III.

SUVREMENI KONTEKST DJETINJSTVA

CHILDREN'S INTEGRAL COGNITION OF THEIR OWN ENVIRONMENT AND THE TREND OF CONTENT FRAGMENTATION IN THE SUBJECT NATURE AND SOCIETY

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Abstract

The paper analyzes contemporary trends in the structuring of the school subject Nature and Society in Croatia, in the European Union and in the world. The increasing complexity of curriculum concepts in the teaching of Nature and Society invites researchers to reflect on the need to fragment the content of the subject from the perspective of individual scientific disciplines that permeate within the subject. At the same time, the problem arises in terms of priorities between the characteristics of the developmental age of primary education students and the emancipation of certain scientific disciplines included in the current structure of the subject Nature and Society. When it comes to the implementation of the school subject Nature and Society, 25 out of 27 EU countries prioritize characteristics of students' developmental age, adopting the concept of full or partial integration of teaching areas, while only Italy and Romania are inclined to fragment and separate individual subjects of Nature and Society into separate subjects. The Croatian curricular approach, following the characteristics of the developmental age of primary education students, has also kept the integration and permeation of the subject areas of this subject as its basic principle.

KEYWORDS: *Nature and Society, integration of teaching areas, fragmentation of teaching areas*

Introduction

In early childhood, children spontaneously develop the ability to self-perceive and distinguish themselves from other people in the environment, as well as from their natural and social environment. Spontaneous acquisition of early and preschool child experiences replaces a systematic and holistic approach to constructing knowledge

during school learning or learning inspired by extracurricular activities.

Nature and Society is an interdisciplinary subject that integrates scientific knowledge of the natural sciences, social sciences, humanities, technology and information technology. The natural sciences introduce students to the world of research and cognition of nature, and the social sciences and humanities to the life of people and social relations based on respect for and acceptance of human nature (Ministry of Science and Education, 2019). The teaching of Nature and Society will encourage students to understand their own environment and explore true and scientifically based facts about it in a holistic, interdisciplinary, integrated approach to children's reality.

Natural sciences such as chemistry, physics, biology, and nature-related aspects of geography introduce students to research and knowledge of nature. Social sciences and humanities such as history, sociology, philosophy, economics, social aspects of geography, and political science introduce students to human life and social relationships based on respect for and acceptance of human nature. In the process of learning and teaching the subject Nature and Society, the knowledge of the technical-information field is also important (MZO, 2019). This area includes the correct, safe and purposeful use of various forms of technology, especially information and communication technology, as well as the acquisition of knowledge, development of skills and abilities to use technical and information products in everyday life. By adopting the concepts of these areas interdisciplinary and integrated, the student develops related competencies by promoting not only their skills in their natural and social environment, but also as a free-thinking being reflects and changes its actions and position in the same environment.

The basic determinant of an interdisciplinary approach is the integration of various information, data, techniques, perspectives, concepts and theories from two or more disciplines (Repko, 2008:11). This complex domain represents a space for meeting and permeation of different scientific disciplines, as well as the creation of a new domain of knowledge that is formed between disciplines in the process of integrating their knowledge. Interdisciplinarity does not aim to challenge existing academic disciplines, but to expand knowledge through the construction of new domains of science.

Concepts of teaching Nature and Society in the European Union

According to Blaseio (2006) in the countries of the European Union, we can notice five basic conceptions of teaching Nature and Society with regard to the degree of integration of individual scientific (subject) areas:

a) Full integration of all teaching areas in the first three grades of primary school

In Poland, in the first three grades of primary school, ten teaching areas are integrat-

ed, taught by one teacher, without division into subjects. The teaching area *Obserwacja i doświadczenie* (Observation and Experimentation) integrates natural science, geographical and historical aspects, partially overlapping with the subject Nature and Society in the Croatian school system.

b) Integrated teaching of Nature and Society

17 of the 27 countries of the European Union adhere to the fully integrated concept of the subject Nature and Society. We consider the integrated concept of teaching Nature and Society to be one that integrates natural-scientific, social and geographical contents.

