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**The Cross-Curricular Role of School  
Geography in Education for  
Sustainable Future**

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## **The Cross-Curricular Role of School Geography in Education for Sustainable Future**

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### **Abstract**

Education for sustainable future includes economic, social and ecologic content explained on local, regional and global level and it is based on co-responsible behaviour on the part of each and every person. The beginning of the 21st century brought a need for creative learning, which should be based on the trans-disciplinary connection of school subjects, on pro-activeness and participatory education. School geography can and must take an important role in this because the world is becoming more and more complicated, and to understand and explain it, geography needs to cooperate increasingly with other (natural and social) sciences when researching landscapes. Understanding the laws of activity and the development of different provinces has always been one of the educational tasks of geography. Social conditions cannot be comprehended as a static and simply describable state; they have to be a line of interconnected and interwoven shifts: social, economic, environmental, demographic, political, psychological ... and also geographical.

Establishing a successful reaction by the school sphere to these shifts should be understood as a cross-curricular challenge. On the example of geography curriculum in Slovenian elementary schools, we will present the role and importance of cross-curricular integration in achieving the aims of trans-disciplinary education for a sustainable future.

**Key Words:** education, geography, cross-curriculum correlation, sustainability

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## **Introduction**

Among common starting-points in forming modern European curricula, we can state that geography is defined as a school subject that educates in an interdisciplinary manner through natural and social science contents. These common comprehensions can be a valuable guide for youth in managing and directing future development on the local, regional and global levels, as well as in transferring knowledge from the educational – theoretical arena to practical applications. They can be combined in six groups of geographical educational potential (Kolnik 2009):

- Learning geography can create meaning out of the “interdependent yet constantly changing global scene”. (Owen & Ryan, 2001, p13) Geography considers geo-space while providing an understanding of scale and location. (Herodot 2007).
- Geography is focused on people as well as places. Geography is concerned with human-environment issues and the relations between these. It can contribute to an education that promotes a fair and just society.
- Geography offers a chance to learn about “the big issues that will affect life in the twenty-first century”. (Owen & Ryan, 2001, p13) Crucial issues such as access to drinking water, economic globalization, increasing resource consumption and social inequality, etc., can all potentially be broached through the study of geography, in tandem with the opportunity to create positive change.
- Geography can help children to “learn how to learn” and can potentially motivate and stimulate the child’s curiosity, together with the sense of awe and wonder; at the same time, the process of geographical enquiry is congruent with research into how children (and adults) learn.
- Geography can contribute to improvement of written and oral expression, to greater cartographic literacy, as well as to the development of critical thinking and decision-making and to investigating real-world issues.
- Geography offers an interdisciplinary base from which to address complex issues (for example climate change, nature conservation, demographic change and disaster relief) and other current concerns.

Integration is the only way to deal with such complex problems. Cross – curricular education is vital if students are to understand the world in which they live and their impact upon it and especially their own roll (responsibility!) in it. (Owen & Ryan 2001; Gersmehl, 2005; Haubrich 2005; Kolenc Kolnik & Resnik Planinc 2006; Herodot 2007; Kolnik 2009)

If the aim of schools is to produce students who are active and well-rounded citizens, no subject could be more relevant than geography (Bell 2005; Haubrich, 2005; Marentič-Požarnik 2005; Kolenc Kolnik & Resnik Planinc 2006, Kolnik 2009, Pavlič Škerjanc 2010). In the future it is expected that space - its location and organization and human-environment interaction will continue to be the foundation of geographical education, because together with the encouragement of spatial learning, they encourage the development of participatory and proactive learning as important elements in an educational progress geared for sustainable future.

Huckle (2005) suggests that school subjects themselves should take a postmodern didactic turn if they are to be more effective agents of education for sustainability. This will involve a deflection from the methods of empiricism and positivism in the direction of more empowering philosophical frameworks that allow subjects greater opportunities to foster sustainability as a mind-set as they explore the interaction between the bio-physical and social worlds. Up-to-date ideas from social and cultural theory could thus be injected into geography, history, languages and the arts in suitable formats: science could make room for postmodern science (the new physical and life sciences, systems and complexity theory) and citizen science; moreover, all subjects could explore the multiple meanings and values that society assigns to nature, the environment and development.

