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School Curriculum of Technology in Primary Schools in Slovakia – A Case Study

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Abstract

Since 2008, schools in Slovakia have been able to adapt the curriculum of each subject according to the requirements of the school, pupils or parents. Only the content and performance standards of the subject are binding for them. In this article, we publish an analysis of three school curricula and thematic educational plans. Through content analysis of the documents, we investigated how primary schools implement the content of the subject of technology. We analysed the differences in the thematic units, common features and the number of lessons each topic implements. We found differences in the thematic units that primary school teachers include in teaching technology, although they are insignificant. We identified the most considerable differences in the seventh year of primary school. Also, the thematic units taught in the subject area of Household economics are very heterogeneous in schools.

Keywords: school curriculum, thematic curriculum, content standard, content analysis, technology

Introduction

In all developed countries, technical education in primary and secondary schools, under various names, is a stable part of the curriculum with a significant time allocation (Kozik et al., 2003). The schools tend to conceive its inclusion in two ways: in terms of a separate subject, which is most common at the primary school level, or as thematic units that are part of science education.

Different countries introduce technical knowledge (skills) to their pupils in essentially two ways:

- in a particular subject directly related to technology,
- through other subjects or modules, mainly in science, they are introduced to technology through cross-curricular links or separate thematic units.

Each country develops its content of the technically oriented subject or module. We implement technical education in Slovakia as a separate subject; the name and content have undergone several changes over the last 20 years. Since 2015, the name of the subject has been technology and its teaching at the 2nd level of primary school consists of one hour per week in each grade (5–9) (Hašková, Lukáčová, 2022). We divide the educational standard for technology into two main subject areas: technology and Household economics. Each subject area is further subdivided into thematic units. In technology, the performance and content standards are divided into individual grades. However, in the Household economics field, the school can elaborate and integrate this thematic area into the school curriculum according to its own needs. The emphasis is on technology, and the school must teach at least two-thirds of the total number of lessons in the subject in each school year. The thematic area of Household economics may fill no more than one-third of the subject's total number of teaching hours. The content standard for technology defines the knowledge, skills and practices that pupils should possess upon completing the subject. These requirements support cognitive processes such as searching, investigating, exploring, designing, discovering, manipulating objects, experimenting, practical activities, and constructing.

Aim and methodology of the research

The research aimed to determine what thematic units teachers instruct in technology in three different primary schools in Slovakia. Specifying the main objective, we set the following research questions:

RQ1 Is there a difference in the thematic units taught by teachers within the subject of technology?

RQ2 What are the most significant differences in the subject units that teachers teach in the subject of technology?

RQ3 Which thematic units are most commonly taught in the Household economics subject area?

RQ4 Which thematic units have the largest time allocation?

The sample consisted of three primary schools – one was a government school located in a village, the second was also a government school located in a town, and the third was a church school located in a town.

The choice of schools was deliberate – so the research group had a smaller school in the village (MZŠ), a larger school in the town whose director is the town (VZŠ) and a school where the director is the church (CZŠ) represented. In all three schools, qualified teachers taught technology.

We chose qualitative research as the most appropriate method to achieve the stated goal, namely content analysis of documents: school curriculum, thematic teacher education plan for the subject of technology (Burdová, 2022; Bánesz,

2022; Osúch, 2022). We obtained these documents from each school and subjected them to content analysis. During the analysis, we observed the following:

- the thematic areas included in the content of teaching the subject of technology,
- the thematic units included in the content of the teaching of technology,
- the number of hours planned for the teaching of the thematic units.

Table 1 presents the thematic areas taught in the subject of technology in primary schools according to the educational standards.

Table 1. Representation of thematic areas in each school (Omelinová, 2023)

Year	Thematic area	Number of teaching hours		
		MZŠ	VZŠ	CZŠ
5.	Technology	25	25	31
	Household economics	8	6	2
6.	Technology	25	29	32
	Household economics	8	2	1
7.	Technology	25	15	31
	Household economics	8	14	2
8.	Technology	25	21	30
	Household economics	8	7	3
9.	Technology	25	26	31
	Household economics	8	5	2

By analysing the school documents of the three schools under study, we have arrived at findings that can be used to answer the research questions posed.

Research results

We found that the primary schools of the MZŠ and CZŠ meet the condition of teaching the subject of technology, which obliges the schools to teach at least two-thirds of the lessons of the subject area of technology and a maximum of one-third of the subject area of Household economics. The primary school VZŠ does not fulfil this condition in Grade 7. In this case, there is an increase in the number of teaching hours in favour of Household economics to 14 teaching hours, which is not supported by the content and performance standards of the subject.

On RQ1: In Years 5 and 6, the most significant difference is that some schools surveyed have included an introductory lesson. All three schools teach all the prescribed thematic units on technology and selected thematic units on Household economics. All three schools maintain a two-thirds representation of the technology subject area. The most significant difference in topics is in the seventh year. Although all three schools teach all the prescribed thematic units of thematic areas of technology and selected units of the Household economics topic, one school (VZŠ) has added one extra topic: Materials and technology.

Two primary schools (MZŠ and CZŠ) have maintained a two-thirds representation of the technology thematic area. One primary school (VZŠ) does not have this representation and the thematic units on Household economics account for almost half of the lessons. In Years 8 and 9, some schools again have an introductory lesson. All three primary schools in the technology thematic area teach all the prescribed thematic units, thus meeting its two-thirds representation.

