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The potential of the geography and economics curricula in the first secondary stage of bulgarian schools for the formation of key competences

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Abstract: *In geography and economics training, key competences are present in the curricula, but teachers still do not feel secure and do not have sufficient practical experience to discover and apply the diverse aspects of their application in the learning process.*

The aim of this article is related to proving the place of key competences in the teaching documentation of geography and economics in the first secondary school stage as an important condition for their successful application. To realize the aim, a content analysis of the curricula in high school stage is applied.

Keywords: *competency approach, key competences, geography and economics training in the first secondary school stage*

Introduction

Modern socio-economic processes reflect changes in the education system and are designed through educational approaches. Today's sounding distinguishes the competence approach that facilitates the formation in the learners of a wide range of competences for flexible adaptation to the challenges of the modern world. It is established as an integral part of the new educational paradigm and is used in the legal framework in the countries of the European Union through the key competences.

Materials and Methods

The purpose of this article is to prove the place of key competences in the teaching documentation in geography and economics at the first secondary stage as an important condition for their successful application. For the realization of the goal, a contingent analysis and comparative analysis of the curricula in the first secondary stage is applied.

The potential of curricula is demonstrated by analysing activities for their implementation by area of competence, by taking into account competences as expected learning outcomes on key topics of learning content and linking them to the presence of key competences in curricula.

Results and Discussion

Why did key competences attract our attention? Because they are a very interesting phenomenon in the field of education. On the one hand, they attract significant research interest and there are a large number of publications for them, both in the field of general education and geographical education. On the other hand, they are up-to-date and required by the European educational reference framework to form key competences and bring together the efforts of school communities not only within the EU, but also globally.

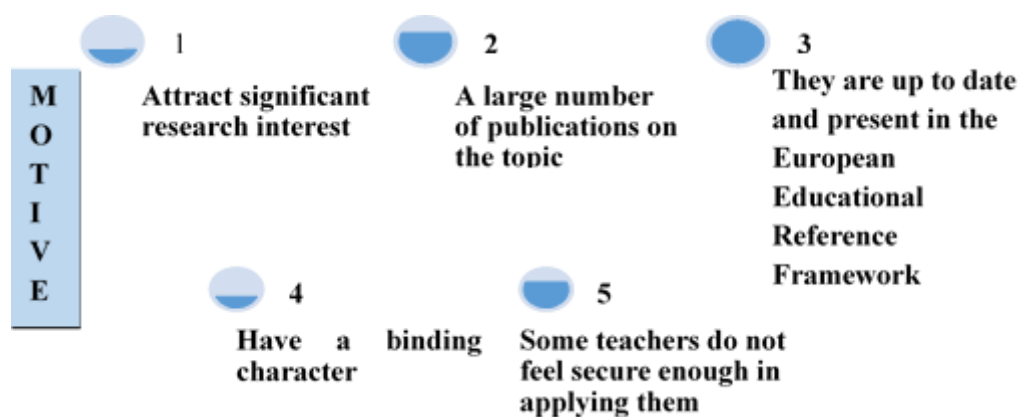


Figure 1. Motivations for research on key competences

This regulates their mandatory character for implementation, as they are advocated in the Law on Pre-School and School Education [6], ordinance No 5 on general education [1] and in curricula. At the same time, some teachers do not feel sufficiently prepared and have no practical experience of detecting and directing activities to the different aspects of their application in the learning process (Fig. 1).

The curricula of geography and economics

The curriculum is an important government document that focuses on the scope and structuring of learning content in a particular subject. Through them, the institutional order is actually set, the expected mission that a particular academic discipline is to fulfil is assigned. Curricula are a mandatory operational document, but in the context of new ideas to stimulate teachers' creativity, they can also be perceived as a framework that sets the standard and general parameters of content coverage.

Curricula in geography and economics are an important component of the normative basis of education, which concentrate the scope and structure of the curricular content. They provide an opportunity for the teacher of geography and economics to develop his/her creative initiative in accordance with his/her competence and style, tailored to the individual characteristics of the pupils and the specificities of the school concerned.

