

## SKILLS TO SUPPORT SUSTAINABLE DEVELOPMENT AND ENTREPRENEURSHIP - SOME OF THE IMPORTANT COMPETENCIES IN THE EDUCATION OF PLANT PROTECTION

Rositsa DAVIDOVA

Konstantin Preslavsky University of Shumen, Department of Plant Protection, Botany and Zoology, 115 Universitetska street, Shumen, Bulgaria  
E-mail: [r.davidova@shu.bg](mailto:r.davidova@shu.bg)

Corresponding author: [r.davidova@shu.bg](mailto:r.davidova@shu.bg)

### Abstract

The process of formation of initiative and entrepreneurial attitudes, of the ability to support sustainable development in students from the professional field Plant protection is realized both in the course of teaching various academic disciplines from the curriculum, and through a variety of extracurricular activities. The technology and methodology of this process includes the application of a competence approach in combination with interactive methods, which allows and ensures the achievement of the competencies set in the curricula as expected learning outcomes.

The article discusses problem-solving tasks which require the use of interactive methods (case study, incident, the method of associations by means of mind maps), as well as other activities aimed at forming a skill to support sustainable development and entrepreneurship. In the training university students we invite business experts and use modern innovative ways of teaching which are in line with the standards applied in European education. The main goal based on the multidisciplinary and interdisciplinary approach is the education of highly qualified future employees, possessing skills and competencies for finding modern technological solutions, for successful planning, organization, implementation and management in the field of plant protection.

**Key words:** durable agriculture, education, interactive methods

### INTRODUCTION

The concept of "competency" was first introduced by the American psychologist David McClelland in 1973, according to whom it is a successfully demonstrated combination, a set of knowledge, skills, attitudes and behaviors of employees which allow them to achieve results (desired levels of performance) in a given professional role and in a particular organization (Tomov, 2010).

Radojnovska defines competencies as "... extracurricular goals of education..." and the term "competency" as "... ability to do something...". According to her, competences are "a unity of knowledge, skills and attitudes for solving a cognitive, scientific or life problem. They represent the unity of theoretical knowledge (awareness), a system of attitudes and values (readiness) and patterns of behavior and activity (ability) (Radojnovska, 2005).

Zwell defines competencies as a dynamic set of different knowledge, skills, and attitudes that are acquired or developed in the process of education. They are necessary to achieve results in a specific activity or in a specific professional role. Competences are abilities, which are not innate, but developed through quality learning, in an appropriate pedagogical environment and through the acquisition of serious practical experience (Zwell, 2000). According to the European Qualification Framework, 2009, competences in the field of a given activity are presented as complex mastery of specific knowledge, skills and behavioral patterns in a flexible plan. Competency is an individual's readiness to effectively organize internal and external resources to achieve goals and their ability to solve a certain type of professional tasks. The concept of "competence" is of Latin origin - *competens*, *competentis* and is

translated as "capable". It is a derivative of "competent" - "one who has the legal right to have a say on certain matters; someone who is knowledgeable, well informed" (Georgiev et al., 1979).

Competence is most often associated with an individual's ability to function adequately in a professional environment by demonstrating behavior that meets the expectations of that environment. Therefore, competence is an integral personal quality, a system of different competencies, structured in a certain way and integrating the knowledge, skills, attitudes and relations of the individual to himself, to others, to the activity and to its results (Tsankov & Levunlieva, 2010).

According to the European Qualifications Framework, 2009 competence should be understood as a proven ability to use knowledge, skills and personal, social and/or methodological abilities in work or study situations, and in professional and personal development. It is formed on the basis of cognitive properties and valuable practical experience of the person, allowing to him or her to solve problems effectively and characterizing that person as competent to a certain degree. Competence in a given field is conceptualized as a set of separate competencies (knowledge, skills, attitudes, experience) necessary for effective functioning. The Bulgarian Ministry of Education and Science, in its publication called "Competences and Education", 2019 states that "competence is most often associated with with ability understood as being able to do something, i.e. a skill based on knowledge.

