

PROFESSIONAL READINESS OF SECONDARY PEDAGOGICAL SCHOOL TEACHERS IN THE IMPLEMENTATION OF CROSS-CURRICULAR THEMES IN TEACHING

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Abstract

The study analyses the issue of professional preparation and education of teachers of selected secondary pedagogical schools in Slovakia in the field of cross-curricular themes and the implementation of their content in teaching with an emphasis on the development of functional literacy and key competencies of students, which are a solid basis for lifelong learning in any area of professional and personal life. The aim of the scientific study is to analyse teachers' attitudes and opinions on (self-)education and its necessity in the field of implementation of cross-curricular themes into teaching with the intention of developing functional literacy and key competencies of their students. We chose a non-standardised electronic questionnaire of our own design as

the research instrument. The research sample consisted of 72 teachers from selected secondary pedagogical schools in Slovakia, 25 to 62 years old. We processed the collected data using Excel, and for quantitative analysis, we used mathematical and statistical methods of univariate and multivariate inductive and descriptive statistics and the nonparametric Mann-Whitney U-test from the IBM SPSS Statistics statistical software toolbox, version 19. Our findings confirmed a significant difference (p -value < 0.05) in the professional preparedness of the participants to implement the cross-curricular theme “*Protection of life and health*” in their own teaching, with respondents with 15 or more years of teaching experience rating their professional preparedness higher (Mdn = 3; AM = 3.25) than respondents with less than 15 years of experience (Mdn = 2; AM = 2.56). The results further showed that most of the participants in our dataset (26.4%) had received training in the implementation of the cross-curricular theme of “*Presentation skills and project development*” in the classroom in the past 10 years, and this interest remains with them in the future, as 66.1% of them plan to receive further training in the topic. The lowest number of participants (2.7%) participated in training on the implementation of the cross-curricular themes “*Protection of life and health*” and “*Education for marriage and parenthood*”.

Keywords: cross-curricular themes, functional literacy, key competencies, education

PROFESIJNÁ PRIPRAVENOSŤ UČITEĽOV STREDNÝCH PEDAGOGICKÝCH ŠKÔL V OBLASTI IMPLEMENTÁCIE PRIEREZOVÝCH TÉM DO VYUČOVANIA

Štúdia analyzuje problematiku odbornej pripravenosti a vzdelávania učiteľov vybraných stredných pedagogických škôl na Slovensku v oblasti prierezových tém a implementácie ich obsahu do vyučovania s dôrazom na rozvoj funkčnej gramotnosti a kľúčových kompetencií žiakov, ktoré sú pevným základom pre celoživotné vzdelávanie sa

človeka v ktorejkoľvek oblasti pracovného i osobného života. Cieľom vedeckej štúdie je analyzovať postoje a názory učiteľov na (seba)vzdelávanie a jeho potrebu v oblasti implementácie prierezových tém do výučby so zámerom rozvíjať funkčnú gramotnosť a kľúčové kompetencie svojich žiakov. Za výskumný nástroj sme zvolili neštandardizovaný elektronický dotazník vlastnej konštrukcie. Výskumný súbor tvorilo 72 učiteľov vybraných stredných odborných škôl pedagogických na Slovensku vo veku od 25 do 62 rokov. Získané údaje sme spracovali pomocou Excelu a na kvantitatívnu analýzu sme použili matematicko-štatistické metódy jednorozmernej a viacrozmernej indukčnej a deskriptívnej štatistiky a neparametrický Mannov-Whitneyho U-test z balíka nástrojov štatistického softvéru IBM SPSS Statistics, verzia 19. Naše zistenia potvrdili signifikantný rozdiel (p hodnota $< 0,05$) v odbornej pripravenosti participantov pre implementáciu prierezovej témy „*Ochrana života a zdravia*“ do vlastnej výučby, pričom respondenti s 15 a viacročnou pedagogickou praxou hodnotili svoju odbornú pripravenosť vyššie ($Mdn = 3$; $AM = 3,25$) než respondenti s menej ako 15 ročnou praxou ($Mdn = 2$; $AM = 2,56$). Výsledky ďalej ukázali, že najviac participantov nášho súboru (26,4 %) sa za posledných 10 rokov zúčastnilo vzdelávania v oblasti implementácie prierezovej témy „*Prezentačné zručnosti a tvorba projektov*“ do vyučovania a tento záujem u nich pretrváva aj do budúcnosti, keďže 66,1 % z nich má v pláne sa v danej téme ďalej vzdelávať. Najmenej participantov (2,7 %) sa zúčastnilo na vzdelávaní v oblasti implementácie prierezových tém „*Ochrana života a zdravia*“ a „*Výchova k manželstvu a rodičovstvu*“.

Kľúčové slová: prierezové témy, funkčná gramotnosť, kľúčové kompetencie, vzdelávanie

1 INTRODUCTION

1.1. Cross-curricular themes in education

Cross-curricular themes positively influence the process of formation and development of functional literacy and key competencies of students. They can be implemented as part of the teaching content of subjects or through

individual projects, seminars, teaching blocks, courses, etc. At the same time, cross-curricular themes can form a separate subject from the available lessons. The different forms can also be freely combined. The effectiveness of cross-curricular themes is enhanced by relevant extra-curricular and co-curricular activities (ŠPÚ, 2017).

In the context of full secondary general education, the following topics have a cross-curricular character: personal and social development, environmental education, media education, multicultural education, and protection of life and health (ŠPÚ, 2017).

1.1.1 Cross-curricular theme: Personal and social development

In secondary pedagogical schools (MŠVVaŠ SR, 2013), this cross-curricular theme is implemented as a separate teaching subject called “social-psychological training”, where students are practically acquainted with topics such as:

- discovering oneself and the world around us,
- the rules of good group functioning,
- needs aspirational level, life goals,
- interests, attitudes and values,
- social proximity scale,
- self-assessment and self-concept,
- possibilities of determining temperament,
- personality typologies,
- emotional development programme (feelings and emotions, love and sensuality, acceptance and closeness, joy and sadness, fear and apprehension, exercises, and training in empathy),
- me and my family (communication between family members, division of roles in the family, family myths and rituals, family crest),
- active listening (practice of active listening, its rules and techniques),
- verbal and non-verbal social communication - its specifics,
- assertiveness as a desirable form of behaviour in social communication,
- manipulation (types of manipulators),
- criticism (giving and receiving constructive criticism),
- communication and transactions (tactics and principles of effective contact with people),
- positive image of the teacher (personality of the teacher and the educator).

