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Comparison of Compulsory Education of the Republic of Croatia and the Republic of Slovenia

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Abstract: Compulsory education is the basis of formal education, and in countries around the world, it has a different duration and characteristics and most often is related to elementary school. This current study compares compulsory education of the Republic of Croatia and the Republic of Slovenia. In addition to a review of the literature, current applicable laws and regulations, a comparative analysis of national curricula for compulsory education of the Republic of Croatia and the Republic of Slovenia have been made. The study showed that there is a difference in the number of subjects taught in elementary schools in Croatia and Slovenia, as well as in the number of teaching hours of individual subjects. Furthermore, an analysis of six subject areas of primary education that are taught in both countries was made, with respect to content determinants. An analysis of the existing content determinants shows that the same or similar content is taught in both countries, while in only one subject area, further analysis is required. This study provided new insights that can be used to further develop Croatian compulsory education.

Keywords: *compulsory education, comparative analysis, national curricula, primary education.*

Introduction

Compulsory education in most countries refers to elementary school and is considered to be the basis of formal education. Education systems are increasingly changing to keep up with the contemporary demands of society (Garrouste, C. 2010). At the heart of educational reforms are national curricula (Matijević, 2004; Previšić, 2005; Baranović, 2006, Matijević and Rajić, 2015). Therefore, it is not surprising that in the last few decades, curricula of all educational levels have become the subject of many researchers around the world (Baki and Gocek, 2005; Faas, 2011;Jóhannesson et al., 2011; Oda, Noborimoto and Horita, 2021; Swee Fong, 2004; Swee Fong, 2004; Tani, 2011, etc.).

Croatia and Slovenia had a not-so-common past; until 1991, they were an integral part of the Socialist Federal Republic of Yugoslavia, and with their dissolution, both countries became independent republics. So far, several studies have addressed the comparison of particular segments of education in the two countries (Apostolović, 2014; Baranović, 2006; Boras, 2010; Marinović Bobinac, 2007; Smilkov and Jovanova-Mitkovska, 2022; Vuk, Curić, and Jakovčić, 2008; Žnidarec Čučković, 2018) as well as comparison of education in Croatia and other neighboring countries (Duraković et al., 2018; Jovanović and Cvetković Crvenica, 2019; Runceva, 2018; Smilkov and Jovanova-Mitkovska, 2022; Vidulin, et al., 2015). However, none of the studies provided a complete picture of the compulsory education of the two countries.

Encouraged by all above, there is a need for further comparison of educational systems of compulsory education in Croatia and Slovenia. According to Milošević and Maksimović, (2020) the function of comparative research is reflected in determining the similarities and differences of education systems, but there is also a tendency to determine the internal dynamics of educational processes in a particular context. So the question arises as to whether there are similarities and differences between the education

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system in Slovenia, which underwent its major reform in 1995 and Croatia that has undergone the big curricular reform 2019. Therefore, the aim of this research is to determine differences in the organization and characteristics of compulsory education, with an emphasis on comparative curriculum analysis for compulsory education of the Republic of Croatia and the Republic of Slovenia.

Compulsory education in the Republic of Croatia and the Republic of Slovenia

In Croatia, compulsory education has been in existence for fifty years (Matijević, 2004). Although, there was a change in the curriculum after gaining independence in 1991, the duration of compulsory education remained the same (Matijević and Rajić, 2015) and still lasts only eight years (ISCED level 1 and 2). In Croatia elementary school is compulsory for all children from 6 to 15 years old. Unlike elementary school in Croatia, compulsory education in Slovenia, which also applies to elementary school, lasts nine years (ISCED level 1 and 2). The nine-year compulsory education in Slovenia is proposed with education reform starting in 1995, which extended compulsory education from eight to nine years (MIZS-Ministerstvo za šolstvo in šport, 1995). The school year in Croatia has 35 weeks of teaching, five days a week, while in Slovenia, there are 38 weeks of teaching. In Croatia, the daily duration of classes is determined by the schedule of classes, with compulsory subjects of up to 5 hours per day from first grade to fourth grade, and up to 6 hours per day from fifth grades to eight grade (Zakon o odgoju i obrazovanju u osnovnoj i srednjoj školi, 2018). The elementary school in Slovenia is divided into three educational cycles, the so-called Scandinavian model. The first educational cycle refers to children from 6 to 8 years old, the second cycle from 9 to 11 years, and the third cycle to children from 12 to 14 years. The weekly workload of the students is different in all three educational cycles. In the first educational cycle, students can have a maximum of 24 school hours per week, in second cycle 26 school hours per week, and in the third cycle a maximum of 30 hours per week (MIZS, 1995; Zakon o osnovni šoli, 2005).

