

MAPPING OF ENTREPRENEURSHIP COMPETENCES AS LEARNING OUTCOMES IN THE EDUCATIONAL DOCUMENTATION ON TECHNOLOGY AND ENTREPRENEURSHIP AT PRIMARY LEVEL IN BULGARIA

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Abstract: The paper presents the results of a content analysis of the educational documentation on technology and entrepreneurship, including the State Educational Standard for general education and the syllabuses for the subject for primary level in their part related to entrepreneurship education. The purpose of the analysis is to establish to what extent entrepreneurship training within the subject provides the necessary conditions for the full-fledged development of the key competence of initiative and entrepreneurship (entrepreneurship). The formulations of the included competencies have been examined from the point of view of the cognitive levels to which they refer. A mapping has been done to compare the learning outcomes of the entrepreneurship training within the subject set in the State Educational Standard and, respectively, in the technology and entrepreneurship syllabuses for grades 1 – 4. Certain discrepancies and inconsistencies have been identified regarding the selection of topics and the wording of the learning outcomes. There is also a lack of outcomes at cognitive levels, closely related to the essence of entrepreneurship education. At the next stage, a comparison has been made with the European Framework of Entrepreneurial Competence (EntreComp), taking into account the characteristics of the age group. It has been found that the syllabuses do not contain some important topics and concepts necessary to build the knowledge, skills and attitudes characteristic of the entrepreneurship competence, and those included in them are not discussed in sufficient detail. This accordingly raises questions about the scope, depth and relevance of the learning content interpreted on this basis and how effectively it helps building the key competence of initiative and entrepreneurship. The results of the analysis were used to develop an author's syllabus and educational content on entrepreneurship to supplement the missing basic topics and concepts necessary to build the key competence of initiative and entrepreneurship within the elective/optional hours or interest-based activities. Subsequently, the effectiveness of the training according to the curriculum and the developed materials was verified through a pedagogical experiment, in which the level of acquired knowledge and skills in entrepreneurship within the compulsory training in technology and entrepreneurship was also tested.

Keywords: initiative and entrepreneurship, entrepreneurship competence, technology and entrepreneurship, entrepreneurship education.

1. INTRODUCTION

With the entry into force of the Preschool and School Education Act (PSEA, 2015), the competence approach and the related key competences, one of which is the sense of initiative and entrepreneurship, was established in the Bulgarian education system. For the development of this competence a new general education subject was introduced – technologies and entrepreneurship, which builds on the existing topics and concepts from the field of economics, financial literacy and career guidance in the subject home and appliances. A new topic – ‘Professions and entrepreneurship’ – was separated in the primary level syllabuses with learning outcomes explicitly targeting the development of initiative and entrepreneurship as a key competence.

These undeniably positive steps regulating entrepreneurship education as part of general education, however, encounter several challenges related to the content and organization of entrepreneurship education as part of technologies and entrepreneurship subject, the preparation of teachers, the availability of teaching materials, as well as the existing negative public attitudes towards entrepreneurship education at school.

This paper examines the challenges from the first group in more detail. For this purpose, a content analysis of the educational documentation on technologies and entrepreneurship, including the State Educational Standard (SES) for general education and the primary level syllabuses for the subject was done together with a mapping against the European Entrepreneurship Competence Framework (EntreComp). The purpose of the analysis is to establish to what extent entrepreneurship education within the subject provides the necessary conditions for the development of the key competence of initiative and entrepreneurship.

2. RESEARCH ON ENTREPRENEURSHIP EDUCATION AT PRIMARY LEVEL

Research on entrepreneurship education at primary level in Bulgaria is limited and mainly in the context of technological education. Apart from Kavdanska, (2009) whose work is related to the introduction of economic

education at primary level through the former subject of home and appliances, Bozhkova (2007) also works on the topic exploring the possibilities of combining technology and entrepreneurship education for this age group.