1.1.2 Cross-curricular theme: Environmental education

The contribution of environmental education to the development of student's personal knowledge, skills, and abilities (ŠPÚ, 2023):

- the ability to understand, analyse, and evaluate the relationships between humans and their environment based on knowledge of the laws governing life on Earth;
- to know and understand the links between the evolution of human populations and their relationship to the environment in different regions of the world;
- the ability to understand the links between local and global issues and their own responsibilities in relation to the environment;
- to provide knowledge, skills, and habits that are essential for everyday actions and attitudes towards the environment;
- to develop cooperation in the protection and creation of the environment at the local, regional, and international levels;
- to understand the social and cultural influences that determine human values and behaviour, and to be aware of individual responsibility for one's relationship with the environment as a consumer and producer;
- to be able to evaluate the objectivity and relevance of information about the state of the environment and communicate it, defend it rationally, and justify their views and opinions;
- the ability to use information and communication technologies and tools in the acquisition and processing of information and in the presentation of their own work.

1.1.3 Cross-curricular theme: Media education

How to develop media awareness in students is stated in the ISCED 3 State Curriculum (ŠPÚ, 2023) in the specific objectives of media education. The students should be guided to:

- competent handling of the media, critical and active use of the media and its products,
- learning the principles of self-regulation and legal regulation of the media, awareness of the specific features of contemporary media,
- orientation in the media offer to assess the quality and relevance of information sources and products,

- understanding the commercial nature of the media and the resulting negatives and threats, awareness of the impact of the media on the lives of individuals and society, on public opinion, and the relationship between media and politics (linking media content to politics),
- the creation of own media products, the ability to express verbally the author's intentions, thoughts, values, and social context (to see issues in a broader context),
- the practical ability to defend one's opinion, to argue, to debate, to speak in public,
- to take a rational attitude towards the 'new media', to know how to use them, to know the dangers of their misuse, and to be able to defend oneself effectively.

1.1.4 Cross-curricular theme: Multicultural education

The main objectives of the cross-curricular theme of multicultural education in upper secondary education (full secondary education) according to the ISCED 3A State Curriculum (ŠPÚ, 2023) are:

- to help students understand and respect the facts of cultural diversity;
- to develop self-reflection leading to an awareness of the roots, possibilities, limitations, and transformations of one's own cultural identity;
- to encourage and develop tolerant attitudes toward those of different cultures;
- to develop an understanding of different cultures and lifestyles;
- to develop tolerant attitudes towards members of other cultures while being aware of and maintaining their own cultural identity;
- to develop an understanding of the cultures with which students come or may come into contact;
- to provide stimuli for the development of reasoned attitudes toward different cultures. Encourage independent critical thinking;
- to develop the ability to communicate and cooperate with followers of other cultures in a safe environment of tolerance and mutual respect.

1.1.5 Cross-curricular theme: Protection of life and health

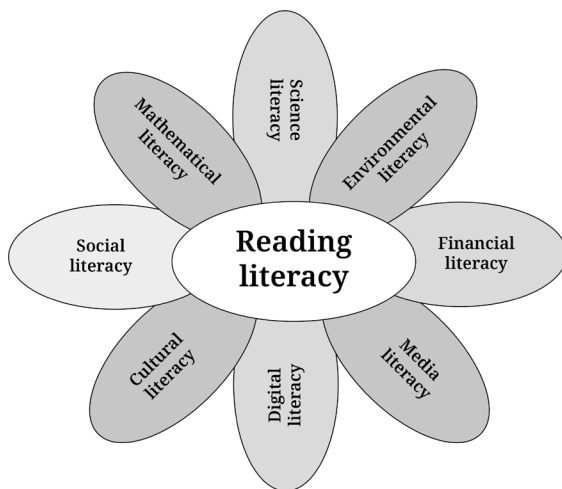
The aim of applying this cross-curricular theme according to the State Curriculum (ŠPÚ, 2023) is to contribute to the student's ability:

- to identify and characterise dangerous situations that threaten life and health;
- to develop practical self-protection skills;
- to actively provide assistance to others in the event being a threat to health and life;
- to be able to provide premedical first aid;
- to purposefully increase physical fitness and resistance to physical and mental stress in difficult life situations.

1.2 Functional literacy and its importance in education

As a kind of a model, functional literacy can be represented in the form of a flower (Figure 1), the centre of which is reading literacy as a prerequisite for the quality mastery of all other types of functional literacy. This model formed one of the theoretical bases of our research.

In our model of functional literacy, reading literacy, like a flower, grows petals that form different types of functional literacy. The petals may grow or fall off as different kinds of literacy come to the fore or become more



1 Figure: *Functional literacy model*

Nogová, 2010, p. 83

marginal, according to the demands of the times, which require members of society to deal with specific life situations (Nogova, 2010, p.83).

In the figure, only the most basic types are shown. In addition to them, we can encounter the notions of statistical literacy, information literacy, sports literacy, multicultural literacy, language literacy, visual literacy, document literacy, movement literacy, internet literacy, cartographic literacy, health literacy, and others. It is difficult to find a strict boundary between them; they are intertwined. For example, mathematical, financial, and natural sciences literacy, and all above-mentioned ones, use elements of digital media literacy at the same time (Zubáková, 2015).

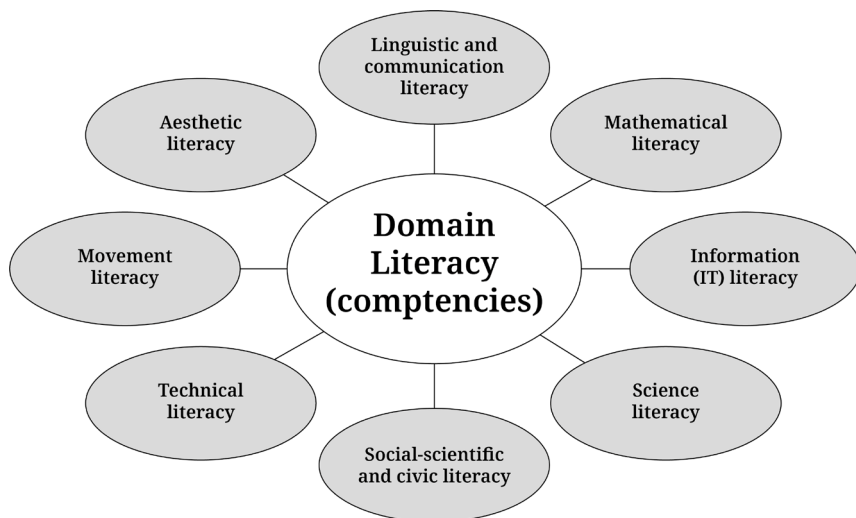
If we want to make the implementation of cross-curricular themes into teaching more effective, and thus develop functional literacy in upper secondary education, it is essential to start with it already in primary and lower secondary education.