They include as a component activities for the acquisition of key competences, ensuring the implementation of cross-curricular links. These activities are woven into the knowledge, skills and attitudes of the competency areas and the learning content in the form of expected outcomes. The key competences according to par. 1 of Regulation № 5 are interdependent and represent a set of knowledge, skills and attitudes necessary for the lifelong personal development of the individual, for the development of an active citizenship and participation in social life, as well as for his suitability for the labour market [1].

Key competences in the geography and geography curricula in the first secondary stage

What makes the key competences so important for teaching geography and economics at upper secondary level? A few key strokes can be highlighted.

When applying the competency-based approach to the teaching documentation and organization of the educational process in geography and economics, the emphasis is placed on objectives related to the development of motivation, self-determination, socialization and individuality of students. Thus, the main task of geography education focuses on the preparation of competent specialists with constructive knowledge, ready for different aspects of life, with habits of creative handling of intellectual and professional tools, with abilities for social and interpersonal interaction.

The competency approach is implemented through the key competencies, which combine the intellectual and operational components of the educational process and the skills to interpret the content components formed at the output of the system as expected results. The multifunctional nature of key competences, which can be directed towards creating interdisciplinarity and in most cases require the application of abstract thinking and self-reflection in the learning process, cannot be ignored.

In the analysis of the curricula of geography and economics at upper secondary level, special attention is paid to the key competences, which are linked to the activities for their acquisition, as well as to the inter-subject links.

The curricula in geography and economics at upper secondary level are vehicles for the principles of sustainable development, including environmental and economic knowledge, skills and social dimensions. By implementing the objectives and key competences set out in them, pupils are enabled to anticipate the development of nature and society in the long term.

The analysis of the curricula will be carried out by competency areas, which are the major themes around which the curriculum content and all the activities of its implementation in the learning process are unified.

In the curricula of geography and economics in the first secondary school stage, there are two variants of their development depending on the type of curriculum applied in relation to the specific profile of the school concerned [2, 3, 4, 5].








 1	The planet Earth: A - 2; B - 4; C - 1
 2	Geography of nature: A - 1; B - 2; D - 4
 3	Geography of society: A - 3; B - 4; D - 3; E - 1; F - 3; G - 1
 4	Geography of continents and countries: A - 4; B - 6; C - 2; D - 5; E - 2; F - 2; G - 1; H - 1
 5	Geographical information 8th and 9th grade: A - 1; B - 4; G - 1; E - 1
 6	Geography of Bulgaria: A - 5; B - 6; D - 5; C - 2; F - 1
 7	Geographical information 10th grade: A - 2; B - 3; D - 1; H - 1; E - 1

Figure 2. Areas of competence and types of key competences in the geography and economics curricula at upper secondary level

The following letter code was used:

- A - competences in the Bulgarian language;
- B - Mathematical competences and basic competences in science and technology;
- C - Skills to support sustainable development and healthy living;
- D - Social and civic competences;
- E - Digital competence;
- F - Initiative and entrepreneurship;
- G - Cultural awareness and creativity;
- H - Learning skills.

The number of different types of activities through which each key competency is realised is written in numbers against each key competency.

The number of competency areas in the educational stage is the same, but they are distributed as follows:

- In the curriculum for grade 8 with a 36-hour duration, there are three competence areas - Planet Earth, Geography of Nature and Geographical Information [2].

- There are two versions of the Geography and Economics curriculum for Grade 9 - one with a 72-hour syllabus, which combines the studies in Grades 8 and 9, and one with a 36-hour syllabus for students who have studied Geography and Economics in Grade 8 [3, 4].

- In the 36-hour curriculum, there are three competency areas - Geography of Society, Geography of Continents and Countries, and Geographic Information. The number of these in the 72-hour programme is five, by combining the competency areas listed in Grade 8 and adding those from the 36-hour programme.

- In the 10th grade curriculum, there are two competency areas - Geography of Bulgaria and Geographic Information [5].