It was only after the entry into force of the PSEA and the introduction of the new subject technologies and entrepreneurship, there are already scientific works in which serious attention is paid to entrepreneurship education at primary level. Tsanev (2019) examines some characteristics of the entrepreneurship lesson. He distinguishes it as a separate type with its specific activities and calls it: “a lesson in economics” (Tsanev, *Didaktichni osnovi na tehnologichnoto obuchenie v nachalnoto uchilishte* (Didactic foundations of technological education in primary school), 2019, p. 150). Vitanov (2022) describes in a separate section the characteristics of entrepreneurship education within the framework of technologies and entrepreneurship, examining all topics included in the syllabuses. He pays special attention to the learning outcomes directly related to developing the sense of initiative and entrepreneurship and personal qualities such as: “self-respect, self-confidence, striving for self-assertion and success” (Vitanov, 2022, p. 178). Delinesheva and Jolovski explore the introduction and promotion of entrepreneurship education in Bulgaria and provide a detailed review of the policy and legal framework for entrepreneurship education in Bulgarian schools (Delinesheva & Jolovski, 2021). Another topic of research interest is the transformation of the former subject home and appliances into technologies and entrepreneurship and the shift in the learning outcomes from the perspective of technology education into entrepreneurship related competences (Delinesheva, 2019).

Currently, there is limited research related to mapping of learning outcomes of entrepreneurship education at school, which is mostly in the area of financial literacy. Jolovski (2018) maps the competences embedded in the technologies and entrepreneurship syllabuses for grades 1 to 9, related only to the different types of budgets. In general, the research interest in such studies is focused on the upper secondary levels of secondary education (Rupska & Jolovski, 2021), (Jolovski, 2022), while the lower secondary and primary levels remain out of research efforts.

The mapping of entrepreneurship competences presented herewith builds upon these studies to go a step further, aiming to identify the flaws and omissions of the educational documentation and propose how it can be improved.

3. MAPPING OF THE COMPETENCES IN THE EDUCATIONAL DOCUMENTATION ON TECHNOLOGIES AND ENTREPRENEURSHIP AGAINST ENTRECOMP

The first step in the analysis includes a review of the specific goals and competences in the SES for general education. In its part on technologies and entrepreneurship, there are explicitly formulated objectives and learning outcomes aimed at developing the key competence of initiative and entrepreneurship – building basic knowledge, skills and relationships related to modern economic life, understanding the importance of various professions and the need for leaders for the development of a community, cultivation of initiative, entrepreneurship and responsibility and building a positive attitude to work, protection of natural resources and environmentally friendly behaviour. In the area of competence ‘Initiative and Entrepreneurship’, students are expected to develop knowledge, skills and attitudes in order to understand the meaning of basic economic concepts such as: *work, income, expenditure, profession, salary, family budget, product, service*, etc. and to relate the production of goods and services with the satisfaction of personal and public needs (Ordinance No. 5 of 30.11.2015).

The second step in the analysis examines the competencies in the syllabuses from the perspective of the cognitive levels to which they refer. The technologies and entrepreneurship syllabuses for grades 1 to 4 (2015), (2016), (2017a) (2017b) define the competence areas to be achieved at the end of each grade. One of them is ‘Initiative and Entrepreneurship’. The content is organized into five global topics, including the new one ‘Careers and Entrepreneurship’, covering topics in economics, financial literacy and professions. The changed name of the subject and the formulated objectives in the SES and the syllabuses, as well as the thematic scope, give a clear indication that the policies and legal framework for school education take into account the importance of the sense of initiative and entrepreneurship as a key competence.

In fact, the share of entrepreneurship in the subject content is very limited – only one of five global topics. As a result, some important topics and concepts for building initiative and entrepreneurship remain outside the syllabuses. The scope of the topic also determines the small number of lesson units in the textbooks and accordingly – the number of hours. Thus, only between 5 and 8 hours for the entire school year are allocated to entrepreneurship in the different textbooks, which represents between 14.7% and 23.5% of the hours for the subject. The subject itself is taught only 1 hour per week in grades 1 to 4, which is only 4.3% of the total teaching time in grades 1 and 2, and 3.7% in grades 3 and 4. Taking into consideration the fact that entrepreneurship classes are between 0.6% and 0.8% of the total number of hours at primary level, some concerns arise as to whether this time is sufficient to develop the sense of initiative and entrepreneurship as a key competence. This significantly limits the possibilities for the implementation of various hands-on activities within the framework of entrepreneurship topics, which is the most

effective approach in this training. Additional challenges are also posed by the combination of the two areas in one subject, as they require different skills on the part of the teacher. This raises concerns whether and to what extent the designated school time is sufficient for the development of initiative and entrepreneurship as a key competence.