Table 1. European Union countries with integrated teaching of Nature and Society

Country	Course title	English translation
Croatia	Priroda i društvo	Nature and Society
Belgium	Flemish: Wereldoriëntatie French: Éveil: Éveil Scientifique, Éveil Historique, Éveil Géographique	Orientation in the world Introduction to natural sciences, history and geography
Ireland	SESE: Social, Environmental and Scientific Education	Social, environmental and science education
Netherlands	Oriëntatie op jezelf en de wereld	Orientation: me and the world
Spain	Conocimiento del Medio Natural, Social y Cultural	Learning about the natural, social and cultural environment
Germany (differences at the provincial level)	Sachunterricht Heimat und Sachunterricht	Education about surroundings Homeland and surroundings education
Austria	Sachunterricht	Surroundings education
Greece	Melete Periwallontos	Studying the surroundings
Litva	Pasaulio pažinimas	Respect and understanding of the environment
Luxemburg	Evil aux sciences, á l'histoire et á la géographie	Introduction to natural sciences, history and geography
Portugal	Estudo do Meio	Studying the surroundings
Mađarska	Környezetismeret	Studying the surroundings
Slovenija	Spoznavanje okolja	Environmental education (nature and society)
Češka	Prvouka	Initial education
Slovačka	Prvouka	Initial education
Cipar	Patridognosia	Homeland education
Bugarska	Uvodna bŭlgarska istoriya, geografiya i estestvoznanie	Introduction to Bulgarian history and geography with science

c) Partially integrated teaching of Nature and Society

In the three countries of the European Union, natural sciences and geography are integrated in the early elementary grades of primary school, which do not include the contents of the social sciences.

Table 2. European Union countries with partially integrated teaching of Nature and Society

Country	Course title	English translation
Denmark	Natur/teknik	Nature and technics
Finland	Ympäristö – ja luonnontieto	Nature and environment
Latvia	Dabaszinibas	Fundamentals of natural sciences

d) Integration within the separate subject areas of Nature and Society

In the three countries of the European Union, the teaching contents of Nature and Society are integrated in the early elementary grades of primary school within separate subject areas of nature and society.

Table 3. European Union countries with integration within the separate subject areas of Nature and Society

Country	Course title	English translation
Estonia	Loodusõpetus Inimeseõpetus	Natural Sciences Social Sciences
Malta	Science Social studies	Natural Sciences Social Sciences
Sweden	Naturorienterande ämnena Samhällsorienterande ämnena	Natural Sciences Social Sciences

e) Contents of Nature and Society within separate subjects

In the two countries of the European Union, in the early elementary grades of primary school, the teaching contents of Nature and Society are separated into three separate subjects.

Table 4. European Union countries with contents of Nature and Society within separate subjects

Country	Course title	English translation
Italy	Scienze Storia Geografia	Natural Sciences History Geography
Romania	Istorie Geografie Ştiinţe naturale	History Geography Natural Sciences

The analysis of the concepts of achieving the goals and tasks of the subject Nature and Society in the pedagogical practice of lower grades of primary school in the EU shows that the disintegration of contents and a separate subject approach to the contents of this subject eliminates the fundamental difference between methodical approaches in lower and higher grades of primary school. The main problem of teaching conceived in this way is the unconformity to developmental age of the child (De Zan, 2005, Bezić,1975, Letina,2016). In this sense, Klewitz (2011) points out that the basic problem of the disintegrated approach to teaching Nature and Society is the inability of primary school students to successfully achieve such goals and adopt appropriate content for each individual science. The author questions the transfer of professional knowledge and concepts, the introduction to scientific methodology and the precise use of scientific terminology without a significant role of a methodical approach to all thematic dimensions of this subject. Only the pedagogical didactic-methodical approach to these requirements starts from the situation of a child who investigates, who should understand the phenomena of his living environment integrated, systematically and in a verifiable form, and also in accordance with the child-accessible cognitive approach and cognitive methodology.

Learning about a child's life surroundings in Japan

Pupils in Japan start attending primary school (shougakkou) at the age of six. The primary level of education covers the first six years of schooling. During this period, the following subjects are studied: Japanese language, learning about life surroundings (1st and 2nd grade), social sciences (3rd grade), natural sciences (3rd grade), arithmetic, music culture, art and handicrafts, household and physical culture (Harada, 2004). There is a fully integrated approach to the contents of Nature and Society in the first two grades of primary school (learning about life surroundings) and a partially integrated approach from 3rd to 6th grade of primary school (social sciences, natural sciences).