For the first time the term "key competence" was used officially in 1992 in the project of the Council of Europe for the development of secondary education. December 2006 was the time when of the concept of "key competences" was first introduced with the adoption of the Recommendation of the Council of the European Union and the European Parliament on the Framework for Key Competences for Lifelong Learning. The development of the concept of key competences is a result of a long process,

based on the concept of existing set of competences which are necessary for personal development, active citizenship, social inclusion and employability in the 21st century (Bulgarian Ministry of Education and Science, 2019). "The key competences are the most essential competences – the ones that ensure personal realisation, active civic life, integration and employability in the knowledge-based society. Key competences shape the active citizenship behaviour, and the social integration and employment' (Manev et al., 2010).

The key competences are needed for personal realisation and development, adaptability to the changing labor market, social inclusion, sustainable lifestyle and active civic participation.

The European Qualifications Framework defines the following eight key competences:

- Literacy
- Multilingualism
- Numerical, scientific and engineering skills
- Digital and technology-based competences
- Interpersonal skills, and the ability to adopt new competences
- Active citizenship
- Entrepreneurship
- Cultural awareness and expression

As the name suggests, these competencies span the entire life of an individual and are developed through formal education, non-formal and informal learning. The key competencies can be developed:

1. In school education – through the study of all subjects.
2. In higher education – through academic subjects; internships; orientation week; mobility (Erasmus+); career center
3. In non-formal education institutions - schools for foreign language teaching; Centres for continuing development, etc.
4. Independent (informal) learning - inclusion in groups for personal experience; communication.
5. Civic participation - volunteering; youth groups and communities; involvement in

campaigns, projects and community initiatives; project work.

The eight key competences are complementary to each other and are supported by skills such as critical thinking, problem solving, creativity, initiative and decision-making, all of which are central to achieving the sustainable development goals. Of particular importance in this context are the basic competences in the field of science and technology, as well as the social and civic competences (Official Journal of the European Union, 2010).

The EU Strategy for Sustainable Development, adopted in Gothenburg in 2001 and subsequently revised in 2006 and 2009, provides a framework for a long-term perspective on sustainability by combining economic growth, social cohesion and protection of the environment, and emphasizes the fundamental role of education as a prerequisite for promoting changes in the behavior of all citizens for their acquisition of the key competences necessary for achieving sustainable development (Official Journal of the European Union, 2010).

Education for sustainable development is of fundamental importance for the achievement of a sustainable society. Therefore, on the recommendation of the Council of the European Union, it is desirable to introduce it at all levels of formal education and training, as well as non-formal and independent learning (Official Journal of the European Union, 2010).

The ability to support sustainable development involves:

- in-depth understanding of human-environment relationships
- interpreting specific behaviors as consequences for personal and public health
- assessing risks, supporting activities and making decisions aimed at protecting the environment and personal health.

The most important role of education for sustainable development is to enable individuals and groups to acquire the knowledge, skills and attitudes they need to make informed choices aimed at achieving

and preserving a world in which both they and the future generations would like to live and work. Educational institutions, local communities, civil society and employers have a key role in developing and promoting such competences (Official Journal of the European Union, 2010).

It is extremely valuable for a person in modern society to have an entrepreneurial attitude, both in terms of their personal and professional development. The key competence entrepreneurship refers to "the ability to recognize opportunities and take advantage of them, to turn ideas into action, and to plan and manage processes to achieve set goals". The Reference Framework for the Key Competence Entrepreneurship (2016) defines it as "a transferable skill that applies to all areas of life: care for personal development, active participation in society, entering or returning to the labor market as an employee or as self-sufficient person and also start up enterprises (with cultural, social or financial value)".

Entrepreneurship is one of the main drivers of economic growth, productivity and innovation (Zahariev, 2013). Entrepreneurship policies are closely related to innovation policies. On the other hand, the development of scientific research and the implementation of the obtained results through innovation create new areas for the deployment of entrepreneurial skills (Zahariev, 2013). Successful entrepreneurial strategies in agriculture, and applying innovative approaches, add value in new activities and contribute to sustainable development.

In its essence, education for sustainable development and the formation of initiative and entrepreneurial attitudes are about how we perceive our complex world and how we behave in it. It promotes values, principles and practices that help people respond effectively and confidently to current and new challenges. It therefore affects education and training at all levels and its impact can be wider than simply including sustainable development and entrepreneurship as another subject in the

curriculum (Official Journal of the European Union, 2010).