In addition, the included topics and concepts in the syllabuses are not presented in sufficient depth. This is evident from the learning outcomes, which are mainly related to the first cognitive levels according to Bloom's taxonomy (1956). Thus, out of 25 competences included as learning outcomes for the topic 'Professions and Entrepreneurship' in the syllabuses for grades 1 to 4, 12 are formulated with verbs that correspond to the first level of the cognitive domain – *knowledge* (one of the outcomes contains two verbs), 9 – to the second – *understanding*, and 3 – to the fourth – *analysis*. It is striking that there are no learning outcomes at cognitive levels, intrinsic to entrepreneurship education, such as *application* – related to using the acquired knowledge in new situations, *synthesis* – to the development of new ideas, and *evaluation* – to the formulation of well-founded opinions and conclusions. Some learning outcomes in the syllabuses do not correspond to any competence at a higher level and vice versa – there are learning outcomes in the SES that are not decomposed in the syllabuses. In addition, some learning outcomes in the SES are at a different cognitive level compared to those thematically related to them in the syllabuses.

The syllabuses include a very limited number of concepts that are not sufficient for the proper interpretation of the learning outcomes into educational content: grade 1 – *price, good, service, personal budget*; grade 2 – *income, expense, family budget*; grade 3 – *producer, consumer, production*; grade 4 – *money, tax, public needs, bank*. A positive aspect, however, is the inclusion of basic concepts related to financial literacy as part of the entrepreneurship competence with an emphasis on personal finance – *money, price, personal and family budget, income, expenses*. On the other hand, some key concepts are not included although they are contained in the formulations of the learning outcomes, e.g.: *job, profession, salary, needs and wants, saving, donation (charity), entrepreneur, innovation, money flow (circular flow of money, resources, goods and services)*. Some concepts fundamental for entrepreneurship as an economic category and as a key competence are missing and there are no learning outcomes related to them, e.g.: *innovation, risk, profit, value*. The learning outcomes linked to concepts such as *producer, consumer, production, public needs, tax, bank*, are formulated through the economic perspective, and not so much according to their role in the entrepreneurial process.

The only topic that illustrates the spiral approach is that of professions, but there are also some flaws – *profession* as a concept is not included in the syllabus and there are certain discrepancies between the knowledge, skills and attitudes targeted in the SES and the syllabuses, as well as in the syllabuses themselves.

There are concepts that are not tied to learning outcomes. For example, the concepts provided in the syllabuses for grades 1 and 2 are exclusively from the field of financial literacy, but no competences are specified for them.

The final step in the analysis is related to the mapping of the entrepreneurship competences set in the SES and in the technologies and entrepreneurship syllabuses for grades 1 – 4 against the EntreComp (Tables 1 – 3 in the Annex).

It should be noted that this mapping exercise takes into consideration the characteristics of the age group, i.e. not all areas of EntreComp are expected to be covered by the learning outcomes in the reviewed documentation. The comparison shows that the learning outcomes in the SES and the syllabuses reflect partially and in an imbalanced way the three main areas of competences in EntreComp. Thus, some areas, important for building the entrepreneurship competence, are not taken into account in the SES and syllabuses, such as: *Spotting Opportunities, Self-Awareness and Self-Efficacy*. On the other hand, some of the included learning outcomes do not cover in a relevant way the targeted competence (e.g. *Working with others*) or are considered from a different perspective (e.g. *Financial and economic literacy*).