In the context of the current changes to the primary education curriculum, its internal structure will allow gradual development and reflection of the necessary diversity of students' learning pathways, by organising it into three successive and interrelated learning cycles (ŠPÚ, 2021):

- The first cycle - introduction to literacy (covering years 1–3 of primary school),
- The second cycle - mastering the basics of literacy (covering years 4–5 of primary school),
- The third cycle - developing literacy (covering years 6 to 9 of primary school).

Cycles set the expected learning outcomes for students in the different learning areas and their components (performance standards at the end of each cycle) and set the content of learning (content standards). Literacy is understood in a broader sense and includes all types of literacy (illustrated below in Figure 2) linked to different areas of educational content areas (ŠPÚ, 2021).

In the school year 2021/2022, the eighth cycle of the international PISA study was conducted in Slovakia. PISA has been conducted regularly in 3-year cycles since 2000, and PISA was measured in Slovakia for the first time in 2003. In addition to the areas that are a standard part of each cycle of measurement (numeracy, literacy, science literacy), in 2022, the innovative area of creative thinking was also included in the PISA study (NÚCEM, 2023). "Compared to the previous PISA 2018 cycle, there was a statistically



2 Figure: *Domain literacy*
ŠPÚ, 2022, p.16

significant decrease in the average score of Slovak students in mathematical literacy, by up to 22 points. There was also a significant decrease in the average score of Slovak students on reading literacy by up to 11 points compared to 2018. The performance of Slovak students in science literacy is at the same level as found in PISA 2018” (NÚCEM, 2023, p. 21).

1.3 Key competencies, a pillar of lifelong learning

Act of the National Assembly of the Slovak Republic No. 245/2008 Coll. On education and training (School Act, § 2, letter t) defines competency as “the demonstrated ability to use knowledge, skills, attitudes, values, orientation, and other competencies for the performance and fulfilment of functions according to the standards in work, in the study, in the personal and professional development of the individual and in his active participation in society, in future application in working and non-working life, and for his further education”.

Zelina (2009) perceives the concept of competency in a broader context, more future-orientated, namely, as a right and duty, the ability to do something, to have the possibility and power to fulfill oneself, to know, to have personal prerequisites, desires, interests, motivation, and finally to have a realistic life goal. Competency and literacy are closely related in the pursuit of achieving and experiencing a good life.

The European Union (Veteška & Tureckiová, 2008, p. 66) identified the following key competencies:

- communication in mother tongue,
- communication in a foreign language,
- mathematical literacy and competencies in science and technology,
- competencies in information and communication technologies,
- competency for learning - learning to learn
- interpersonal, social, and civic competencies,
- entrepreneurial competencies,
- cultural perspective.

These form the concept for the creation of the state educational programme valid for the entire network of schools in the Slovak Republic, based on which individual schools create their own school educational programmes. The State Educational Programme for Vocational Education and Training for the Study Field Group 76 Teaching defines individual competencies as follows (Štátny inštitút odborného vzdelávania, 2013):

Turek (2003), Suchožová (2014), Rovňanová (2015), and others consider the acquisition and improvement of key competencies as a lifelong learning process, not only in school, but also in employment, family, cultural, social and political life. That requires personal effort, not only on the part of the individual but also on the part of the society as a whole, to create a favourable social and ecological environment. The reason why the school by its actions is not sufficient for the development of competencies in its students is, as Rovňanová (2015) further states, that it is a very dynamic process, which involves constantly evolving and changing competencies during life, which a person can gain or lose during adolescence, and according to the findings of ontogenetic psychology, the development of competency does not end with adolescence, but continues even in adulthood. Therefore, there are important implications for the education and assessment not only of children but also of adults in all forms of formal and nonformal education.

Table I: *Definitions of key competencies of the State Educational Programme for Vocational Education and Training for the Study Field Group 76 Teaching*

Key competencies	Definition of individual competencies for students in the study field group 76 Teaching
<p>Competencies to act independently in social and work life</p>	<p>They are the basis for the further acquisition of knowledge, skills, attitudes, and value orientation. They include the skills necessary to manage and organise your personal, social, and work life in a purposeful and responsible way. Individuals need to develop their personal identity in relation to their living conditions, occupation, work and environment, social norms, social and economic institutions, and make the right decisions, choices, actions, and practices. These competencies are very closely related to the acquisition of a culture of thinking and cognition.</p>
<p>Competencies in using knowledge, information, and communication technologies interactively, communicating in national, native, and foreign languages.</p>	<p>These are the competencies that a student acquires in order to participate actively in a knowledge-based society with a clear sense of his/her own identity and direction in life, self-improvement and performance enhancement, rational and independent education and learning throughout life, updating and maintaining the necessary basic levels of language, information, and communication skills. The student is required to effectively use the written and spoken language, native and foreign languages, to possess reading and mathematical literacy, to review basic skills, and to self-create.</p>
<p>Competencies in working in diverse groups</p>	<p>These skills are used to manage interpersonal relationships and to form new types of cooperation. They are skills that emerge under more difficult conditions, also in solving problems of people who cannot fit into social life. Students must be able to learn, live and work not only as individuals but also in a socially balanced group. Therefore, these are skills that, on the basis of acquired knowledge, social skills, intercultural competencies, attitudes, and value orientation, enable them to establish simple algorithms to solve problematic tasks, phenomena, and situations, and to use the knowledge acquired in their personal life and profession.</p>

Source: Štátny inštitút odborného vzdelávania, 2013.

2 METHODOLOGY OF RESEARCH

In the empirical part, we will focus on exploring the opinions of respondents, teachers of selected secondary pedagogical schools in Slovakia, on the issue of implementation of the content of cross-curricular themes in teaching as one of the important means of developing key competencies and functional literacy of students. Specifically, we will be interested in the education of the respondents and the need for further education in this area.