## **MATERIAL AND METHODS**

### Research methodology

The process of formation of initiative and entrepreneurial attitudes, and the ability to support sustainable development is realized in the course of teaching the students of the specialty Plant Protection in various academic disciplines. For example, the curriculum for the bachelor's degree in agriculture includes the following disciplines: "European funds and international programs in the agricultural sector", "The basics of Management", and "General economic theory", in which entrepreneurship training is widely used. A significant part of the training in Zoology in the Plant Protection specialty is aimed at the formation of knowledge, skills and especially attitudes related to the ecology, sustainable development; protection of the environment and people's health; the dependence of man on nature; the role of man, the responsibility and personal contribution to preserving natural resources, which are also a mandatory part of the education. Human beings are a part of nature, but at the same time they are also a major factor in its sustainable development. Part of the educational content and training is aimed specifically at mastering competencies for applying the acquired knowledge in assessing the multifaceted impact of human beings on nature and their responsibility for preserving biodiversity, as a prerequisite and condition for sustainable development.

Extracurricular learning opportunities have an important role in building skills to support sustainable development and entrepreneurship. Taking into consideration all of the above-mentioned, Shumen University offers a range of activities for informal training of students with the aim of forming these key competencies.

### Approaches and methods for successful formation of key competences.

In recent years, the strategy for the competence approach in education has been adopted (Law on preschool and school education, 2020). Its application in the learning process is of key importance for the formation of students' skills for using the acquired knowledge in practice. N. Tsankov and L. Genkova emphasize the fact that the competence approach is related to the new educational paradigm and its application leads to an increase in the quality of education by orienting education towards practical application of knowledge (Tsankov & Genkova, 2009). The competence approach allows a change of the "focus in education from the transmission of knowledge to the mastery of key competences and the development of abilities to solve problems", namely:

- integrated interdisciplinary interaction;
- practical focus of training;
- orientation to results;
- application of innovative approaches and practices in the teaching and learning process (Bulgarian Ministry of Education and Science, Booklet 2, 2019).

In Booklet 2 issued by the Bulgarian Ministry of Education and Science, creativity and innovation are defined as essential characteristics of the competence approach. "The competence approach is based on **interactive methods** and new learning technologies that contribute to the development of independence, initiative, creativity, and critical thinking in students, which orient them to the specific effective result. It emphasizes the variety of assessment forms and the ways to form an adequate and positive self-assessment for a reflexive analysis of one's own development.

The use of **innovations** in the teaching and learning process, including technological ones, contributes to a large extent to increasing the motivation for active work" (Bulgarian Ministry of Education and Science, Booklet 2, 2019).

The lecturers use innovative teaching methods focused on learning through practice and critical thinking. The curricula specify methods and forms related to

modern learning approaches that support the development of skills to support sustainable development and entrepreneurship.

**The purpose of this research** is to establish and present the possibilities for teaching in the professional field of Plant protection by using innovative methods and extracurricular initiatives with the aim of developing an ability to support sustainable development and entrepreneurship among students.

After researching literary sources on the problem of interactive learning methods, and based on practical experience of teaching the educational content, the following interactive methods were used for the purposes of the study: the case study, the incident, and the method of associations with creating mindmaps.

## RESULTS AND DISCUSSION

The competence approach and learning through interactive methods are successfully combined; they complement each other, and when used together, the competencies set in the curricula are achieved as expected learning outcomes. Of utmost importance for the formation of these skills in students are the teaching methods that are used in the training sessions – the method of associations, case study, discussion, incident, etc.

As proof and illustration of the implemented activities, we will present problem-solving tasks with constructed interactive methods aimed at forming initiative and entrepreneurial attitude, a skill for supporting sustainable development.

### Description of the interactive method "incident":

*An ancient forest is burning in the vicinity of your settlement. Many fire trucks and even people from the surrounding area came to help extinguish the fire, which had spread over a huge area. A wind appears, which further worsens the situation.*

1. What chemical process is behind this natural disaster?

2. What could be the possible causes of the fire?
3. What are the consequences for non-living and living nature of the fire?
4. Predict the future consequences of the fire and make predictions about the recovery time for the ancient forest!
5. What safety measures should be taken to avoid similar natural disasters in the future?