Learning about life surroundings as a subject first appeared in 1989 as part of the National Reform of Curriculum Standards as an expression of efforts to introduce new pedagogical-anthropological guidelines and changes into the traditional subject-oriented national curriculum. In the next round of educational reform in 1998, this subject experienced an even more integrated approach with a new concept of cognitive perception (chiteki kizuki) that emphasizes the connection between perception, experience and symbolic speech-abstract level of cognition (Harada, 2004) and seeks to overcome existing subjects in accordance with the characteristics of the developmental age of students in the first and second grade of primary school.

Integration within the frameworks of Science and Social Studies in the United States

School subject Nature and Society is strongly influenced by the social and cultural determinants of a country, and in a situation of extreme diversity of these determinants in 50 different USA states, the concept of teaching Nature and Society within separate social and natural science subject areas is understandable. Gutwerk (2007) provides a systematic insight into the curriculum structure of these subjects, pointing out that in the USA, the subject areas of Nature and Society in primary school are approached within the framework of two subjects: *Science* and *Social Studies*.

The National Curriculum has centralized access to the subject of *Natural Science by the National Science Resources Center* (NSRC) from 1980 to the present (Gutwerk, 2007). The introduction of the term science literacy into pedagogical use, as well as the establishment of the *National Committee on Science Education, Standards and Assessment* (NCSESA) in 1993, began to attach special importance to science in teaching. Given the diversity of social and cultural determinants in different U.S. states, establishing centralized standards for the Social Science subject is a much more challenging task. Nevertheless, in 1994, with this task, the *National Council for Social Studies* (NCSS) was established, which conceived the subject of social science as an integrated interdisciplinary subject.

Education about surroundings in England

Since 1989, a *National Curriculum* (www.nc.uk.net) in England has regulated what is learned in the individual subjects from key stage 1 to key stage 4, and from 5 to 16-year-old pupils during compulsory schooling. The National Curriculum includes the description of the knowledge to be learned and the standards to be achieved for each school subject in year groups 1-11. Primary education refers to key stages 1 and 2, i.e. to 5 to 11-year-old school children in the year groups 1 to 6 the secondary level on key stages 3 and 4, i.e. for 11 to 16-year-old students in year groups 7 to 11. The main subjects in primary education are Mathematics, English and Natural Sciences.

Subject knowledge is not only covered in the main subject "Science", but also in the subjects History, Geography, Technology and Design, Information and Communication Technology and in the subject "Citizenship" (not compulsory in primary education). Although formally the contents in Education about Surroundings are not integrated, links between the subjects are, according to the National Curriculum, expressly desired (Möller, 2007).

Nature and Society in Croatia

De Zan (2005) points out that in the Educational Plan and Program of 1984, subject Nature and Society was defined as a single educational area in the first four grades of primary school. Its main task is to expand and deepen the acquired experiences and knowledge about nature and society in the homeland, to develop the ability to observe, logically conclude and acquire a complete picture of the world, and apply the acquired knowledge in life.

The National Framework Curriculum (MZOS, 2011) and the Curriculum of the subject Nature and Society for primary schools in the Republic of Croatia (MZOS, 2019) respect the existing name and structure of the subject Nature and Society. They define it as an interdisciplinary subject that integrates scientific knowledge of natural sciences, social sciences and humanities and technical-informatics and determine its domains (basic concepts), expectations of interdisciplinary topics, educational outcomes and ways of evaluating them from the perspective of research approach to teaching. A highly integrated approach is noticeable. The Croatian curricular approach, following the characteristics of the developmental age of primary education students, has kept the integration and permeation of the subject areas of this subject as its basic principle.

Developmental age features and the emancipation/ integration of scientific disciplines in the structure of the school subject Nature and Society

The main problem with science-oriented general education was that it did not reach the children with its goals and content. He demanded the imparting of subject-specific knowledge and terms, the introduction to professional working methods and the exact use of language in the sciences. It was neglected to translate these demands pedagogically and didactically, i.e. to start from the situation of the searching and researching child, who should learn to grasp the phenomena of his living environment, to order them in a verifiable form and in this way to scientific ways of thinking and try out procedures (Giest,1996).

Successful integration and mutual pedagogically shaped permeation of the content of individual sciences solve many problems of cognitive abilities and development of students in the early primary school. According to Giest (1997), the learning event, in which the finished knowledge is broken down into small bits, a fixed end behavior is to be conditioned. It cannot open up the children's mental powers. They can only develop their spiritual powers if they are given the opportunity to solve problems, i.e.

to become productive themselves. The aim of the school subject Science and Society is the development of action competences in everyday situations - not just the transfer of expert knowledge.

