachers the possibility to use and vary the use of teaching aids. There are also several teaching aids on the market, which allow them to implement activating methods in teaching - *observation, morphological exercises, research, exploration, making assumptions,* etc. This confirms the need to implement activating methods into teaching. The participants emphasize that experiential learning is the best method for students how to achieve positive learning outcomes and they add: *There is an incredible number of opportunities how to introduce and explain the topic to students – teaching aids, electronic kits, videos, internet, etc. They see the positive in the fact that not only can they make experiments, but subsequently they can lead the discussion together. That is beneficial for both the pupils and the teacher.*

However, there are also some negative aspects. But interviews have shown that there are significantly fewer negative aspects than positive. Majority of the respondents did not comment on negative aspects in the questionnaires. The most frequent negative aspect was the *subject contents*, more precisely the illogical outline of textbooks. The subject has undergone several changes in the last twenty years, but the textbooks do not reflect on these changes. The participants, who commented on the negative aspects, agreed that the contents of this subject and textbooks was more appropriate before the reform, i.e. before 2008. They stated that the curriculum was more age-appropriate and there was enough time for walks and experiments. They claim this despite the fact that they are aware of the matter that they did not have so many teaching aids. They stated that *today are the standards unreasonable and pupils' scientific literacy is at the low level. They pointed out that less is more.* These opinions were gained by comparing the results of the questionnaire method and individual interviews.

As mentioned in the theoretical background, the textbooks have also undergone several changes and of the current five textbooks, only one has an approval clause. One of the positives of the textbooks is the fact that *the worksheets offer ideas for experiments and varied tasks that are based on real life themes and are supported by extensive visual material.* Concerning the variety of tasks, they are different for each subject. But by conducting the content analysis we found out that a relatively high percentage of them (41-57%) are comprehension tasks and 19-33% of them memorization tasks. Only up to 10% of other thought operations such as *analysis, application, evaluation or creativity* are represented in each textbooks. They consider the fact that they do not have appropriate conditions or enough time for the mentioned experiments as negative. They emphasized that there is no system and many of the topics are not age-appropriate, they are more suitable for older students. They also perceive negatively that several subjects are rather superficially grasped and therefore the pupils are not interested in them. On one hand, teachers appreciate that the topics are from real life, but here their opinions differ. They think that the curriculum does not go into depth and provides rather superficial information. That can also be a consequence of the fact that the topics that are included in the curriculum are difficult to grasp. Pupils do not have the opportunity to use their own experience and concrete ideas, which is necessary when talking about more difficult thought operations. The inability to use a particular idea can also make some of the topics uninteresting for them.

Based on the solution of the research problem in connection with our research project in the field of forest pedagogy in pedagogical practice, we were also interested in opinions on the use of forest pedagogy within Elementary realia subject and opinions on the conditions for education for sustainable development. We assumed that by observation or learning in the natural environment - in the forest environment, we have the opportunity to build a positive relationship to nature and to the environment in which the pupils live. We wanted to know to what extent is the forest pedagogy known and widespread among primary school teachers. We were interested in whether during their pedagogical practice they have ever encountered forest pedagogy, what importance they attribute to it in terms of primary education, and to what extent the pupils like the topic of the forest. The field of forest pedagogy education is relatively uncommon, so we assumed that teachers will not have much experience with it. We asked if and where they dealt with forest pedagogy. We received 11 types of answers to the question, with the largest representation of 93 answers - was the answer that they had not yet the opportunity to deal with it. Even if they came across a forest pedagogy, it was in the library during a discussion with a forester or hunter, on the Internet, in the media or during a school trip. Some teachers also stated that they became familiar with it while preparing for the profession. In two cases, they stated that they met with a forester on the occasion of Children's Day or St. Hubert' Day. Only one participant stated that they had the opportunity to cooperate with a forest pedagogue half the day. She evaluated this meeting very positively because, in addition to playing games and organising competitions on the campus, which resembles a forest environment, there were also activities to develop students' creativity. Pupils also appreciated the hunting exhibition of trophies, an explanation of how ecosystems works in the forest and life in the forest in general. The teacher pointed out, that the didactic games strongly affected the pupils because they wanted to return to them and build on the acquired knowledge. Among other things, she also stated: *In our primary school we cooperate with a forest pedagogue and we meet her twice a year in discussions, on the school premises or in the village and its surroundings. We go to listen to the sounds of birds, collect medicinal herbs, observe nature, surroundings, beautify the environment near the school, forest paths, sidewalks, feed animals, clean the stream, play and perform fun tasks in nature and in a nearby park.*

In one case, they also stated that they had responded to the protection association's offer. We can state that the core of forest pedagogy – didactic activities with children in the forest environment with a specific educational goal and content implemented by a qualified forest teacher - is not yet a stable part of the education process in schools. The school will even respond to the offers of conservation organizations, whose lecturers have no education for teaching topics about the forest and the forest environment, or even experience with the forestry profession. Enthusiasm is definitely not enough in this case, a certain amount of expertise is required. Sometimes only the enthusiasm without expertise can be harmful. The above mentioned views resulted from the discussions that were part of our professional seminars with teachers. Including forest pedagogy in pre-school and primary education with emphasis on the goals of the State Education Program, in the formal and non-formal level of education, is also one of research tasks. We have found out that there are suitable school premises in most of the schools and that there can also be found some trees on the premises.