### Description of the interactive method "Method of associations" with the construction of a mind map: (Figure 1 and 2).

The teacher sets the task for each student to write down within 2 minutes all the words, terms and concepts that he or she can think of when pronouncing the term "biosphere" and "ecosystem". The students work in groups of four. Each group creates a mind map and reports it to the others. Then the mind maps of all groups are discussed. A mind map is built on the board (or on cardboard), which is a summary of those of the individual groups.

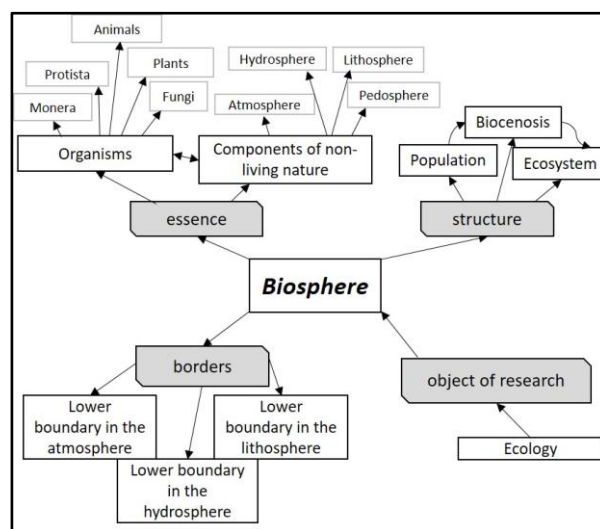


Figure 1. Mind map with the word *Biosphere*

### Description of the interactive method "Role play – press conference" on the topic "Threats for biodiversity and measures for its preservation"

It is necessary to prepare the students in advance and give them roles. For this purpose, the whole group of students is divided into smaller groups: "ecologists",

"doctors", "journalists" and "presenter". The "journalists" ask the "ecologists" questions, and the "ecologists" respond with pre-prepared messages, such as: What are the causes and consequences of environmental pollution in Bulgaria? What are the main pollutants in the Shumen region and to what extent are the air, water and soil polluted? What global measures for biodiversity conservation are being taken? What measures are being taken to protect the Bulgarian nature?

The "doctors" are asked the following questions, to which they respond with prepared messages: What health hazards does a polluted environment pose? To what extent does environmental pollution in the region affect people's health? The press conference ends with a summarizing question: What is the role of humans in protecting biodiversity and is it important for its future?

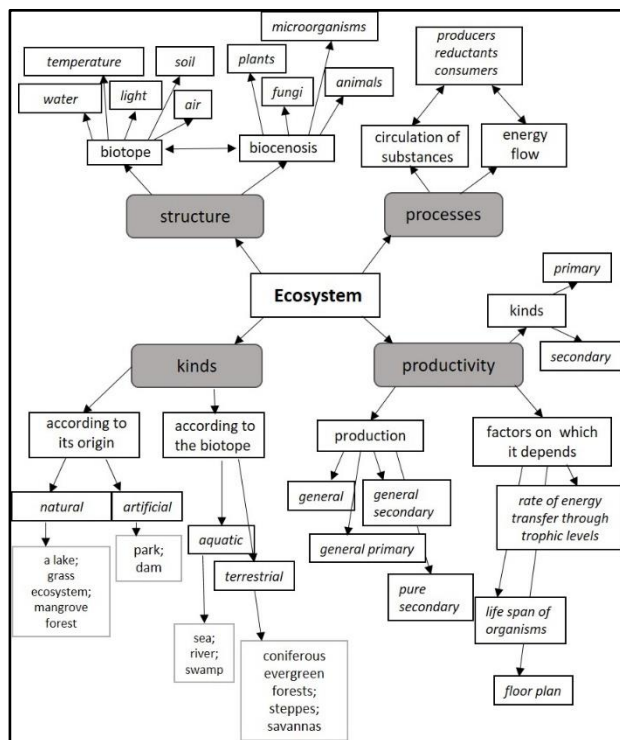


Figure 2. Mind map with the word *Ecosystem*

**Description of the interactive method "case study": "The new geological era - the "age of fires" and the "climax of ecosystems":**