2.1 Research problem and research objectives

The research problem is formulated into the question “How do the respondents perceive and evaluate their own professional preparedness and further education in the field of cross-curricular themes and implementation of their content in their own teaching at selected secondary pedagogical schools in Slovakia as an important means of developing functional literacy and key competencies of students?”.

The research objectives arising from the research problem are as follows:

- 1) Determine whether there is a statistically significant difference in the professional readiness of respondents to implement the content of cross-curricular themes in teaching in terms of the length of their teaching experience.
- 2) Determine whether there is a statistically significant difference in the professional preparedness of the respondents to implement the content of the cross-curricular themes into teaching in terms of their career level as a teaching staff member.
- 3) To determine the proportion of respondents' participation in training on particular, specific cross-curricular themes and the implementation of their content into their own teaching.
- 4) Determine to what extent the training received in the area of cross-curricular themes met the expectations of the respondents.
- 5) Identify the reasons for meeting/not meeting the respondents' expectations of the training received in the area of cross-curricular themes as a means of developing functional literacy and key competencies of students.
- 6) Determine to what extent the respondents who have received training in the implementation of the content of cross-curricular themes in teaching are satisfied with the linking of theoretical information to practice in the training provided.

- 7) Determine to what extent the respondents are interested in receiving further training in the implementation of cross-curricular themes in teaching as a means of developing functional literacy and key competencies of students in the future.
- 8) Identify the reasons for the non-participation of respondents in training in the implementation of cross-curricular themes in teaching as a means of developing functional literacy and key competencies of students.
- 9) To determine to what extent respondents perceive the support of the management of selected secondary pedagogical schools in Slovakia in the education of respondents in the implementation of cross-curricular themes in their own teaching as a means of developing functional literacy and key competencies of students.
- 10) Determine the level of interest of the respondents in further education in the field of specific cross-curricular themes as a means of developing functional literacy and key competencies of students.

2.2 Set of research

From a methodological point of view, it was a deliberate available selection of respondents in a group of teachers from secondary pedagogical schools from 18 schools of this type in Slovakia. The selection of teachers for the research sample depended on the success in finding willing collaborators among secondary school teachers in the individual secondary pedagogical schools in Slovakia, with the endorsement of the subject playing no role.

To preserve the anonymity of the research participants, we do not provide the names of the secondary pedagogical schools where they work.

The means of communication that we chose were telephone and email, as well as communication through social networks or face-to-face meetings.

Finally, the total research sample consisted of 72 respondents selected from a base set of 441 teachers in various subject areas who worked in secondary pedagogical schools in Slovakia.

We consider it necessary to mention that the research set ($N = 72$) is not a representative sample; therefore, the results obtained cannot be generalised to the base set, and the above-mentioned is taken into account in the analysis and interpretation of the data obtained. Therefore, due to

Table II: *Structure of the research sample by gender and average age*

Age	n	%	AM	Min	Max
Men	8	11,1	34,9	26	44
Women	64	88,9	34,2	25	62
Total	72	100,0	42,5	25	62

Note: AM – the arithmetic mean; Min - minimum; Max - maximum.

Table III: *Structure of the research sample according to the length of teaching experience*

Age	n	%	AM	Min	Max
Men	8	11,1	16,8	0	30
Women	64	88,9	15,4	0	35
Total	72	100,0	15,5	0	35

Note: AM – the arithmetic mean; Min - minimum; Max - maximum.

Table IV: *Structure of the research sample according to the group of subjects taught*

	n	%
Social science subjects	65	90,3
Natural science subjects	20	27,7
Total	72	100,0

Note: AM – the arithmetic mean; Min - minimum; Max - maximum.

the small number of respondents (N = 72), our objective is not to compare individual secondary pedagogical schools in Slovakia but to determine the opinions of teachers (respondents) of this type of schools on the issue of implementation of cross-curricular themes in teaching.

2.3 Methods of data collection

The research was carried out using empirical methods of pedagogical research. As a research instrument, we chose a non-standardised electronic

questionnaire of our own construction as the main research method to measure questionnaire variables for all groups of respondents, male and female teachers of selected secondary pedagogical schools in Slovakia. When compiling it, we followed the methodological rules (Gavora *et al.*, 2010) and the intentions of statistical processing (the use of descriptive statistics). We chose the electronic questionnaire as a research tool with the aim of conducting a relatively quick and large survey on how respondents think, evaluate, and experience the problem under study. Its design was based on the research project and its related objectives.

When defining the various cross-curricular themes in the questionnaire items, we based ourselves on the National Curriculum (ŠPÚ, 2015), which defines the following five cross-curricular themes in the context of full secondary education: personal and social development, environmental education, media education, multicultural education and protection of life and health. Family and parenthood education is considered part of personal and social development, and the topic of presentation skills and project development is not defined separately in this document, but from our point of view it can be partly included in media education, where students learn to present their work both in writing and verbally using information and communication technologies, thus deepening their technical skills necessary for using the media. For this reason, to make the respondents' understanding of the content of each cross-curricular theme clearer, we decided to present in the questionnaire, in addition to the original 5 cross-curricular themes (ŠPÚ, 2015), the other two above-mentioned themes, thus totaling 7.

2.4 Data analysis methods

The data obtained were analysed, processed and evaluated using an Excel spreadsheet and for the quantitative analysis of the data obtained we used mathematical and statistical methods of univariate and multivariate inductive and descriptive statistics (sum, percentages, arithmetic mean, median, mode, modus, modus frequency, standard deviation, minimum, maximum) and non-parametric Mann-Whitney U test from the IBM SPSS Statistics toolbox, version 19. Frequency tables were used to present the data obtained.

3 RESULTS

3.1 Professional readiness of respondents to implement cross-curricular themes in their own teaching

From the research population ($N = 72$), we formed two bands: the first group consists of “*beginning and independent teaching staff*” ($n=33$) in terms of career stage, the second group consists of “*teaching staff with the first and second certifications*” ($n = 39$).