Based on Fig. 2, the following comparative analysis can be made. The first area is Planet Earth and it takes into account 3 main groups of key competences: in the field of Bulgarian language, mathematical and basic competences in science and technology and skills to support sustainable development and healthy lifestyles. The latter are predominant, among them:

- the skills of comparing, relating, characterising and other geographical objects, processes and phenomena;
- the ability to formulate evidence to express theses;
- the ability to evaluate the significance of objects, processes and phenomena;
- the ability to generate and interpret information from a variety of sources.

In the area of competences Geography of Nature, in addition to the two recurring groups, a new group appears which predominates in the number of activities used - Social and Civic Competences. It includes the following activities:

- to express opinions and comment on geographical issues;
- to participate in various interactive activities;
- solving cases and reasoning solutions;
- to act sensibly in different life situations.

In the area of competences Geography of Society 6 groups of key competences stand out. In addition to the new groups mentioned so far, there are digital competence; initiative and enterprise and cultural awareness and creativity. The key competences in the mathematical competences and the core competences in science and technology groups predominate, with 8 key competences. Of these, in addition to those listed, there are activities for:

- expressing opinions on geographical issues;
- drawing diagrams, tables and maps.

The largest number of groups of key competences is in the competence area Geography of continents and countries - 8 in total. Again, there is a predominance of activities for the formation of the key competences of the group of Mathematical competences and basic competences in science and technology, which are 6 in number.

In the last competency area in the curriculum for grades 8 and 9, Geographical Information, the key competency groups are 4 in number and again the predominance of activities from the Mathematical Competencies group is 4 in number.

In the first area of competences in the curriculum for grade 10: Geography of Bulgaria there are 5 groups in which the key competences are grouped. Among them, again, the highest number of activities for the formation of key competences is reported from the group of Mathematical competences and basic competences in science and technology - 6 in number.

The second area of competences is related to geographic information and contains activities for identifying and locating geographic objects and phenomena on a map, interpreting geographic and economic information from different sources, generating and presenting geographic information in different forms.

The potential of the geography and economics curricula at upper secondary level 1 on key competences, in addition to the analysis of the activities for their implementation by competency areas, can be revealed through a more detailed analysis of the main topics of the curriculum content, the consideration of competences as expected outcomes and the presence of key competences, on the example of the curricula for grades 8-9 (Table 1).

Geography and economics curricula in grades 8 and 9 are grouped into two themes in grade 8 and 2 or 4 themes and 37 sub-themes in grade 9. The sub-themes study nature, economy geographical regions of the world.

Table 1. Competences as expected learning outcomes and key competences by topics of the curriculum content in geography and economics for grades 8-9

Themes	Competencies as expected learning outcomes	Presence of key competences
<i>1. Theme: The planet Earth</i>	Proves with examples the globular shape of the Earth.	B, D
<i>1.1. Shape and size of the Earth</i>	Describes by diagram the dimensions of the Earth (area, polar and equatorial radius, circumference of the Equator). Draws conclusions about the influence of the Earth's shape on life on Earth.	A, B B,D
<i>1.2. Movements of the Earth</i>	Proves with examples the movement of the Earth on its axis. Draws conclusions about the consequences of the Earth's motion on its axis. Draws conclusions about the consequences of the Earth's motion around the Sun and the tilt of the Earth's axis for life on Earth.	B A, B, D A, B, D