Organization of teaching in elementary school

In Croatia and Slovenia, teaching is divided into regular and elective classes. Regular teaching refers to all compulsory subjects taught in elementary school, which are established by the curriculum in Croatia and Slovenia. Elective classes refer to subjects defined in the curriculum, such as another foreign language, and they are conducted in a class or educational group (MIZS, 1995; Zakon o odgoju i obrazovanju u osnovnoj i srednjoj školi, 2018).

Classes in elementary schools in Slovenia and Croatia are taught by the subject. Bognar and Matijević (2005) call this system: subject-class system and recognize Komensky as one of the founders of this form of education system.

Elementary school teaching materials

In Croatian elementary schools, textbooks, and supplementary teaching aids (workbook, task collection, atlas) are the most used of teaching materials (Pravilnik o obveznim udžbenicima i pripadajućim dopunskim nastavnim sredstvima, 2013). According to the *Rulebook on compulsory textbooks and associated supplementary teaching aids* (MZOS-Ministarstvo znanosti i obrazovanja, 2013), the selection of compulsory textbooks and related supplementary teaching aids is based on the national and subject curriculum, that is, the curriculum for each subject. According to the Slovenian *Rulebook on validation of textbooks* (Uradni list RS, 2013), a textbook is a teaching tool intended for students to master the curriculum. In addition to textbooks in elementary schools in Slovenia, atlases, manuals, worksheets, task collections, computer software, and other audiovisual materials are used, which supplement or form part of the textbook.

The importance of using textbooks in the education system is also emphasized by Matijević, Topolovčan, and Rajić (2013) which point out that the textbook alongside students and teachers is a key factor for primary and secondary school teaching and is an indispensable factor in the teaching process.

Evaluation and assessment in compulsory education

Evaluation is an indispensable part of the educational process. The concept of evaluation can be interpreted in different ways with regard to its role and purpose, and at which level of education it is

applied (Rajić, 2017).

In Croatian schools, according to the *Rulebook on Ways, Procedures, and Elements of Student Evaluation in Primary and Secondary Schools* (MZOS, 2010), there are three types of knowledge testing. Introductory or initial assessment (carried out at the beginning of the school year to see the level of student competencies achieved), oral examination (may be conducted for up to 10 minutes each hour) and written examination (short written examinations of up to 15 minutes maximum, and written checks which take more than 15 minutes). Student's knowledge in Croatia is evaluated by descriptive numerical grades: inadequate (1), sufficient (2), good (3), very good (4) and excellent (5), while student's behavior is assessed by descriptive grades: exemplary, good and bad (MZOS, 2010; Novak-Milić and Barbaroša-Šikić, 2008).

In Slovenia, in the first and second grade of elementary school, students' knowledge is assessed with descriptive grades, and from third grade, the students are graded with descriptive numerical grades and like in Croatia, the five-point scale is used. In Slovenia, the assessment is carried out by oral and written examination, as well as by visual, technical, and practical examination and project work (Pravilnik o preverjanju in ocenjevanju znanja ter napredovanju učencev v osnovni šoli, 2013).

Elementary school teachers

The elementary school in Croatia can be divided into two levels (from first to fourth grade – ISCED level 1) and lower secondary education (from fifth to eighth grade – ISCED level 2). In the first four grades, only one teacher teaches all compulsory subjects except Informatics and Foreign language, while from the fifth grade, each subject is taught by a different professor or expert in a particular field. Teachers also perform all other tasks related to the educational work with students, as well as all activities and tasks in the school curriculum, and particular tasks related to the structure of the school work (Pravilnik o tjednim radnim obvezama učitelja i stručnih suradnika u osnovnoj školi, 2014; Zakon o odgoju i obrazovanju u osnovnoj i srednjoj školi, 2008).