Two groups of probands were also formed according to the duration of their previous teaching experience: the first group consists of “*teachers with acquired teaching experience of up to 15 years*” (exactly 14.99 years) ($n = 36$), and the second group consists of “*teachers with acquired teaching experience of 15 years or more*” ($n=36$). We decided to make this division based on the results of the OECD TALIS 2018 international research on teaching and education (in NUCEM, 2018, p. 15), where “within OECD countries, both novice teachers and teachers with 15 years of experience in state-established schools in the Slovak Republic, Latvia and Hungary are among the countries with the lowest annual income in USD in purchasing power parity terms”. Based on the above statement, we assume that teachers with more than 15 years of experience might, among other things, be more competent in implementing the content of cross-curricular themes in their own teaching. The second reason for the formation of the groups was the limiting research sample ($N = 72$). Therefore, our aim was to create two cohorts that were equally or at least approximately represented in terms of their size and could be statistically compared. The existence of statistically significant differences between the groups was investigated using the non-parametric Mann-Whitney U test. We present the results in Tables V and IV.

The Mann-Whitney U test did not confirm a statistically significant difference ($p\text{-value} > 0.05$) in professional readiness to implement individual cross-curricular themes in their own teaching between the group – novice and independent teaching staff and the group - teaching staff with the first and second certification. On the basis of these findings, we conclude that despite the deepening and improvement of their pedagogical education, which the respondents – teachers in the 1st and 2nd attestation underwent within the framework of attestation education, they cannot, within the framework of our research findings, be considered more professionally

Table V: Differences in professional preparedness for the implementation of cross-curricular themes in own teaching in terms of the career level of a teaching staff member

Cross-curricular Themes	Mann-Whitney U test					
	Career level of teaching staff (N = 72)				p	Z
	Starting and independent teaching staff (n=33)		Teaching staff with the first and second certifications (n = 39)			
	AM	Mdn	AM	Mdn		
Personal and social development	3,12	3,00	3,31	3,00	0,491	-0,689
Environmental education	2,27	2,00	2,21	2,00	0,925	-0,095
Media education	2,81	3,00	2,95	3,00	0,630	-0,482
Multicultural education	2,64	2,00	2,82	3,00	0,447	-0,760
Protection of life and health	2,85	3,00	2,95	3,00	0,790	-0,267
Family and parenthood education	2,45	2,00	2,92	3,00	0,067	-1,833
Presentation skills and project creation	3,30	3,00	3,54	3,00	0,452	-0,751

Note: Mdn – median, AM – arithmetic mean; Statistical significance level $p \leq 0,05$

prepared for the implementation of individual cross-curricular themes in teaching, as well as the novice or independent pedagogical employees participating in our research, can be considered less professionally prepared for the given area.

Based on our findings, we reason that the education (knowledge) acquired by completing the first and second attestation cannot be considered as a predictor of determining higher professional preparedness in implementing each cross-curricular theme in teaching, although this statement cannot be generalised to the baseline population, only to our research sample.

In the next table (Table VI), we look at the difference in professional preparedness to implement the cross-curricular themes in their own teaching between the two groups of probands, in terms of the duration of their teaching experience.

The Mann-Whitney U test gave us an interesting finding; it confirmed a statistically significant difference (p -value < 0.05) in the professional readiness to implement the cross-curricular theme 'Protection of life and health'

Table VI: *Differences in professional preparedness for the implementation of cross-curricular themes in their own teaching in terms of the length of teaching experience of the respondents*

Cross-curricular themes	Mann-Whitney U test					
	Length of teaching experience of respondents (N = 72)				p	Z
	Respondents with teaching experience up to 15 years* (n=36)		Respondents with teaching experience of 15 years or more (n=36)			
	AM	Mdn	AM	Mdn		
Personal and social development	3,31	4,00	3,14	3,00	0,422	-0,803
Environmental education	2,17	2,00	2,31	2,00	0,851	-0,188
Media education	2,72	3,00	3,06	3,00	0,127	-1,525
Multicultural education	2,56	2,00	2,92	3,00	0,192	-1,305
Protection of life and health	2,56	2,00	3,25	3,00	0,019	-2,352
Family and parenthood education	2,69	2,00	2,72	3,00	0,749	-0,320
Presentation skills and project creation	3,31	3,50	3,56	3,00	0,525	-0,835

* means up to 14.99 years; Mdn - median, AM - arithmetic mean; Statistical significance level $p \leq 0.05$

in their teaching between respondents with 15 or more years of teaching experience and respondents with less than 15 years of teaching experience. Respondents with 15 or more years of teaching experience rated their readiness to implement the cross-curricular theme “Protection of life and health” in their teaching higher, exactly as average (Mdn = 3; AM = 3.25) than respondents with less than 15 years of experience, exactly as low (Mdn = 2; AM = 2.56). We note that teachers (of various qualifications) with more than 15 years of experience have been participating in compulsory outdoor exercises, the so-called special-purpose exercises, intended for all students of the school every year for more than 15 years. That may be one of the reasons why they feel more confident in the professional implementation of the cross-curricular theme than their colleagues with less than 15 years of experience. Purposeful exercises, according to the State Educational Programme for ISCED 3 (ŠPŮ, 2023), integrate the knowledge and skills acquired by students in compulsory subjects, extend and consolidate them, and are also a means of verifying them. The content consists of thematic units such as (1) current problems of mankind and their solution; (2) dealing with emergencies, civil protection; (3) health training; (4) stay and movement in nature; (5) technical activities of interest and sports.

In practice, this means that teachers and their students set up posts with tasks in the field, where other students of the school, together with their class teachers, complete these tasks and perform specific tasks, e.g. that includes: first aid for a person in danger, a mock alarm – evacuation of people from a building in cooperation with rescuers and firefighters, orientation in unfamiliar terrain using a compass or mobile apps, emergency calls, identification of plants and animals, handling a gas mask, and more. Another reason for the difference between the groups of participants in terms of the length of teaching experience may be our other research finding, namely that the least number of participants from our research set (2.7%) participated in the training on the implementation of the cross-curricular theme “Protection of life and health” together with the theme “Family and parenthood education”.

In the other cross-curricular themes, there were no statistically significant differences (p value > 0.05) in the variable between the two groups of probands. Again, with respect to our research sample ($N = 72$), it can be concluded that the length of teaching experience is not directly proportional to the professional readiness to implement the cross-curricular themes in one’s teaching, except for the cross-curricular theme “Protection of life

and health”, in which we confirmed a statistically significant difference (p - value $< 0.019 < 0.05$).