Scientists register a shift of the fires more and more to the north. "Not only in the

tundra, but also here in Germany and in Central Europe, it will become increasingly difficult to preserve the ecosystems of the temperate continental climate," warns Professor Goldammer, a German expert. "As a result, forests will change - they will have more and more vegetation typical of warmer regions - for example, the Mediterranean or the subtropics," he adds. The same trend is observed throughout continental Eurasia, as well as in parts of Russia – about 1.3 billion hectares of forests. For comparison, there are 10 million hectares of forests in all of Germany. "In this situation, we can expect a northward shift of all vegetation as well as animals from these forest areas, and with it, forest fires," says Prof. Goldamer.

1. What factors influence the climax of temperate ecosystems and what are its consequences?
2. What will be the result of their impact on ecosystems?
3. Predict the climactic state of ecosystems in the temperate climate zone if the rates of the described trend are preserved.

**Description of the interactive method "case study": "A carbon bomb is ticking in Eurasia:**

The destruction of individual ecosystems by fires is not the only problem that heralds the onset of a new geological era - the "age of fires", as German expert Prof. Goldamer calls it. "After all, the forest is not only a source of wood and habitat for many species of animals and plants, but also a storehouse of carbon and methane that the soil absorbs from the atmosphere. Due to the humidity and special temperature conditions, these gases have been "preserved" for millennia in the plant biomass, as well as in the soil of various regions, for example, in the tundra," notes the professor. Due to changes in the permafrost zone, the huge amounts of carbon stored in the soil can be released into the atmosphere again today, which will increase the so-called greenhouse effect. "This is why we scientists have been

warning for years that a 'carbon bomb' is ticking in Eurasia.

According to him, mainly three countries are endangered by this: the USA, Canada and Russia. They have vast areas of forest vegetation that stores large volumes of methane and carbon "conserved" in the soil. According to Prof. Goldamer, the topic of fires should be given special attention by politics and politicians. According to him, the solution to the problem is not to waste more and more resources for extinguishing the fires. The scientist makes a comparison with the current coronavirus pandemic. "To successfully deal with the virus, we need effective vaccines. And vaccines against climate change have not yet been found," he points out.

1. How will the "carbon bomb" affect the ecological balance in ecosystems?
2. Find a solution to the "carbon bomb" problem, if you are a politician who depends on it!
3. If you are part of the world's scientific community, in whose hands is the solution to the "carbon bomb" problem, find the "vaccine" against climate change!

#### **Description of the interactive method "case study": "The awakening of brown bears in the Rhodopes":**

Twelve cases of damage caused by brown bears to domestic animals and property were registered in the Smolyan region in April 2021 according to the data of RIOSV - Smolyan. The damage was confirmed during inspections by ecoinspection teams. The cases of attacks by the protected animals are near the Rhodope villages of Trigrad, Grohotno, Churekovo, Smilyan, Levochevo, Barutin, Slivka, Borino. Residents of the village of Mogilitsa inform about the activation of bears in the area, although no data has been received about attacks on herds or apiaries. In a single day, six bears were photographed in the Mogilitsa region, roaming near the settlement. A bear with two cubs were photographed about 20 m from a house in the village. Three more bears were

photographed by camera traps set by the local hunting party.

1. What is the reason for the early awakening of brown bears?
2. What is the reason for the brown bears descending into the settlements and for their attacks on domestic animals?
3. An illustration of the violation of which structure of the biocenosis is the example of brown bears?
4. What kind of ecosystem is disturbed and what is the reason for this?

#### **The application of the described interactive methods sets the following goals:**

##### **Educational:**

1. To consolidate, systematize and summarize knowledge about the biosphere, the ecosystem and the processes that take place in it - ecosystem development and biocenoses, ecosystem dynamics, ecological balance and climax, food chains and food networks.
2. To develop students' skills to establish, prove and present connections and dependencies between the structural elements of the ecosystem and the ongoing processes between them.
3. To build students' skills to transform educational information from one form to another - from text to model.
4. To create a scientific model of the concepts.
5. To strengthen the theoretical essence of the "combustion" process and to connect it with the processes taking place in nature, their importance and consequences for non-living and living nature.
6. To strengthen the knowledge of environmental problems based on the combustion process and their consequences for non-living and living nature.
7. To consolidate knowledge about processes taking place in practice with their negative and positive consequences for living and non-living nature, incl. human health.