In the Slovenian elementary school, in the first grade, in addition to the teacher, there is another assistant teacher who is usually the preschool teacher. This mode of operation has existed since 1995 following the adoption of the new educational reform. By the end of the second educational cycle, that is, 6th grade, teacher of primary education can teach students, as is the case in primary education in Croatia (first to fourth grade). In the third educational cycle, classes are taught by subject teachers, professors (Matijević, 2004; MIZS, 1995; Nacionalna strokovna skupina, 2011). Every teacher has certain competencies, and according to Simonović (2021) teacher competencies are a set of specific knowledge, skills, and attitudes that teachers possess and use to affect the progress of the overall educational process.

Materials and Methods

Since the review of the literature has shown that there are differences in the organization of compulsory education of the Republic of Croatia and the Republic of Slovenia, it is essential to determine using content analysis (Cohen et al. 2018; Matijević, 2004; Mejovšek, 2008) whether there are differences in the national curriculum. According to Krippendor (2004) in the social sciences, content analysis is one of the most substantial research techniques.

Sample

The content analysis covers the basic educational documents of the Republic of Croatia and the Republic of Slovenia. The newly developed subject curricula of the Comprehensive Curricular Reform will be analyzed (MZOS, 2019) in Croatia and the Curriculum of the Republic of Slovenia (Ministrstvo za šolstvo in šport, 2011) for ISCED 1 level of education.

Results and Discussions

This section is divided into two parts. The first part focuses on analysis of the national curricula for compulsory education in which subject structure and the annual number of hours of compulsory

subjects are presented (ISCED level 1 and 2). The second part presents analysis of the primary education curriculum, with a focus on the comparison of common subjects, i.e., subject areas.

Analysis of the national curricula for compulsory education

Subject structure of national curricula for compulsory education

The subject structure of the national curricula for compulsory education of Croatia and Slovenia is shown in Table 1. Croatia has 15 compulsory subjects in elementary school, while Slovenia has 18 compulsory subjects. Croatia and Slovenia have eleven of the same subjects in elementary school. In the field of natural sciences in Croatia is taught *nature and society* and *nature*, while in Slovenia, *learning the environment*, *natural sciences*, and *natural sciences and techniques* are taught. *Informatics* (HR), *citizenship education* (SLO), *patriotic and civic culture and ethics* (SLO), *home economics* (SLO) are subjects that are not represented in the compulsory education of both countries.

Table 1. *Subject structure of national curricula for compulsory education in Croatia and Slovenia*

Subjects in Croatia	Subjects in Slovenia
native language	native language
mathematics	mathematics
nature and society nature	learning the environment natural sciences and techniques natural sciences
visual art	visual arts
music education	music arts
physical education	sports
foreign language	foreign language
biology	biology
chemistry	chemistry
physics	physics
history	history
geography	geography
technical education	technical education
informatics	-
-	patriotic and civic culture and ethics
-	citizenship education
-	home economics

The annual number of hours of compulsory subjects in elementary school

It is evident that students in Slovenia at the end of elementary school have higher workloads in native language, mathematics, science subjects, art education, music education, sports education, and foreign language than students from Croatia, considering the total number of hours at the end of elementary school (see Table 2).

The subjects taught in lower secondary education (biology, chemistry, physics, geography, and history) are represented in a larger number of hours in Croatia but with a very small difference.

Technical subjects have the same number of hours in Slovenia and Croatia, while the informatics is taught only in Croatian elementary schools (Ministrstvo za šolstvo in šport, 2011; MZOS, 2019).