These findings suggest that the need for lifelong learning is a necessity, not only in the area of cross-curricular themes and their implementation in teaching. Therefore, in the next part of our research, we focused on examining the respondents' participation in training in the area of incorporating each cross-curricular theme into teaching over the past 10 years.

3.2 Participation of respondents (selected teachers) in training in cross-curricular themes

The results (Table VII) show that most of the respondents (26.4%) have received training in the implementation of the cross-curricular theme “Presentation skills and project development” in the classroom in the last 10 years. The fewest (2.7%) had received training in the implementation of the cross-curricular themes “Protection of life and health” and “Family and parenthood education”. Nine of all respondents (12.5%) had participated in training in the implementation of more than one cross-curricular theme in teaching (exactly two cross-curricular themes), 1 respondent (1.4%) up to 3 cross-curricular themes.

Table VII: *Teachers' participation in training on the implementation of cross-curricular themes in their own teaching (N = 72)*

Cross-curricular themes	n	%
Presentation skills and project creation	19	26,4
Media education	12	16,6
Multicultural education	5	6,9
Personal and social development	4	5,5
Environmental education	3	4,2
Protection of life and health	2	2,7
Family and parenthood education	2	2,7
Non-participating	36	50,0

What surprised us was the number of respondents who had not received training in any of the cross-curricular themes and their implementation in the classroom, which represents up to 50% of our research sample.

3.3 Responses reflecting respondents' expectations of the training received on cross-curricular themes

Respondents who participated in the training (Table VIII) related to the implementation of one/some of the cross-curricular themes in the classroom ($n = 36$) were asked to indicate in the item 10 of the questionnaire, on a scale of 1 to 5, to what extent this training met their expectations, with 1 - *did not meet my expectations at all*, 2 - *did not meet my expectations*, 3 - *partially met my expectations*, 4 - *met my expectations*, 5 - *met my expectations completely*.

The mean value ($Mdn = 3$) and the most frequently chosen value ($Mod = 3$) together with the arithmetic mean ($AM = 3.4$) show that the training regarding the implementation of one/some of the cross-curricular themes in

Table VIII: *Level of expectations from the completed training (n=36)*

Level of expectations from completed training	n	%					
It did not meet my expectations at all.	0	0,0					
It did not meet my expectations.	8	22,2					
Partially met my expectations.	12	33,3					
It fulfilled my expectations.	10	27,8					
It met all my expectations	6	16,7					
	36	100,0					
Total	AM	SD	Mdn	Mod	n Mod	Min	Max
	3,4	1,0	3,00	3	12	2	5

AM – arithmetic mean, SD – standard deviation, Mdn – median, Mod – mode, n Mod – number of modes, Min – minimum, Max – maximum

the classroom only partially met the expectations of the respondents who participated in this training. However, we consider it necessary to point out that up to 27.8% of respondents had their expectations fulfilled.

We were interested in why some respondents thought that the training met their expectations and others did not. Here, respondents were free to express their views. We then analysed those and created six main categories summarising their statements (Table VIX). We ranked the response categories in descending order.

We also provide specific statements, in quoted form, from some selected respondents.

The following can be considered positive: “the trainer used to be a teacher himself, so he knew very well what he was talking about and he had no problem responding to any questions”, “I met a lot of new people, gained new contacts, and exchanged experiences”, “the best training I have ever attended, I appreciate the exchange of information between the teachers - participants of the training”, “I particularly appreciated the training on MKV (note: multi-cultural education), which covered current events in Europe and its application in school”, “maximum satisfaction, clarity, conciseness, quality, adequate quantity of information”.

The following can be considered negative: “we did not learn to use any software as there were teachers with minimal computer skills”, “time-consuming

Table IX: *Reasons for meeting / not meeting the expectations of the respondents about the training received (n = 36)*

Reasons	n	%
Predominance of useful information (applicable in practice)	14	38,8
Predominance of useless information (not usable in practice)	10	27,7
Lecturer, an excellent expert in the field	8	22,2
Exchange of experiences with trainees	6	16,6
Lecturer - weak expert in the field	5	13,8
Too large training group	2	5,5

training and not very comprehensive”, “all theoretical information”, “after the training, I don’t know how to fit the cross-curricular topic into my subject”, “pure standard, nothing special, I have read what was presented at the training on the net, so not anymore”, “the trainer was poorly prepared, he could not respond adequately to questions from the plenary”.

3.4 Degree of integration of theory and practice in education in the field of cross-curricular themes

We present the findings in Table X. The mean value (Mdn = 3) and the most frequently chosen value (Mod = 3) together with the arithmetic mean (AM = 3.2) reflect the partial satisfaction level of the respondents (n = 36) and the adequate level of the link between theory and practice in education to implement the selected cross-curricular themes in the classroom.

The basis of learning is the desire for knowledge, a kind of natural curiosity to explore and discover the properties of things and phenomena that surround us every day. We wanted to know to what extent respondents (n=36) are willing to continue learning to continuously educate themselves on the implementation of selected cross-curricular themes in the classroom.

Table X: *Degree of connection between theory and practice in completed courses (n=36)*

Degree of integration of theory and practice	n	%
I am very dissatisfied (very low level of connection)	1	2,8
I am unhappy (low level of connection)	9	25,0
I am partially satisfied (adequate level of connectivity)	13	36,1
I am satisfied (high level of connection)	9	25,0
I am very satisfied (very high level of connection)	4	11,1
	36	100,0
Total	AM	SD
	3,2	1,0

AM – arithmetic mean, SD – standard deviation

3.5 The interest of the respondents in learning about cross-curricular themes

The research showed that respondents who had already received this type of training (focused on cross-curricular themes and their implementation in the classroom) did not show much interest in it in the future. 16 out of 36 respondents (44.4%) expressed that they do not want or certainly do not want to receive this kind of training in the future. A positive finding for us is that up to 33.3% of the respondents still want or definitely want to participate in this kind of training. That leaves the last 22.2% of the respondents still undecided whether they want or not (see more in Table XI).