On RQ2: The most considerable differences in the topics covered relate to Household economics. In this heading, the 5th grade of the MZŠ has a thematic unit on Handwork and a field trip to a company that sews work clothes. In the thematic area of Household economics, the VZŠ teaches the thematic unit of Housework and household maintenance and the unit of Handwork. It also has a time reserve of two hours for consolidating knowledge, skills and habits. The CZŠ teaches the unit Planning and household management in Household economics.

In Year 6, the MZŠ has a topic on Handwork. In addition, this school has a field trip to a business listed in Household economics. The VZŠ has thematic units on Food preparation and nutrition and Household planning and management. The school has two lessons dedicated to consolidating knowledge, skills and habits. The CZŠ focuses on the thematic unit Planning and household management in the Household economics thematic area.

In Year 7, each school addresses different thematic units within the Household economics framework. In Year 7, the MZŠ has a thematic unit on Housework and household maintenance and an excursion to a productive enterprise covered in two lessons. The VZŠ has thematic units on Food preparation and nutrition, Handwork and Cultivation and husbandry. Under Household economics, the CZŠ covers the thematic unit Planning and household management (Table 2).

Table 2. Representation of Year 7 thematic units by school

	Thematic area	Number of teaching lessons		
		MZŠ	VZŠ	CZŠ
Year 7	Introductory lesson	1	1	0
	Graphic communication	5	6	5
	Technical materials and working methods for their processing	13	6	16
	Household machines and equipment	5	2	6
	World of work	3	1	4
	Housework and household maintenance	7	0	0
	Food preparation and nutrition	0	5	0
	Handwork	0	5	0
	Cultivation and husbandry	0	4	0
	Planning and household management	0	0	2
	Materials and technologies	0	3	0

The Year 8 MZŠ has a thematic unit on Housework and household maintenance in the thematic area of Household economics and also has a field trip to a manufacturing enterprise in the village. The VZŠ again has a time allowance for consolidation of knowledge. Within the Household economics heading it teaches the thematic units of Food preparation and nutrition and Cultivation. The CZŠ teaches the thematic unit Planning and household management under this heading.

In Year 9, the MZŠ teaches the thematic unit on Housework and household maintenance and also has a planned excursion to a metalworking manufacturing enterprise. The VZŠ teaches Family preparation and Planning and household management. The school also has a two-hour time slot in Year 9 to consolidate knowledge. The CZŠ covers the thematic unit Planning and household management in the Household economics strand in Year Nine.

On RQ3: The most commonly taught topic in the fifth year of the Household economics curriculum is Handwork, taught in two primary schools. The most frequently taught topic in the sixth grade is Planning and household management. In years seven and eight, each school teaches different thematic units in Household economics. Year nine's most commonly taught topic is Planning and household management (in two schools). In summary, in all grades, the most frequently covered topics in Household economics are Planning and household management, Handwork and Housework and household maintenance.

On RQ4: In Year 5, the most taught topic is Utilitarian and gift items – 35–67% of the teaching hours. Of the schools surveyed, CZŠ devotes the most hours to this unit – up to 67% of all hours taught annually. In Year 6, the subject unit Technical materials and working methods for their processing is taught the most. It accounts for 32–40% of the teaching hours in the year. The CZŠ has the highest number of hours devoted to this unit of all the schools surveyed, with 40% of all the hours taught annually. In Year 7, the most significant amount of time in two primary schools is devoted to the thematic unit Technical materials and working methods for their processing. It accounts for 18–40% of the teaching hours annually. In Year 8, the largest allocation of time is the unit on Technical production, which accounts for 27.5–35% of the teaching hours of the whole year.

Table 3. Representation of Year 9 thematic units by school

	Thematic area	Number of teaching lessons		
		MZŠ	VZŠ	CZŠ
Year 9	Introductory lesson	2	1	0
	Housing installations	5	9	8
	Machining of materials	5	7	10
	Creative activities	12	7	9
	World of work	3	3	4
	Housework and household maintenance	8	0	0
	Family preparation	0	3	0
	Planning and household management	0	2	2

In Year 9, we identified the most considerable differences in the preferred topic units. Each school devotes the greatest number of lessons to different thematic units (Table 3). At the VZŠ, the most represented unit is the Housing installations unit; at the MZŠ, it is the Creative activities unit; and at the CZŠ, the Machining of materials unit dominates.

Discussion and conclusion

We found differences in the thematic units that primary school teachers include in the content of the teaching of technology, although they could be more pronounced. The most significant difference we identified was in Year 7, where one primary school has a Materials and technologies unit in the teaching content. Furthermore, we found that the thematic units of the Household economics thematic area are different in all schools. Only one thematic unit on Household planning and management is taught in one primary school for five years. The other primary school alternated between two thematic units – Handwork and Housework and household maintenance. The third primary school tried to incorporate each thematic unit of the Household economics heading into the content of the lessons in turn.

Concerning the time allocation for each subject area, we can state that all schools tried to keep to the prescribed two-thirds of the subject area of technology in the content of teaching. However, one school still needs to meet this requirement in Year 7. The most prominent time allocation across the 5–9 Grades was in the subject area of Utility and gift items in Year 5, which accounts for 35–67% of the teaching hours per year.

We are aware that the sample of schools was tiny; indeed, it was only a representative sample of each type of school selected by pupil numbers and directors. However, in this research, we were concerned with a detailed content analysis of school documents, which implies a small sample size. Nevertheless, even among several schools, we would probably find differences in the content of the subject of technology. We are left to believe, as well as other authors of research papers in this field (e.g. Pavelka, 2016), that there is a minimum of those schools that do not accept the preference of technical education in the sense of the current standard (two-thirds time allocation), so that pupils coming out of primary schools are technically literate, which will allow them to function smoothly in the technosphere or their professional career.

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