Table 2. *The annual number of hours of compulsory subjects in elementary school*

CROATIA Grade								Subject		SLOVENIA Grade								
1.	2.	3.	4.	5.	6.	7.	8.			1.	2.	3.	4.	5.	6.	7.	8.	9.
175	175	175	175	175	175	140	140	Croatian language	Slovenian language	210	245	245	175	175	175	140	122,5	144
140	140	140	140	140	140	140	140	mathematics		140	140	175	175	140	140	140	140	128
70	70	70	70	-	-	-	-	nature and society	learning the environment	105	105	105	-	-	-	-	-	-
-	-	-	-	52,5	70	-	-	nature	natural sciences and techniques	-	-	-	105	105	-	-	-	-
-	-	-	-	-	-	-	-		natural sciences	-	-	-	-	-	70	105	-	-
35	35	35	35	35	35	35	35	visual art		70	70	70	70	70	35	35	35	32
35	35	35	35	35	35	35	35	music education		70	70	70	52,5	52,5	35	35	35	32
105	105	105	70	70	70	70	70	physical education/Sports		105	105	105	105	105	105	70	70	64
70	70	70	70	105	105	105	105	foreign language/ English language		-	70	70	70	105	140	140	105	105
-	-	-	-	-	-	-	-		citizenship education	-	-	-	70	105	-	-	-	-
-	-	-	-	-	-	70	70	biology		-	-	-	-	-	-	-	52	64
-	-	-	-	-	-	70	70	chemistry		-	-	-	-	-	-	-	70	64
-	-	-	-	-	-	70	70	physics		-	-	-	-	-	-	-	70	64
-	-	-	-	52,5	70	70	70	geography		-	-	-	-	-	35	70	52,5	64
-	-	-	-	70	70	70	70	history		-	-	-	-	-	35	70	70	64
70	70	70	70	70	70	70	70	informatics		-	-	-	-	-	-	-	-	-
-	-	-	-	35	35	35	35	technical education		-	-	-	-	-	70	35	35	-
-	-	-	-	-	-	-	-		home economics	-	-	-	-	35	52,5	-	-	-

Analysis of the primary education curriculum

Subject structure of national curricula for primary education

Primary education in Croatia refers to the first four grades of elementary school (ISCED level 1), while in Slovenia, it refers to the first two educational cycles of compulsory education (ISCED level 1), from first to sixth grade. In the primary education of both countries, there are five same subjects, while the Croatian subject *nature and society*, in Slovenia is taught through three different subjects following one after the other, as students move toward the upper grades (see Table 2). G*eography*, *history*, and *technical education* in Croatia are taught in upper grades, while in Slovenia, these subjects are from the last grade of primary education (sixth grade). Subject *home economics* and *citizenship education* are only present in Slovenian elementary schools (Ministrstvo za šolstvo in šport, 2011; MZOS, 2019).

Table 3. *Subject Structure of National Curricula for Primary Education in Croatia (first to fourth grade) and Slovenia (first to sixth grade)*

Croatia	Slovenia
Croatian language	Slovenian language
Mathematics	mathematics
nature and society	learning the environment natural sciences and techniques natural sciences
visual art	visual art
music education	music art
physical education	sports
informatics	citizenship education
foreign language	home economics
	geography
	history
	technical education

Considering that primary education in Croatia and Slovenia does not have all the same subjects, the comparison was limited to common subjects, i.e., subject areas, and subject areas were analyzed concerning content determinants: mathematics field, native language, natural sciences, kinesiology, art field, and music field.

Determinants of teaching content for the mathematics field

Table 4. *Determinants of teaching content for the mathematical field*

Mathematical Area - Content Determinants	
CROATIA	Domains 1. Numbers 2. Algebra and functions 3. Shape and space 4. Measure 5. Data, statistics, and probability
SLOVENIA	1. Geometry and measurement 2. Arithmetic and algebra 3. Other content

According to the Croatian subject curriculum for the mathematics (MZOS, 2019) in addition to mathematical processes the following domains are described as content determinants: „Numbers“, „Algebra and functions“, „Shape and space“, „Measure and data“, „Statistics and probability“. In the Slovenian Curriculum (Ministrstvo za šolstvo in šport, 2011), the mathematical field is divided into three contents: „Geometry and measurement“, „Arithmetic and algebra“ and „Other content“ (see Table 4).