4. CONCLUSIONS

The mapping exercise has identified certain discrepancies between the knowledge, skills and attitudes in the SES and the syllabuses, as well as in the syllabuses themselves. The following conclusions can be summarised:

The learning outcomes at all levels are not formulated in a consistent and well-defined way and need to be further refined;

The competences included in the SES are not properly decomposed in the syllabuses;

There are learning outcomes in the syllabuses that do not correspond to any competence in the SES and vice versa;

The concepts are not sufficient to explain in sufficient depth the topics included in the syllabuses;

Some important areas of the EntreComp are uncovered by the SES and the syllabuses.

These flaws regarding the choice of topics, concepts and formulation of the learning outcomes, are a direct consequence from the lack of a unified theoretical and methodological reasoning regarding its content and aims in the school education system – a task that should be solved with a national strategy for entrepreneurship education in the entire education system, tailored to the specifics of each level and ensuring a spiral approach to the curriculum.

One of the main reasons for the lack of a strategy is the sporadic nature of scientific research in Bulgaria on the topic. As a result, the educational documentation has not been developed on solid ground.

This mapping exercise has responded to the need for a critical analysis of the existing syllabuses and the effect of their implementation after the entry into force of the PSEA in 2016. The announced findings of the review of the syllabuses and the textbooks in all general education subjects for grades 1 to 10, initiated by the Ministry of Education and Science in 2022 and the parallel teacher survey, do not mention any specific recommendations or flaws related to technologies and entrepreneurship. However, as is evident from the analysis of the documentation, there are significant gaps, discrepancies and inconsistencies in the SES and the syllabuses, which inevitably affect the scope, depth and relevance of the educational content created on their basis. It is obvious that the subject technologies and entrepreneurship remains out of the attention of both educators and the public. This raises the question about the view of the educational authorities about the place of the subject and in particular of entrepreneurship as its element, which is expected to develop initiative and entrepreneurship as a key competence.

Based on the content analysis an experimental syllabus and educational content on entrepreneurship have been developed. The experimental syllabus includes topics and concepts that are absent from the technologies and entrepreneurship syllabuses but are necessary for understanding entrepreneurship as a value creation process. The experimental syllabus it includes topics like: *Entrepreneurs and business*, *Business idea*, *Business model*, with separate sub-topics on marketing, finance, resources and production process, pitching. The aim of the syllabus and the educational content – a book with short stories and worksheets, is to supplement the missing basic topics and concepts necessary to build the key competence of initiative and entrepreneurship within the elective/optional hours or interest-based activities. Subsequently, the effectiveness of the syllabus and the developed materials was verified through a pedagogical experiment in 2021, in which the level of acquired knowledge and skills in entrepreneurship within the compulsory training in technology and entrepreneurship was also tested. The results of the experiment confirm that the included topics and concepts contribute to the understanding of the entrepreneurial process and students can develop the knowledge, skills and attitudes related to the sense of initiative and entrepreneurship as a key competency.

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ANNEX: Mapping of competences in the SES and technology and entrepreneurship syllabuses for grades 1 – 4 against the competence areas of EntreComp

Table 1. Mapping of competences in the SES and technology and entrepreneurship syllabuses for grades 1 – 4 against the ‘Ideas and Opportunities’ competence area of EntreComp

EntreComp	SES for general education in technology and entrepreneurship	Technologies and entrepreneurship syllabuses for grades 1 – 4	
1. Ideas and Opportunities Competences	Initiative and entrepreneurship competences	Entrepreneurship competences at the end of the grade	Global topic: Proficiency and Entrepreneurship competences
1.1. Spotting opportunities Use your imagination and abilities to identify opportunities for creating value			
1.2. Creativity Develop creative and purposeful ideas	Propose ideas for solving economic problems on a practical basis		Relate the value of ideas and innovations to the ability to satisfy consumer needs (grade 3)
1.3. Vision Work towards your vision of the future			
1.4. Valuing ideas Make the most of ideas and opportunities			
1.5. Ethical and sustainable thinking Assess the consequences and impact of ideas, opportunities and actions	Understand the importance of personal responsibility, initiative and entrepreneurship for personal and social progress		Give examples of the impact of human activity on the environment (grade 1)

Table 1. Mapping of competences in SES and technology and entrepreneurship syllabuses for grades 1 – 4 against the ‘Ideas and Opportunities’ competence area of EntreComp