Science and Society is supposed to deal with issues (from the children's environment) where there is something to be understood. It is important to work on a field of action that is significant for coping with the reality of life of these children, from the environment of these children, in an overall context that is manageable for this age group, under technically impeccable work procedures, work techniques and work attitudes with the development of subject-specific ways of understanding and thinking (Wilde, 1995). Involving students at the beginning of primary education in them appropriate forms of learning, based on the integration of the content of different basic sciences, provides credible interdisciplinary experiences and creates links between social sciences, humanities and natural sciences (Hus et al., 2008). Likewise, as Buljubašić-Kuzmanović (2007), Kostović Vranješ and Šolić (2011) point out, an interdisciplinary approach to learning is best suited to real-life learning that integrates and connects different areas of development and provides a new quality to learning.

When it comes to the substrate sciences, oriented and disintegrated school subject Science and Society, only two European countries practice disintegrated approach which leads to the problem of aligning methodical approaches between the primary and secondary level of elementary school, i.e., implementing disintegration which is common for grammar schools (Schwedes,1976). On the contrary, in the integrated, and interdisciplinary concept of school subject Science and Society, at the entry level of elementary school, one could recognize the effort to give the elementary school an independent profile adapted to children's age.

Conclusion

Science and Society teaching has the highest degree of complexity of all subjects and interdisciplinary teaching disciplines. In other words, we can agree with Klafki (2005) that the Methodic of Science and Society is one of the most difficult task fields of all subject and area methodics.

The complexity of curriculum concepts in the teaching of Nature and Society leads to a reflection on the need to fragment the content of the current subject from the perspective of individual scientific disciplines that permeate in the subject. Such approach can be observed in the school systems of two European Union countries, Italy and Romania. Outside the European Union, such conception of this school subject is most noticeable in the United States and the United Kingdom. The basic problem

of the disintegrated approach to teaching Nature and Society is the inability of lower primary school students to successfully achieve such goals and adopt appropriate concepts for each individual scientific area

An integrated approach to the school subject Science and Society is, to a greater or lesser extent, present in the school systems of the 25 countries of the European Union. This approach emphasizes the significant role of a methodical approach to all thematic dimensions of this subject. It is important to emphasize that the integration of scientific disciplines in the life context of the child and problem-based teaching emphasizes the pedagogical didactic-methodical approach. The child in this approach finds themselves in an investigation-like situation, where they ought to understand the phenomena of their living environment integratively, systematically and in accordance with the child-accessible cognitive approach and cognitive methodology.

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DJEČJE CJELOVITO SPOZNAVANJE VLASTITOG OKRUŽENJA I TREND FRAGMENTACIJE SADRŽAJA U NASTAVNOM PREDMETU PRIRODA I DRUŠTVO

Sažetak

U radu su analizirani suvremeni trendovi u strukturiranju nastavnog predmeta Priroda i društvo u Hrvatskoj, u Europskoj uniji i u svijetu. Sve izraženija složenost kurikulumskih koncepata u nastavi Prirode i društva dovodi do promišljanja o potrebi fragmentacije sadržaja tog nastavnog predmeta iz perspektive pojedinih znanstvenih disciplina koje se u tom nastavnom predmetu prožimaju. Pritom se nameće problem prioriteta između značajki razvojne dobi učenika primarnog obrazovanja i emancipacije pojedinih znanstvenih disciplina utkanih u sadašnju strukturu nastavnog predmeta Priroda i društvo. U korist prve skupine prioriteta govori činjenica da je u 25 od ukupno 27 zemalja Europske unije prisutan koncept potpune ili djelomične integracije nastavnih područja, dok se fragmentaciji i izdvajanju pojedinih predmetnih područja Prirode i društva u zasebne nastavne predmete priklanjaju samo Italija i Rumunjska. Hrvatski je kurikulumski pristup, slijedeći značajke razvojne dobi učenika primarnog obrazovanja, također zadržao integraciju i prožimanje predmetnih područja ovog nastavnog predmeta kao svoje temeljno načelo.

KLJUČNE RIJEČI: *Priroda i društvo, integracija nastavnih područja, fragmentacija nastavnih područja*