The fact that teachers are not familiar with the core of the forest pedagogy and do not have specific experience with a forest pedagogue in the conditions of teaching process is also proved by their opinions. We found out that the respondents are not determined whether some topics about the forest environment should be taught by an expert from the external environment, specifically a forest teacher or not. Up to 42% of all the respondents were not able to make a decision in terms of this subject matter. Despite the fact that they have no experience with forest pedagogy, a relatively high percentage of 29% attaches

great importance to it, or more precisely, on a 7-point scale (7 is the most), the values of 6 and 7 was attributed by 46% of respondents, which is almost half of them. This means that the forest pedagogy can definitely find its place in contents of Elementary realia subject in primary schools. We would like to remind that the value of 7 (means "very important") was the second most saturated value on the scale.

In terms of the forest pedagogy, we were interested in the importance that teachers attach to topics of the forest and the forest environment in the teaching of Elementary realia subject. According to them, these topics should not stay on the periphery. They are aware of the fact that topics related to the forest environment are not only part of the Elementary realia subject, but also part of other subjects – such as Reading, Art Education, Mathematics, etc. They emphasize that these topics are not only interesting for pupils, but also necessary for them. They stated *that children do not go to woods very often nowadays, so some information may be new to them. Especially the conversations about animals are always interesting for them.* Other participants expressed a similar opinion, stating that they would consider teaching these topics *in the forest or in a territory reminiscent of the forest, to be the most effective.* Their experience also shows that several schools have at least a few coniferous trees in the area. They stated that *pupils interested in this topic always observe, discover and ask about the growth of cones, needles, or class and compare leaves, fruits, bark, etc.* Several respondents admitted that that it is not always possible for a teacher to explain it to them proficiently and answer all their questions. According to respondents, there is a need to involve parents, volunteers and members of the *Young Naturalist club* in afforestation of the school surroundings. We can see that forest pedagogy overlaps with non-formal education. This is also one of the ways how we can make the child to be more aware of the importance of protecting the environment. This however requires professional consultation or practical help.

We were also interested in pupils' interest in topics related to the forest environment. We discovered that the scale 6 was the most represented, followed by the scale 7, which makes up a total of 52%. A neutral attitude was expressed by up to 19% of respondents. On a scale of 1 to 3, 14% expressed disinterest in these topics. The remaining 15% was expressed on a scale of 5, which we could consider positive. Based on the research answers, we see that respondents perceive the topic of the forest as necessary and interesting not only for students but also for teachers.

In addition to the forest environment, we were also interested in teachers' opinions on sustainable development and its place in education process. Both respondents and participants agreed unanimously that this is a topic that needs our attention. They pointed out that this should be a cross-cutting theme of all subjects. They reminded that *there is a need to devote more time to this topic in every thematic unit and if students have questions, they should be discussed in depth.*

In connection with the topic of sustainable development, we wanted to find out who, in their opinion, plays a major role in education for responsible behaviour. They expressed very similarly to a previous question, that the matter of responsibility should be part of all the subjects, not only of Elementary realia subject. It is also necessary that not only teachers but also educators or parents would focus on teaching responsibility. Several respondents think that some of the teachers would need it as well considering the negative behaviour of pupils during breaks. However, they reminded that they are on the same page with the educators in terms of their approach to education. Teachers also appreciated and agreed on the approach of grandparents, which is reflected in the thinking and actions of pupils. What we consider to be a negative, however, is the fact that there were some opinions according to which teachers considered clean desk and responsibility for school matters or school interior to be an example of responsible behaviour. It was not possible to determine whether they are aware of the fact that the responsibility for sustainability means not only to protect

material things, but that it is based on the formation of a relationship with each other, that it is about thinking, decision-making, behavior, actions and consequences of action in nature and for nature or not. Here we have another research task - to examine teacher's opinion on the causes and consequences of sustainability, because the teacher's thinking is largely reflected in the students' thinking.