Table XI: *Level of interest in learning to implement cross-curricular themes in future teaching (n = 36)*

Interest in continuing education	n	%							
Certainly not	7	19,4							
No	9	25,0							
Don't know yet, maybe yes	8	22,2							
Yes	6	16,7							
Definitely yes	6	16,7							
	36	100,0							
Total			AM	SD	Mdn	Mod	n Mod	Min	Max
			2,9	1,4	3,00	2	9	1	5

AM – arithmetic mean, SD – standard deviation, Mdn – median, Mod – mode, n Mod – number of modes, Min – minimum, Max – maximum

3.6 Reasons for the nonparticipation of respondents in training on cross-curricular themes

We also looked at the respondents who had not participated in cross-curricular themes training and their inclusion in teaching (n=36). We focused on finding the reasons for why they decided not to undertake this type of

training. Respondents received four statements for which they were asked to indicate their level of agreement or disagreement on a scale of 1 to 5, with 1 not at all agreeing, 2 disagreeing, 3 partially agreeing, 4 agreeing, and 5 strongly agreeing. We summarise their responses in descending order in Table XII.

The mean values (Mdn, AM) show the level of agreement/disagreement of the respondents with a given statement. For a clearer depiction of the phenomenon (specific reasons), we also provide the absolute and relative frequencies in the table. These reflect the frequency of respondents who expressed a real lack of interest in the issue; they admitted that the school management did not allow them to be trained in this area; they did not receive an offer with this training focus and are unfamiliar with the institutions that deal with this type of training (aimed at the implementation of cross-curricular themes in the classroom) or organise these trainings. The question remains for us: If more than 80% of the respondents who admitted that they have not received an offer for training in the field of cross-curricular themes or have not yet met an institution that provides this training in the near future received this offer and became familiar with the relevant educational institution, how

Table XII: *Reasons for not participating in the training on the implementation of cross-curricular themes in teaching (n = 36)*

Reasons for non-participation	AM	SD	Mdn	Mod	nMod	Min	Max	n	%
Ignorance of the institution that provides the training	3,6	1,0	4,00	4	15	1	5	30	83,3
There was no offer	3,6	1,2	4,00	4	12	1	5	29	80,5
Not interested	2,9	1,6	3,00	1	11	1	5	20	55,6
Not facilitated by school management	2,0	1,0	2,00	1	14	1	5	9	25,0

AM – arithmetic mean, SD – standard deviation, Mdn – median, Mod – mode, n Mod – number of modes, Min - minimum, Max - maximum

much would it change their decision to undergo this training, or how much would they be willing to “go for it”? That is, more than half of the respondents (n=36), 55.6% to be precise, expressed disinterest in learning about cross-curricular themes and their inclusion in teaching.

In addition to the scaled questions, respondents were also free to express their opinion and to give ‘another reason’ for not participating in the described training. ‘Other reason’ was given by 6 respondents, their responses are presented unedited as follows: “I have been in education for a short time, so I am still looking around for further education opportunities”, “I succumbed to the halo effect that these trainings are just a pure collection of credits, one does not learn anything there”, “I have attended trainings of this type a long time ago and I was not satisfied, they were too theoretical and artificially stretched the time at the expense of the content”, “I would have preferred a mentor directly in the classroom through the Comenius Institute”, “I would have preferred a mentor directly in the classroom through the Comenius Institute, teachers praise it”, “we are constantly offered training courses that do not provide education in my field, on what I need to learn”, “the training courses are just for collecting credits, we do not learn anything new there, and I already have enough credits, moreover, supposedly they are supposed to be cancelled now, so I refuse to spend time on useless information”, “I don’t like the training courses in general, because they are maximally ineffective”.

3.7 Support of respondents in education by school management

Our findings (Table XIII) revealed that up to 33.3% of all respondents (N = 72) perceived that the support of school management for education on cross-curricular issues was sporadic.

3.8 Respondents’ interest in further education on specific cross-curricular themes

Respondents (N = 72) were asked to express their attitude to the following question on a scale of 1 to 5 (1 - definitely not, 2 - no, 3 - not sure, 4 - yes, 5 - definitely yes): If you had the opportunity in the near future (3-5 years) to receive training in the area of incorporating cross-curricular themes into your own teaching, would you take it up? We present the data obtained by this item in descending order (with respect to Mdn and AM) in Table XIV.

Table XIII: *School management support for teacher training on cross-curricular themes (N = 72)*

Level of support for teacher training in school management	N	%					
Not supported at all	3	4,2					
Does not support	18	25,0					
Only sporadically supported	24	33,3					
Supports	20	27,8					
Maximum support	7	9,7					
	72	100,0					
Total	AM	SD	Mdn	Mod	n Mod	Min	Max
	3,1	1,0	3,00	3	24	1	5

AM – arithmetic mean, SD – standard deviation, Mdn – median, Mod – mode, n Mod – number of modes, Min – minimum, Max – maximum

 Table XIV: *Level of interest in education in each cross-curricular theme (N = 72)*

Cross-curricular themes	AM	SD	Mdn	Mod	nMod	Min	Max
Presentation skills and project creation	3,8	1,2	4,00	5	27	1	5
Media education	3,3	1,2	3,00	3	25	1	5
Personal and social development	3,1	1,4	3,00	3	18	1	5
Multicultural education	3,1	1,4	3,00	4	20	1	5
Protection of life and health	3,0	1,2	3,00	4	24	1	5
Family and parenthood education	2,8	1,4	3,00	3	19	1	5
Environmental education	2,5	1,3	2,00	1	20	1	5
Total	3,1	1,3	3,00	3	134	1	5

AM – arithmetic mean, SD – standard deviation, Mdn – median, Mod – mode, n Mod – number of modes, Min – minimum, Max – maximum

We found that the respondents (teachers of selected secondary pedagogical schools in Slovakia) are interested in the nearest future (3–5 years) in training on the cross-curricular topic “Presentation skills and project creation” (Mdn = 4; AM = 3,8) and its implementation in their own teaching. In terms of absolute and relative abundance, up to 44 probands out of a total of 72, representing 66.1% of our research sample, expressed a genuine interest (“yes”, “definitely yes”) in this cross-curricular topic. In contrast, the respondents expressed a low level of interest (Mdn = 2; AM = 2.5) was expressed by the respondents expressed in the cross-curricular topic “Environmental education” and the education related to its implementation in the classroom. More than 50% (exactly 51.4%) of the respondents expressed the opinion that they do not want or definitely do not want to participate in education related to this cross-curricular theme. Respondents expressed uncertain interest (Mdn = 3) in other cross-curricular themes and training in this area.