<p>2. <i>Theme: Geography of nature</i></p> <p>2.1. Geospheric structure of the Earth system</p>	<p>Characterizes the geospheric structure of the Earth system.</p> <p>Gives examples of interconnections between atmosphere - lithosphere - hydrosphere - pedosphere - biosphere.</p> <p>Draws a model of the Earth system.</p> <p>Evaluates the importance of interconnections in the Earth system</p>	<p>A, B</p> <p>D, H</p> <p>B</p> <p>A, B, D</p>
<p>2.2. Atmosphere - composition and structure</p>	<p>Describes the composition of ambient air.</p> <p>Describes the vertical structure of the Earth's atmosphere - troposphere, stratosphere, mesosphere, thermosphere, and exosphere.</p> <p>Evaluate the importance of the composition and structure of the atmosphere to life on Earth.</p> <p>Gives examples of the impact of man on the state of the atmosphere.</p>	<p>A, B</p> <p>A, B</p> <p>C, D</p>
<p>2.3. Atmospheric thermal regime</p>	<p>Explains the heating and cooling of air. Explains solar radiation - direct, diffuse, reflected and total - by a diagram.</p> <p>Explains the effect of latitude and type of underlying surface on the thermal regime. Explains the variation of temperature with altitude.</p> <p>Explains the distribution of solar radiation on a map.</p>	<p>B</p> <p>A, D</p>
<p>2.4. Evaporation, humidity and rainfall</p>	<p>Explains the factors on which evaporation depends.</p> <p>Knows what humidity is.</p> <p>Distinguishes between types of clouds (feathery, layered, globular) and precipitation (according to place of formation, aggregate state and method of precipitation).</p> <p>Explains the distribution of precipitation on a map. Explains the impact of adverse natural phenomena (torrential rainfall, heavy snowfall, hail, icing) on human life and the rules of behavior in a thunderstorm.</p>	<p>A, D, H</p> <p>B</p> <p>B</p> <p>D, H</p>
<p>2.5. General atmospheric circulation. Cyclones and anticyclones</p>	<p>Produce a general atmospheric circulation diagram.</p> <p>Distinguishes between types of air masses.</p> <p>Explains warm and cold fronts (incl. by diagram) - formation and timing. Compares cyclone and anticyclone and their weather.</p> <p>Reads a synoptic map.</p> <p>Produces an elementary weather forecast.</p>	<p>A, B, H</p> <p>A, B</p> <p>A, B</p> <p>A, B</p> <p>A, B</p>
<p>2.6. Climatic factors. Climate zones and areas</p>	<p>Explains the climate-forming role of radiation, circulation and geographic factors.</p> <p>Characterizes the Earth's climatic zones and mountainous area by map and climatogram (territorial extent, climatic factors, climatic elements, economic assessment).</p> <p>Presents information on human influence on climate in various forms.</p>	<p>A, H</p> <p>B</p> <p>A, C</p>
<p>2.7. Hydrosphere. World ocean. Properties of ocean and sea water</p>	<p>Knows the solubility and heat capacity properties of ocean and sea water.</p> <p>Explains the horizontal distribution of temperature and salinity of ocean and seawater on a map.</p> <p>Evaluates the importance of ocean and seawater properties to the Earth's climate and human life.</p>	<p>A, B</p> <p>A, B</p> <p>A, C</p>

	Characterises the biosphere - composition, extent, processes. Gives examples of human impact on the pedosphere and biosphere.	C, D
2.16. Natural components and natural complexes	Knows what a natural geographic complex (geosystem) is and its features. Knows the nature of the geographical envelope. Explains the basic patterns of the geographical envelope (zonality, azonality, integrity and rhythmicity). Characterizes the natural zones of the Earth.	B, C,
2.17. – 2.18. Earth's natural resource potential	Differentiates between a natural condition, a natural resource and types of natural resources (exhaustible, inexhaustible, renewable and non-renewable). Evaluates the natural resources (energy, mineral, climate, water, land, biological) of the Earth.	B, C, D
2.19. Global Problems of Modernity	Defines the raw material-energy and environmental problem. Explains the causes and consequences of the resource-energy and environmental problem. Identifies ways to overcome the raw material-energy and environmental problem. Knows the essence of the concept of sustainable development. Analyses different sources of information on the problem.	A, B, C, E
3. Theme: Geography of society 3.1. Political organization of society. Political map of the world	Compares major political systems (democratic and totalitarian). Explains basic characteristics of the state and organs of government. Explains with examples the main stages and contemporary dynamics in the formation of the political map of the world, Europe and the Balkans. Groups countries according to different characteristics (geographical location, form of government, state structure and degree of economic development).	A, D
3.2. Number, distribution and movement of the world's population	Analyses changes in population size and distribution. Characterizes population movement (natural and mechanical movement). Explains contemporary demographic problems. Compares the demographic situation (population crisis and population explosion) and population policies in countries with different social development. Comments on policies to solve the demographic problem.	B D A
3.3. World population structure	Characterizes selected types of population structures (gender, age, religious, language and employment structure). Reveals the relationship between population structure and movement. Analyzes information about world population from a variety of sources.	A B
3.4. Settlements and urbanization	Explains the factors for the emergence and development of settlements. Knows the classification of settlements by geographical location and population size. Classifies towns according to function. Explains the nature and characteristics of urbanization. Characterizes the main forms of urbanization. Comment on the consequences of urbanization.	A H