An analysis of the content determinants of the mathematical area of both countries revealed that there were overlaps in certain segments. The domains “Numbers and algebra” existing in the Croatian curriculum can be identified with “Arithmetic and algebra”, which are part of the content of the mathematical field in Slovenia. Furthermore, the domains „Shape and space“ and „Measurement“ in content correspond to the „Geometry and measurement“ described in the Slovenian curriculum. Although the previously compared content domains and determinants have broad similarities and matches, this is not the situation with the third content determinant described in the Slovenian curriculum, „Other content“. This domain cannot correctly be compared with any domain in the Croatian curriculum, but according to the description, it can be said that it is represented in almost all domains of the Croatian mathematical field. According

to this analysis, which was limited to the analysis of content determinants and did not analyze the more profound components of each content, the domain "Data, statistics, and probability" does not find relevant content in the Slovenian curriculum that can be compared.

Determinants of teaching content for the native language

Table 5. *Determinants of teaching content for the native language*

Native language areas - content determinants	
CROATIA	1. Croatian language and communication 2. Literature and creativity 3. Culture and media
SLOVENIA	1. Language 2. Literature

As can be seen in Table 5 Croatian language is divided into three main subject areas: „Croatian language and communication", „Literature and creativity", and „Culture and media", while the Slovenian language is divided into two main subject areas: „Language" and „Literature" (MZOS, 2019; Ministrstvo za šolstvo in šport, 2011). Although, according to the Croatian curriculum, there are three determinants of the content of the native language, and according to the Slovenian curriculum, there are two determinants of the content, but the contents they cover overlap. We can associate "Croatian language and communication" with "Language" existing in the Slovenian curriculum, while "Literature and creativity" and "Culture and media" correspond to "Literature", which is described in the Slovenian curriculum.

Determinants of the teaching content of the natural sciences

Table 6. *Determinants of the teaching content of the natural sciences*

Natural sciences - Content Determinants	
CROATIA	1. The organization of the world around us 2. Changes and relationships 3. The individual and society 4. Energy
SLOVENIA	1. Clock 2. Space 3. Substances 4. Forces and motions 5. Phenomenons 6. Living beings 7. Human being 8. I 9. Community 10. Relations 11.Transport 12. Environment 13. Energy 14. Nature 15. Human impact on the environment

The content determinants for the field of natural science are given in Table 6. In Croatia the approach the subject is interdisciplinary and there are four determinants of content divided into the subject *nature and society*, while in Slovenia the content is divided into fifteen teaching topics taught through three teaching subjects (*learning the environment, natural sciences and techniques*, *natural sciences)* (Ministrstvo za šolstvo in šport, 2011; MZOS, 2019).

Although in Slovenia the natural sciences are not divided into subject areas, we can observe that the curriculum topics prescribed by the curriculum correspond somewhat to the subject areas existing in Croatia, that is, each of the fifteen teaching topics can be classified in at least one subject area, while some may be classified in multiple subject areas.

Determinants of the teaching content of the kinesiology area

Table 7. *Determinants of the teaching content of the kinesiology area*

	Kinesiology Area - Content Determinants
CROATIA	1. Kinesiological theoretical and motor knowledge 2. Morphological characteristics, motor, and functional abilities 3. Motor achievements 4. The health and educational effects of physical exercise
SLOVENIA	1. Operational objective 2. Practical and theoretical content 3. General theoretical content

The determinants of the teaching content of the kinesiology area are illustrated in Table 7. In the Croatian elementary school, the kinesiology area is divided into four subject areas: "Kinesiological theoretical and motor knowledge", "Morphological characteristics, motor, and functional abilities", "Motor achievements" and „Health and educational effects of physical exercise" (MZOS, 2019). In Slovenia, the kinesiology area is divided into three content determinants: „Operational objective", „Practical and theoretical content", and „General theoretical content" (Ministrstvo za šolstvo in šport, 2011). The comparison showed that the contents covered by the „General theoretical content", were repeated in a similar or the same form in the Croatian content „Health and educational effects of exercise". Furthermore, we can observe that the content of „Practical and theoretical content", corresponds to some extent with the content of „Kinesiological theoretical and motor knowledge" and „Motor achievements".