4 DISCUSSION

Our findings showed, among other things, that teachers of selected secondary schools in Slovakia, who formed our research sample, are not sufficiently professionally prepared to implement the content of cross-curricular themes in their teaching. Research conducted by staff from the Department of Ethics and Civic Education of the Faculty of Education, Matej Bel University in Banská Bystrica - Baďurová *et al.* (2016), focused on cross-curricular themes in ethics education, showed that teachers theoretically know what and how they should teach to meet the objectives of cross-curricular educational themes, but lack appropriate teaching materials that would increase the effectiveness of their work. Although this finding is not consistent with ours, which may be due to the fact that we did not focus our research only on ethics education but conducted it in a broader context in practice, we nonetheless encountered a lack of knowledge of cross-curricular themes in education among most of the teachers we came into contact with. What is striking is the fact that more than half of the research sample is not even interested in education of this type and focus.

Sečková (2011), an employee of the Department of Didactics of Chemistry at the Institute of Chemical Sciences, Faculty of Natural Sciences, Pavol Jozef Šafárik University in Košice, focused on the cross-curricular themes

of the State Educational Programmes “Project creation and presentation skills” and “Environmental education” implemented in the form of project-based learning. She argues that curriculum reform emphasises the acquisition of key competencies (competencies) as a product of general education and self-education, on cross-curricular themes (e.g. energy, water, etc.) and on methods of active cognition. One of these is the project-based learning method. Research in the field of teacher education for project-based teaching on the topic of Sustainable Development has been carried out at the Department of Didactics of Chemistry of the Faculty of Science of the University of Pavol Jozef Šafárik in Košice in cooperation with colleagues for several years within the framework of many projects KEGA No. 3/3004/05, LPP 0131-06, KEGA No. 3/6301/08. The projects have shown that many teachers need help in the implementation of this method because they have little or no experience with it. For these reasons, at the request of the State Pedagogical Institute in Bratislava, she prepared for chemistry teachers a methodological manual for teaching the newly conceived elective course of the State Educational Programme Project Teaching in Chemistry as a form of teaching the cross-curricular theme “Project creation and presentation skills”.

According to the results of the TALIS 2018 study (MŠVVaŠ, 2018), Slovak teachers declare a high level of need for further education in the areas of teaching students with special educational needs (26.5%), student behaviour and classroom management (19.1%), ICT skills in teaching (16.6%) and teaching cross-curricular skills (16.3%). On average, in the OECD countries and in the Slovak Republic, more than 90% of teachers have participated in at least one type of in-service training in the last 12 months, and the percentage of principals is even higher, at around 99%. On average, teachers in the Slovak Republic have participated in 3.4 activities (OECD 4 activities) of further training in the last year and principals 5.5 activities (OECD 6 activities). Most Slovak teachers (almost 43%) agree that they are mainly hindered in their continuing education by the fact that continuing education is too expensive and there are no incentives to participate in continuing education. More than 40% of our principals agree that the fact that there is no suitable offer of further education (47.2%) and 41.3% of them agree that there are no incentives to participate in further education is a barrier to their further education.

CONCLUSIONS

In order to be able to do “new things”, we first need to be aware of the phenomena in order to be sufficiently informed. This implies one thing, that of raising teachers’ awareness of the possibilities of learning about cross-curricular themes and, through competent institutions, to prepare them professionally to implement them in their own teaching. To the extent possible, the methodological and pedagogical centres and other institutions that provide such training should ensure, through qualified and experienced lecturers, the quality of the information provided in terms of linking the theoretical information defined by the national curriculum with the practical information. In our research, it turned out that one of the reasons teachers are not interested in this or any other type of education is the prevalence of theoretical information, which they can hardly apply in practice.

We also appeal to head teachers and school leaders to support teachers in continuing education (to arouse their interest in it), and thus facilitate the complex process of learning, and improving the implementation of cross-curricular themes in their own teaching, which in parallel can contribute to improving the quality of the teaching process itself, the preparation of students for life and profession, and, finally, the interest of students in learning. One of the proven alternatives is the participation of teachers in mentoring programmes, such as those run in Slovakia by the Comenius Institute or newly established regional centres for teacher support. Teaching at the Comenius Institute takes the form of experiential and practical workshops, informal talks and lectures, and online webinars. The study lasts for one school year, during which teachers and students attend 6 workshops covering thematic areas that have long been absent from the Slovak education system. Workshops are led by highly experienced lecturers who will empower them in their role as teachers. As part of their studies, teachers carry out their own pedagogical projects. They get their own consultant who accompany them during the implementation of the project. The Comenius Institute also offers training for beginning teachers, providing some support to bridge the difficult stages of a beginning teacher’s entry into the educational process, and many other interesting forms of training.

We consider it important that teachers, in their efforts to improve the quality of students' knowledge, do not put the content of the subject taught first but leave this place to the student and his personality. We believe that if the teacher puts the student and his/her individual personality first (which is not always easy), he/she will be able to better understand, on the basis of his/her needs, aspirations, and interests, the importance of functional literacy and key competencies not only in school but also outside school, and will understand why and how to develop these elements in students. We believe that only a teacher who knows his students, takes account of their personal characteristics and not only likes them but also shows his affection for them, can 'awaken in them the spirit of free thinking, which is open to learning.

We also recommend that teachers, at least once a month in their subject areas, set aside sufficient time (at least 60 minutes) and a suitable space for the exchange of information and valuable experiences (both positive and negative) in the implementation of the content of the cross-curricular themes in the classroom, depending on the development of key competencies and functional literacy of the students. In addition to their own psychohygiene, they thus educate each other.

Finally, we recommend that teachers implement cross-curricular themes effectively so that they have a real contribution to the development of students' key competencies and functional literacy and do not have a burdensome effect on students. By this, we mean that the teacher should find topics, stimuli, through which to explain to students the meaning and purpose of what they are learning. This way, he will answer the often-asked question 'what good will it bring us?' A skilled teacher does not consider cross-curricular themes as an obstacle to teaching; on the contrary, he or she sees them as a means of making the subject, the material, more accessible and explainable to the students. From our own experience, we can confirm that the cross-curricular theme "Family and parenthood education", which we implemented in the subject of pedagogy, aroused such interest among students that they asked for it in many other lessons. They actively participated in the discussion, suggested topics for group projects, searched for information on the Internet on their own, and even suggested a discussion with a marriage counsellor.

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