### **What Geography Education Can Offer in Education for Sustainable Future?**

Geography education can contribute significantly to learning about (knowledge), understanding and respecting (evaluation) one's homeland and national space and their co-dependent connection with the world. Geography education can substantially contribute to the learning of values, behaviour and lifestyles required for a sustainable future. By bringing global problems of the world up to date, we can educate our students in awareness of their own rights and also of their responsibility for the future. They all deserve the chance to develop skills for social and political participation on different levels of decision-making and to become enthusiastic about common problem solving, solidarity, and the quest for balance between individuality and community, between man and nature.

Geography learning for the future should be based on knowledge and working methods that are important for the present (learning about space) as well as the future (management of space). Creative geography learning encourages practical (useful) context in all of its complexity, which usually demands not a single, exactly defined and correct answer, but also various interpretations and explanations, which encourage searching for solutions to educational (and practical) spatial problems. Such an educational philosophy is close to the geographical spatial paradigm, where space is defined as many layers and varieties that constantly change. (Kolnik, 2009)

In Slovenia geography is defined as a school subject that helps pupils to acquire knowledge and to develop abilities and skills with which they can understand both local and broader space. It also encourages students to value and respect the local (domestic landscape), regional (domestic natural-geographical unit), national (e.g. Slovenia) and world (e.g. Europe, Earth) environments. (The National Curriculum for primary schools – Geography, 2008)

School geography must therefore meet the challenge, which, in the framework of school curricula, encourages and directs youth to seek solutions for thoughtful use of space, for preservation of the Earth and responsible permanent development of nature and society.

Geographers, though they already contribute considerably to our understanding of the issues facing European society, can contribute in many other ways in dealing with them. We recognise the need to work together with other experts in order to provide powerful tools for intensive study of these issues. These tools include mapping, spatial awareness, geoinformation interpretation and analysis.

In the draft of The Sibiu Declaration on Interdisciplinary (Herodot 2007), geography education is seen to offer the following strengths:

- the relevance of a study that provides geographical skills and expertise as salvable commodities,
- a field of study of paramount importance,
- the capacity of (postgraduate) study in Geography to produce graduates with expertise as well as specialist skills, knowledge, experience and understanding.

The advantage that dealing with complex issues requires a balance of perspectives, by establishing a broader vision coupled with suitable specialisations. Under such a system, subject knowledge could include more alternative technology (tools, ideas) that may allow students to pursue their lives within an ecological frame, while citizenship education could investigate alternative forms of citizenship and democracy as well as how the varied discourses of environment and development melt one's identity. Of chief interest is the possibility that subject knowledge could be developed around a framework of the common issues that affect student' daily lives and could then be applied and assessed in community projects that seek greater sustainability (S.O.R.T.E.D., 2008)

#### *Cross – Curricular Education*

As defined by The Citizenship Foundation (2008) and several education researchers (Quisumbing, 2002; Bauer at al., 2003; Powell & Basini, 2006; Kolenc Kolnik & Resnik Planinc, 2006a, Kolnik 2009) cross-curricular education should involve a wide range of multidimensional learning goals:



1. Knowledge and understanding: e.g. of topics such as nature or human rules, the democratic process, human rights, diversity, the economy, sustainable development and the world as a global community; and of concepts such as democracy, justice, equality, freedom and authority; knowledge of locations and places, ability to place national and international events in a geographical frame; understanding of basic spatial relations; understanding of the influence of natural conditions on human activities and various methods in the formation of environments according to their cultural values, religion, technical, economic and political systems; understanding and searching for answers to the challenges and possibilities within the framework of sustainable living as global co-dependence, etc.