3.5. World Economy	<p>Knows the nature and contemporary structure of the world economy. Explains the influence of geography, natural geography and socio-economic factors on the development of the world economy. Understands basic market principles and mechanisms.</p> <p>Distinguishes between value and natural indicators of economic development. Defines gross domestic product and gross national product.</p>	B
3.6. Primary Sector. Agriculture - general characteristics	<p>Knows the nature and structure of the primary sector.</p> <p>Characterizes the extractive industries.</p> <p>Indicates the nature, importance, characteristics and factors of agricultural development.</p> <p>Distinguishes between types of agriculture.</p>	B, D, F
3.7. Crop and livestock production	<p>Characterizes crop production (cereals: wheat, maize, rice, industrial crops: fibre, oilseeds, sugar crops, tonic crops, citrus crops; horticulture, vegetable production, viticulture) as a rule. Characterizes livestock farming (cattle, pig, sheep, poultry, poultry) by rule.</p> <p>Interpret information about agriculture from a variety of sources.</p> <p>Comment on the food problem.</p>	F D B
3.8. Secondary sector	<p>Knows the nature, importance and structure of the secondary sector. Recognizes secondary sector industries by their characteristics.</p> <p>Explains the influence of development factors on secondary sector industries.</p> <p>Comment on the problems and current trends in the development of secondary sector industries.</p>	F D B
3.9. Energetics	<p>Characterizes the energy industry as a rule.</p> <p>Explains changes in the consumption of energy sources.</p> <p>Interprets information about energy from a variety of sources.</p> <p>Discusses trends in energy development.</p>	F D B
3.10. Metallurgy, Engineering and Chemical Industry	<p>Characterizes the industries of metallurgy (ferrous and non-ferrous metallurgy), mechanical engineering and chemical industry (production of organic and inorganic products) as a rule.</p> <p>Explains the relationship between metallurgy and mechanical engineering and their importance for the socio-economic development of countries.</p> <p>Explains the changes in the development of mechanical engineering.</p> <p>Evaluates the importance of the chemical industry in solving global problems.</p>	F D B
3.11. Light and food industry	<p>Knows the nature and industry structure of the light and food industry. Recognizes the branches of the light industry by their characteristics. Characterizes the textile and food industries by rule. Evaluate the social importance of the light and food industries.</p> <p>Solves geographical cases related to the location of industrial production.</p>	F D B