EntreComp	SES for general education in technology and entrepreneurship	Technologies and entrepreneurship syllabuses for grades 1 – 4	
3. Into Action Competences	Initiative and entrepreneurship competences	Entrepreneurship competences at the end of the grade	Global topic: Proficiency and Entrepreneurship competences
3.1 Taking the initiative (to do)	Characterise activity, initiative and imagination as working on various topics and projects	Take initiative in carrying out individual and group activities (grade 1) Prove the advantages of the educational activity and its outcome (grade 1)	
3.2 Planning and management Describe, organise and follow-up			
3.3 Coping with uncertainty, ambiguity and risk Make decisions dealing with uncertainty, ambiguity and risk			
3.4 Working with others Team up, collaborate and take risk		Relate teamwork with the pursuit of a common goal (grade 2)	
3.5 Learning through experience Learn by doing			

Table 2. Mapping of competences in the SES and technology and entrepreneurship syllabuses for grades 1 – 4 against the ‘Ideas and Opportunities’ competence area of EntreComp

EntreComp	SES for general education in technology and entrepreneurship	Technologies and entrepreneurship syllabuses for grades 1 – 4	
2. Resources Competences	Initiative and entrepreneurship competences	Entrepreneurship competences at the end of the grade	Global topic: Proficiency and Entrepreneurship competences
2.1 Self-awareness and self-efficacy Believe in yourself and keep developing			
2.2 Motivation and perseverance Stay focused and don't give up			
2.3 Mobilising resources Gather and manage the resources you need		Understand that financial resources are needed to produce and purchase a good or service (grade 1)	Understand the need of financial resources to produce and purchase an item (grade 1)
2.4 Financial and economic literacy Develop financial and economic knowledge	Understand the meaning of basic economic concepts, such as: needs, income, expenditure, provision, salary, family budget, product, services, etc.	Have a general understanding of basic economic concepts – labour, price, good, service, personal budget (grade 1)	Distinguish their own necessities in terms of 'needs' (grade 1) Name machines, apparatus and equipment used in modern occupations (grade 1) Distinguish professions related to the production of goods and services (grade 1) Understand the importance of saving and spending (grade 1)
		Differentiate types of goods according to their purpose and use – sporting goods, food commodities (grade 1)	Point out and name certain goods and services (grade 1)
		Use names of goods and services in a practical activity (grade 2)	Know basic services used (serving, hairdressing, repairs, etc.) (grade 2) Know where where basic services (serving, hairdressing, repairs) are provided (grade 2) Know the places where they buy basic household goods
		Know the importance of popular professions (grade 2)	Point out the importance of each profession to the community (grade 2)
		Understand that work is remunerated (grade 2)	Understand that people get paid for their work (grade 2)
			Relate the spending of money in the family with satisfying its needs and wants (grade 2) Realise that spending money on family needs and wants has to be planned (grade 2)
		Understand that people from different professions are involved in the production of goods and services (grade 3)	Describe typical activities of people professions related to the production of goods and services (grade 3)
		Know the relationship between the activity of the entrepreneur, the manufacturer and the consumer (grade 3)	Describe activities of the entrepreneur (grade 3) Understand the relationship between consumer and producers (grade 3)
		Explain the path of products from production to exchange and sale (grade 3)	Tell about the production of a specific product (grade 3) List ways to advertise goods and services (grade 3)
		Understand the importance of different professions in the public and private sector (grade 4)	Name businesses in the region and the professions of the people working there (grade 4)
		Understand the flow of money in the community (grade 4)	Give examples of the flow of money when exchanged for goods or services (grade 4)
		Link the role of the bank in production and consumption (grade 4)	Point out the bank as a money saving and lending entity (grade 4)
		Relate the production of goods and services with the satisfaction of personal and social needs	Understand the connection between personal and social needs and how to meet them (grade 3)
		Know the role of taxes in meeting public needs (grade 4)	List services provided by the state – education, health care, transport (grade 4) Relate the need of taxes to the provision of public needs (grade 4)
2.5 Mobilising others to open, enhance and get others on board			