2. Skills and attitudes: e.g. critical thinking, analysis of information, expressing opinions, taking part in discussion and debate, negotiating, conflict resolution and participating in community action; the use of verbal, quantitative and symbolic information, identification of questions and results, collection and structuring of information, analysis of data, interpreting and evaluation of information, generalising, forming of opinions and evaluations, solving problems, making decisions, working logically and in harmony with acknowledged values, etc.

3. Values and dispositions: e.g. respect for justice, democracy and the rule of law, openness, tolerance, courage to defend a point of view, willingness to listen, team work, standing up for others; interest in the surroundings and the natural and social characteristics of the surface of the Earth; care for the quality and planning of the environment; care for the life of future generations; readiness for responsible use of knowledge and skills in personal, professional and public life, etc.

All three groups of goals are aimed not only in the direction of geography or citizenship, but also towards important cross-curricular effects that can influence students' grasp of the concepts of sustainable living. "It is artificial to try to separate learning of skills from knowledge, knowledge from values and so on. In practice, they are generally learned simultaneously rather than in isolation." (The Citizenship Foundation, 2008, p 2)

## **Elementary School Geography Curriculum in SLOVENIA**

Intention of school geography in primary schools in Slovenia is determined with general national goals of education and geographical educational goals as objectives recorded in The National Curriculum for primary schools – Geography (2008). The first part determines geography as obligatory school object with fundamental educational value within scope of 221 hours in 4 years (in 6th, 7th, 8th and 9th class). The second part determines geography as complex and problem solving oriented school subject, that is guiding pupils to understanding of the world as dynamic interweaving as social and natural geographical elements.

In the year 2008 renovated geography curriculum the main focus has shifted from teaching (teacher's task) to learning (pupil's task). It emphasizes that learning of geography is based on development of ability and skill (to know how) and cognition (to know geographical data) and accented dedicated point of view (to know why do we need geographical knowledge, skill and/or we are developing abilities).

Students next to geographical - physical knowledge and skills develop numerous cross-curricular abilities (of communication and social compassion, civil responsibilities, human rights, using ICT, etc.). At the same time they learn recognizing and rescuing of space problems, like this didactically-theoretical as those vitally- practical, that they can achieve with cross curricular correlations and connecting of school knowledge with personal experiences. An obligation in geography curriculum there is at least one day-long excursion and at least three shorter field works within school year with use of different didactic procedures of personal experience. The school excursions can be an excellent example of cross-curricular correlation.

#### *Cross – Curricular Correlation*

Cross-curricular correlation is important because it helps student to reach a whole learning experience with continuity rather than a series of separated lessons on different subjects.

In The National Curriculum for primary schools – Geography (2008) there are recorded proposals of cross-curricular correlations of geography with other school objects and can serve to teachers as starting points for adaptations to individual or group needs of their students. The proposals demand teacher's planned search of didactic connections so that students can reach learning goals. Teachers must consider different factors for realization of cross-curricular correlations at class. Among most important ones are interests and abilities of their students and educational goals, that are allowing or encourage such connections. Cross-curricular correlations should go on learning content and method (of knowledge and abilities) as well as on organizational level.

Correlations are foreseen with both groups of school subjects: obligatory as Slovene language, Mathematics, foreign language, Art, History, Civil education and ethics, Physics, Chemistry, Biology, Music, Technology, Housekeeping, Physical education and also selective school subjects; Tourism, Agriculture, People on Earth, Field work of hometown and protection of his background, Ethnology, Protection before natural disasters. Curriculum for geography includes many educational goals from field of sustainability, that demand team planning and teaching and correlations with other objects for their realization.