From the point of view of the subject contents, we were interested in which topics they most often deal with environmental protection. It was an open-ended question and respondents could write any topic from the contents of Elementary realia subject. The most repeated topics were *Water, Animals, Living and Inanimate Nature, Plants*. The topics of *Man and Transport* were rather rare. When we look at the answers, we see that almost all of the topics are related to the natural environment. Here we could also consider whether, in connection with the undergraduate training of teachers, we should not focus more on the teacher's thinking about environmental protection, which is based on human thinking and behavior. It is not enough to only talk to pupils and to warn them of the consequences. Even though the respondents mentioned other topics, none of them mentioned *Man and his health*, which is also dependent on nature and natural conditions.

3.3 Research conclusions

A comparison of the analysis of qualitative and quantitative data showed that teachers would suggest to include in the contents of the subject topics that are related to nature as well as to man. Specifically, we are talking about the following topics: *Animals in the forest and their families, Me as a personality and family*, but also the topic *Time*. However, not determining and measuring time, but *Seasons and Months of the year*. They think that structuring the topics in terms of subject content should be more logical. The answers of the respondents showed that students are very interested in topics related to nature and the environment. However, they said that some subjects are being taught rather superficially.

Concerning our project Forest pedagogy, which has the character of applied pedagogical research, we can see that the teacher can also approach education about the forest environment by implementing the mentioned proposed topics. We justify this by saying that teaching about the forest would include not only knowledge about the animals in the forest, but also about the man's need for the forest and vice versa - planting trees, their treatment, measurement, oxygen production, animal feeding, etc. Also the topic *Seasons* can be taught by observing the same place in the forest. These findings inspire us to create didactic materials for teachers. Teachers are aware of the fact that for teaching individual topics, it is important to arouse students' interest in these topics in order to understand why we learn this subject, where we will deal with it in life. The results showed that the interest of students in topics related to the forest environment is relatively high. A lot of the respondents suggested to focus more on topics such as *Environment, Plant care, Excessive use of chemicals and how not to pollute the environment*, not only for humans but also for animals. They explained it by saying that students are very interested in these topics, they want to talk about it and to come up with various examples of how to fight against environmental pollution. There is a room for qualitative research that would map the views of children, pupils and students on what subjective characteristics they attribute to the environmental protection and what are their suggestions.

It turns out that thanks to the variability of teaching aids, students are interested in this subject, they are motivated to work and actively participate in the teaching process, because they enjoy working with these aids. They want to try everything, they want to explore and discover. The results also showed that teachers appreciate worksheets for the 1st and 2nd grade, which offer several topics for experiments and observations. However, there are also some negatives. With one or two hours a week there is not enough time for their implementation and in-depth

discussions. They suggest 3 hours a week. On one hand, they appreciate the clarity and diversity of the tasks, but on the other hand, research has shown that these tasks are not in accordance with Bloom's taxonomy of cognitive objectives. They focus more on the development of memory and understanding of concepts, rather than on higher cognitive processes. Although the textbooks meet the quantitative or formal criteria, it is not enough. The question is, whether teachers know the methodology for evaluating textbooks. They should look at textbooks more critically and take into consideration their qualitative content character. This finding can also be an inspiration for creating education programs for teachers, similarly as with forest pedagogy programs. The research revealed that forest pedagogy is rather unknown in school practice. Teachers do not know its core and the possibilities of using it in teaching or education. On the positive side, however, they do not consider it to be a marginal issue in the education of Elementary realia subject, as they agree that it is an important part of environmental education, and therefore of environmental protection as well. In the research, which is a partial output of our project, we managed to answer the research questions. At the same time, the research findings showed us possibilities for further research, which were presented in the data interpretation.

4 Conclusion

Nowadays, the matters of pupils' receptivity, attention, curiosity and courage of their thinking and creativity are becoming more and more popular. In the first years of primary school, the pupil desires to discover and get to know the surrounding reality and to understand it. This helps to form the basis for his or her research. However, the teacher must enter into the process of this discovery, acquaintance, finding and research not only with his individual teaching strategy, but also in accordance with the contents of the didactic system. This is one of the reasons why more rigorous attention should be paid to the revision of the Elementary realia subject contents, as well as a more precise approach to textbooks, their creation, and evaluation. A teacher should be able to ask questions that will help to develop their cognitive processes.

The child comes to school with a certain amount of knowledge gained from observing the forest environment and supported by an interview. However, observing and discovering initiates questions, that neither the parent nor the teacher can answer with certainty. This was also confirmed by our research. Forest pedagogy, learning about the forest, natural sciences topics related to the forest environment, or extracurricular activities related to the forest environment led by a qualified forest teacher, should not be perceived as a competition for the teacher or educator at school. Pupil, teacher, educator or even parent, they should all benefit from it, in terms of the knowledge as well as its experiential nature. It is a teaching that helps us to actively involve all the senses and all the cognitive processes in conjunction with psychomotor skills.

This teaching is led by the experts - forest pedagogues, who know the forest environment and life in it perfectly. He or she can explain various contexts, e.g. why forest and nature are important for our lives and health, but also why and how we can take care of the forest.

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