**Related to developing attitudes:**

1. To develop personality traits - tolerance, respect for other people's opinion, listening skills and expressing one's own opinion.
2. To cultivate views and beliefs about the importance of knowledge about nature and natural resources and the intervention of human activity, as a basis for the ecological culture of the person and in his fight against climate change.
3. To cultivate views and convictions related to the need to protect nature and natural resources.
4. To cultivate a civil attitude, behaviour, and action in cases of environmental problems which threaten non-living and living nature, and human health.
5. To assist in the formation of health and ecological culture among students.

**Developmental:**

1. To develop students' skills to transform and visualize knowledge through the construction of a scientific model of a concept.
2. To develop students' logical thinking by applying the logical operations of analysis, drawing conclusions and generalizations of the problems of pollution and protection of non-living and living nature, including human health.
3. To develop students' skills to apply theoretical knowledge in practical situations related to pollution and protection of nature and human health.
4. To develop students' analytical and associative thinking.
5. To develop students' communication skills and their abilities to work in a team.
6. To develop the skills to discuss, express opinions, bring arguments, evaluate judgments about the disturbed relationships in the "human being - nature" system, to express and defend a personal and civil position, to take responsibility for the decisions made.
7. To develop students' skills to make predictions about future relationships in the system "human being - society - nature", and for the measures and ways of their regulation.

**Competencies as expected outcomes of the application:**

**Each learner should be able to:**

- *correctly use the terms and concepts to indicate in the model the levels of organization, structures and processes in the biosphere;*
- *describe and present in a model the structures and processes in the biosphere;*
- *define the concepts "biosphere", "population", "biocenosis", "ecosystem", "atmosphere", "lithosphere", "hydrosphere", "ecosystem", "biocenosis", "food chains", "food webs", "biotope", "ecosystem dynamics (succession)", "primary succession", "secondary succession", "ecosystem dynamics", "ecological equilibrium", "climax";*
- *define and explain the place and interrelationships between concepts in the general model conceptual system;*
- *transform and present the knowledge and the concepts included in it from one type to another - from a text to a model of the concepts;*
- *illustrate with examples the concepts presented in the model;*
- *express opinions, arguments, evaluations, predictions about the causes and consequences of the disturbed relationships in the "human being - society - nature" system and, on this basis, to propose measures and ways to harmonize them;*
- *evaluate the role of humans in protecting non-living and living nature, biodiversity in nature;*
- *justify the need for the use of new technologies in order to protect non-living and living nature and support it with examples;*
- *research and analyse information from various sources in order to apply the acquired theoretical knowledge about the biosphere in human practice, and evaluate their economic and social effect;*
- *use specific terminology and enrich their language culture;*



- *have the skills to communicate, to discuss options for solving a problem in joint activities, to express an opinion;*
- *possess skills for working in a team, show a tolerant attitude and accept different points of view in discussions and discussions;*
- *is responsible for the decisions made;*
- *have skills for making a model of concepts.*

Shumen University offers and implements a variety of **extracurricular activities** through which it contributes to the improvement of the skills and competencies of the students, thereby adequately responding to the growing demands of the labor market, to the need for innovations for further develop the entrepreneurial infrastructure.

The students of Plant Protection are involved in various training courses on entrepreneurship, presentation skills and digital creativity, forming soft skills in students, for example, Entrepreneurship skills and sustainability of results, Presentation skills and influence management, Digital technologies and creativity, Coaching-techniques for personal and professional development, Application of cloud technologies in business, Acquisition of civil and public competences. This leads to the deployment of innovative and entrepreneurial thinking, the entrepreneurial culture and attitudes of the learners.