3.12. Tertiary sector. Transport	Knows the nature, importance and structure of the tertiary sector. Characterizes the tertiary sector. Assess the social importance of tertiary sector industries. Characterizes the transport sector by rule. Solves geographical cases related to transport.	A D
3.13. External economic relations. Trade and tourism	Knows the nature and basic forms of foreign economic relations. Characterises foreign trade and international tourism. Interprets information on foreign economic relations from different sources. Describes the characteristics of the main tourist regions of the world and the tourist routes in them, including with the help of information technology.	F D B E
3.14. Global and regional organisations	Explains the objectives, activities and structure of the UN (FAO, UNESCO, WTO) and the EU. Knows the objectives and activities of NATO. Knows the forms and dynamics of economic integration in the EU (free trade area, customs union, internal market, basic principles: freedom of movement of goods and services, labor and capital). Comment on the role of international cooperation in solving global and regional problems. Use/present information about international organizations from/in a variety of media, including digital form.	F D B E
4. Theme: Geography of continents and countries 4.1. Regional Geography. European region	Name the regions of the world by geography (Europe, Asia, the Americas, Africa, Australia and Oceania). Characterises the European region by rule: geographical location, natural environment, population, economy, specific problems. Characterizes selected countries (Germany, France, Russia) by rule: geographical location, natural environment, population, economy and cities. Presents the geographical characteristics of countries of the European region by choice, including the use of information technology.	A D E
4.2. Regions - Asia, Americas, Africa, Australia and Oceania	Characterizes regions by rule: geographical location, natural environment, population, economy, specific problems. Characterizes selected countries in the regions: Asia (Japan, China, India), the Americas (USA, Brazil), Africa (South Africa), Australia and Oceania (Commonwealth of Australia) by rule. Presents the geographical characteristics of countries in the regions of choice, including with the help of information technology. Names regional organizations.	A D E

The 10th grade Geography and Economics curriculum presents eight topics and 52 subtopics on nature, economy and planning areas in Bulgaria, which are a fertile ground for the formation and development of key competences. The detailed analysis of the curriculum content in Grade 10 is the subject of another publication.

In general, the activities in the curricula of geography and economics for 8-10 grade, which allow the formation of key competences, are related to working with a geographical map, reading and analysing a climatogram, hydrogram, bar and pie charts, presentation of geographical information on a contour map, making tables, graphs, charts, posters, collages, composing and presenting a text (answer to a scientific question, essay,), public speaking, solving geographical cases, expressing and presenting opinions on geographical problems, observation in nature, creating projects for tourist routes, analysing the demographic

situation of a region, country, native land, using Internet sources for searching, collecting, interpreting, presenting and exchanging information, using information technology to develop and present multimedia projects, appropriate behaviour in different life situations.

When creating a geographical text, writing an essay, public speaking, characterizing geographical objects, processes and phenomena, discussing a geographical problem, expressing a personal opinion and its argumentation, in addition to the formation and development of geographical skills, competences for communication in the native language, learning skills, social and civic competences are formed.

In the activities carried out mainly in the activity lessons in the presentation of geographical information on a contour map, in the production, reading and analysis of the climatogram, hydrogram, diagrams, presentation of geographical information on a contour map, production of tables, graphs, charts rely on the mathematics and information technology student and the learners build and develop mathematical and digital competencies. Students in these situations use mathematical methods of thinking (logical and spatial thinking) and representation through formulas, models, constructions, graphs, charts.

Solving geographical cases, expressing and presenting opinions on geographical problems, observation in nature, creating projects for tourist routes, analysing the demographic situation of a region, country, native land are conditions for the formation and development of social and civic competences, the ability to learn and communicate in the native language. The solution of these methodological situations guarantee not only geographical literacy and geographical competence but also adequate behaviour in different life situations, which is an integral part of social and civic competences, learning skills but also initiative and entrepreneurship.

The use of electronically based information resources for searching, collecting, interpreting, presenting and exchanging information, the use of information technologies for developing and presenting multimedia projects are activities aimed at forming digital competences.

Conclusions

- The curricula of geography and economics at upper secondary level 1 regulate the application of the competence approach through the inclusion of key competences.

- An important place in the curricula is given to the key competences, which are expected to contribute to the formation of competitive complex individuals who can easily adapt to modern conditions.

- The potential of the curricula is significant and is demonstrated by the analysis of their implementation activities by competency area, by considering competences as expected learning outcomes in key content areas.

- The curricula pay attention to the opportunities for the application of the integral approach through the application of intra- and inter-subject links to achieve the expected learning outcomes at the stage and grade level in terms of the formation and development of key competences.

- But curricula alone cannot lead to the formation of a set of key competences. They are a condition that must be materialised into an operational resource that is known, evaluated and implemented by all teachers through a variety of technological solutions.

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