Determinants of the teaching content of the art area

Table 8. *Determinants of the teaching content of the art area*

	Art area - content determinants
CROATIA	1. Creativity and productivity 2. Experience and critical attitude 3. Art in context
SLOVENIA	1. Surface design 2. Design in three-dimensional space

In the Croatian elementary school the art area is divided into three subject areas: "Creativity and productivity", "Experience and critical attitude," and "Art in context" (MZOS, 2019). According to the Slovenian curriculum, the art area is divided into "Design on the surface" and "Design in three-dimensional space" (Ministrstvo za šolstvo in šport, 2011) (see Table 8).

This analysis, which restricted itself to content determinants, did not find any similarities between the content taught in the two countries, and a more in-depth analysis of curriculum content must be made in order to compare the content of visual art.

Determinants of the teaching content of the music area

Table 9. *Determinants of the teaching content of the music area*

	Music Area - Content Determinants
CROATIA	Domains: 1. Listening and introduction of music 2. Expressing yourself through music and with music 3. Music in context
SLOVENIA	1. Listening 2. Performance 3. Creation

The music area in both countries is divided into three content determinants (see Table 9).

The first content determinant is "Listening and getting to know music" (in Croatia) and "Listening" (in Slovenia). The second determinant of content is "Expressing with music and with music" in Croatia, or "Performing" in Slovenia. Furthermore, the third determinant of content, or domain, in *music culture* in Croatia is "Music in context", which builds on and complements the previous two domains. The last determinant of content in Slovenia is "Creation", which refers to the creation of various musical contents using instruments and singing, as well as expression through dance and movement (MZOS, 2019; Ministrstvo za šolstvo in šport, 2011).

Comparing the content guidelines, it can be seen that "Listening and learning about music" in Croatia and "Listening" in Slovenia, as well as "Expressing with music and with music" and "Performing", cover similar or the same topics. There is a difference in the third determinant of content "Music in context" in Croatia and "Creation" which by comparison have no common elements, but the two determinants are based on the previous two determinants of content and combine the entire content of the *music art* of each country.

Conclusion

In this paper the comparison of compulsory education of the Republic of Croatia and the Republic of Slovenia was made with an emphasis on curriculum analysis in both countries (ISCED level 1 and 2). The differences in the compulsory education of these two countries are already evident in the duration and organization of compulsory education. Although a new education reform was implemented in Croatia in 2019., the reform has not led to changes in the duration of compulsory education, as it is the case in many European countries (Fort, 2006; Garrouste, 2010).

The curriculum analysis of the primary education (ISCED level 1) which covered six subject areas in both countries that are thought by primary school teachers, showed that the area of the native language, the mathematics area, the music area as well as the kinesiology area, are divided into similar content which means that in these subjects, almost the same teaching content is taught. Although the field natural science is not divided into similar content determinants in Slovenia and Croatia, due to different scientific approach to the subject the description of existing guidelines can conclude that similar content is taught in both countries. As far as the art area is concerned, a deeper analysis of the curriculum should be made to examine the similarity of the content.

Limits of the study and future research

Given that this research has not been conducted so far at the level of overall comparison of compulsory education in Slovenia and Croatia, as well as primary education (ISCED level 1), this study has provided useful information and knowledge that can be further implemented in the development and improvement of Croatian compulsory education.

It is important to emphasize that this research was limited to the analysis of the content determinants

of the subject areas of primary education, and continuations of this research in the future are possible. Some of the possible further research may include the analysis of educational goals of learning and teaching, as well as the analysis of educational outcomes. It is also possible to extend the analysis to other European countries for the purpose of improving the Croatian education system.

Conflict of interests

The authors declare no conflict of interest.

Author Contributions

Conceptualization A.K. and V.R.; methodology V.R. and A.K.; content analasys A.K.; waiting original draga version A.K.; waiting review V.R. All authors have read and agreed to the published version of the manuscript.

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