An important factor in student preparation is the variety of activities aimed at students' career guidance. Together with business representatives, a number of events have been organized and held for this purpose, such as career fairs, innovation workshops, project weeks, entrepreneurship days.

The main aspects related to the organization of these events include:

- Increasing students' awareness of the importance of applying the principle of sustainable development in the management and use of natural resources.
- Development of professional competences among students, related to the application of theoretical knowledge

in practice, in the solution of a given case study in the field of plant protection.

- Transfer of the accumulated experience from eminent specialists to the students.
- Development of soft skills in students to develop personal professional plans for realization, to acquire civil and public competences.
- Provoking among young people an interest in the practical application of new scientific results and technologies in solving specific tasks in practice.
- Building and developing entrepreneurial skills among students, providing new opportunities and presenting different perspectives for implementation.
- Increased awareness of students about the possibilities of entrepreneurship and good practices in this area for their career development.
- Increasing students' interest in starting their own business.

The planned events allow expanding and deepening the relations and the cooperation with businesses and with the potential employers as a factor for the implementation of an adequate and effective educational policy. They help students to make informed decisions about their career, including the possibility of starting their own business.

## CONCLUSIONS

The conducted research shows that the researched problem is extremely relevant and there is a need for its practical development. The application of the competence approach combined with interactive methods in teaching, and the implementation of various extracurricular activities, contributes to increasing students' pro-active attitudes, their independence, and leads to the formation of skills, which are the basis of the researched competencies. The clearly expressed positive assessment which students give for the applied approaches, methods and initiatives confirms the need and effectiveness of this type of training.

Experts from the world of business are involved in the training of students, modern

innovative forms and methods are introduced, taking into account the standards of the European education. The main goal is the training of highly qualified employees, based on the multidisciplinary and interdisciplinary approach, possessing Bulgarian Ministry of Education and Science, (2019). *Booklet 1. Competences and Education*, 46 pp.

Bulgarian Ministry of Education and Science, (2019). *Booklet 2. On the transition from knowledge to skills*, 20 pp.

Law on preschool and school education, (2020), change and add. DV. No. 82 of September 18, 2020.

Georgiev, B., Zaimov, Yo., Ilchev, St., Chalakov, M., Ivanov, Yo., Mihailova, D., Anastasov, V., Dukova, U., Racheva, M., Todorov, T., (1979). *Balgarski etimologichen rechnik*, Tom II, BAN, Sofia, 1032 c.

Manev, S., Petkova, R., Tomova, S., Taphrova, A., Gaidarova, M., Tyutyulkov, K., Yotovska, K., Milcheva, T., Vasileva, V., (2010a). *Third National Competition for Key Competences in Science, Biology, Ecology and Biotechnology*, 5, 43-55.

Manev, S., Tomova, S., Taphrova, A., Gaidarova, M., Tyutyulkov, K., Yotovska, K., (2010b). *For the key competences in natural sciences*. Biology, Ecology and Biotechnology, 6, 16-21.

Official Journal of the European Union, (2010). *Conclusions of the Council of November 19, 2010 regarding education for sustainable development*, [https://eur-lex.europa.eu/legal-content/BG/TXT/HTML/?uri=CELEX:52010XG1204\(01\)&from=LT](https://eur-lex.europa.eu/legal-content/BG/TXT/HTML/?uri=CELEX:52010XG1204(01)&from=LT)

Radojnovska, B., (2005). *Competences - a priority goal of education*. Pedagogy, 5, 25-36.

Tomov D., (2010). *Developing competency models, or what is needed for successful job performance*. Trud i pravo. trudipravo.bg, 16.11.2010.

skills and competencies for the use of modern technological solutions, for successful planning, organization, implementation and management in the field of plant protection.

## REFERENCES

Tsankov, N., Genkova, L., (2009). *The competence approach in education*. Blagoevgrad, 113 pp.

Tsankov, N., Levunlieva, M., (2010). *From transversal competences to transversal personality in learning through language*. Strategies of educational and scientific policy, 3, 254-267.

Zahariev, E., (2013). *The challenges facing industrial management: priorities and solutions*, Academic Publishing House "Talent", VUARR-Plovdiv

Zwell, M., (2000). *Creating a Culture of Competence*. New York, 201 pp.