**Table 1.** *Proposals of Cross-Curricular Correlations of Geography with other School Subjects*

| <b>School subject</b>      | <b>Cross-curricular correlations with:</b>   |
|----------------------------|--|
| Slovene language           | - written compositions, oral notifying, distinguishing between fanciful essay and scientific text, descriptions of regions and traveller's journals, people's tradition, proverbs on weather, uses of specialist literature, of creating of newspaper, a public performance and preparing of speaking exercise, guidance of a round-table, to origin of languages (Germanic, Romanesque and Slavic), literary works and writers that are showing regions and people; |
| History                    | - learning contents on the creation of first of high cultures : river of cradle of civilization, migrations of people, the antiquity on the floor of Mediterranean, historical monuments, formation and disintegration of states and occurring of international connections, colonization and colonies, to research and to populating of continents, to development of economy;  |
| Biology                    | - learning contents about saving water and protection of it, to fauna and to flora, geologic epochs, fossils, natural ecosystems (savannah, a desert, a tropical rain forest...), habitats on Earth, influence of economic prologs on environment;   |
| Mathematics                | - form of the geometric characters and bodies, proportions, metric system, calculating of corners and time, table and graphic displays of data, degrees, calculations of shares, recording and interpreting of graphic displays.   |
| Physics                    | - creation of fog, Sun and sunbeams, altitude, pressure and movement of liquids, energy capacity of water, types of energy and their mode of production and uses, alternative energy sources, characteristics of movement of air, types and to transfer of energies;   |
| Civil education and ethics | - understanding of democracy, civil and human rights, poverty of population, attitudes between religions, people and nations, addiction, minority rights, bilingualism, toleration between nations, role and meaning of family, cultures and traditions;   |
| Art                        | - drawing techniques and gadgets, modelling, perspective and drawing of region; at formation of a poster and folder, importance of art once and today;   |
| Housekeeping               | - at cognition of national dishes of the world, importance and preparing locally produced foods, grains, domestic economy and consumer's rights.   |
| Sport                      | - at treating of locations sport and recreational buildings in region, possibilities for development of tourism and recreations within different geographical regions, movement within nature and motor skills at execution of field work;   |
| Music                      | - understanding of meaningfulness of music e. g. at spiritual music, material for traditional musical instruments, folk songs on regions and people;   |
| Chemistry                  | -understanding of different chemical reactions e. g. at chemical building and reactions of limestone, condensations, characteristic of acids, correct treatment and chemical safety, chemical fertilizers, pollutants of environment;  |
| Foreign language           | - writing and excuse of geographical names, of bilingual inscriptions and names of settlements, to knowledge of culture, of customs and habits of people of this area;   |
| Technology                 | -production of models, of design patents, of profiles, learning of metric indicators, the spatial technical measures.  |

Source: The National Curriculum for 9-year primary school in Slovenia – Geography, 2008

From the set of recommended learning activities and cross-curricular correlations the teacher, on base of differentiation and individualization, is choosing those that suit concrete study groups or an individual and they consider suitable learning didactic conditions for them. It is also written down in curriculum that two of recommended learning activities are obligatory carried out from every geographical thematic assembly and also two cross-curriculum correlations. It is recommendable, that there are more of different realizations of didactic activities and cross-subject correlations and that next to suggested teachers include part of their own.

## **Conclusion**

Geography education can offer quality in connecting natural and social knowledge and common values in order to understand both local and global problems and to encourage students to respond to these responsibly. This is the main educational potential of geography in civic education and education for sustainable development and living. Geography education can contribute significantly to learning (knowledge), understanding and respecting (evaluative) one's own homeland or national space and their co-dependent connection with the world. Geographical education can substantially contribute to teaching the importance of learning the values, behaviour and lifestyles required for a sustainable future. In bringing global problems of the world up to date, we can educate pupils in awareness of their own rights and also of their responsibility for the future. All pupils need to be given a chance to develop skills for sustainable future participation on different levels of decision-making and to cultivate empathy for common problem solving, solidarity, seeking for balance between individuality and community, between man and nature.

We need a sustainable and literate citizenry that is locally, regionally and globally aware. That is why education for sustainable future must be an important element in the geographic curriculum and a part of the citizenship curriculum and vice versa; and why education for sustainable future should include geographical content and that is way we need common path in cross – curricular approach.

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