

# SOCIAL ECOLOGICAL INNOVATIVE METHODOLOGY



A model for sustainable European development in the 21st century

**Sofia – Budapest – Bitola**

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## 1. Methodological justification

This social ecological innovative methodology, developed within the framework of the project: "Social Ecology – a model for sustainable European development in the 21<sup>st</sup> century", 2020-2-BG01-KA205-079309, co-funded by the Erasmus+ Programme of the European Union, puts the environmental issues in a specific social context and takes into account the transformation of economy to circular and low-carbon. It defines the place of man in the system of dynamic bio-equilibrium of the planet, forming skills for critical thinking in young people and gradually building semantic memory.

The innovative methodology is based:

- \*on the one hand, on the study of good practices and examples in Europe set out in the report (O1) and the exchange of experience in the subsequent short-term joint event for staff training (C1) between youth workers from the three project partner teams;

- \*on the other hand, on the active research work of the project teams, as well as testing of its elements and integrity with young people, incl. during the Blended mobility for young people (C2)

The horizontal nature of the socio-environmental challenges, subject to this methodology, allows them to be viewed upon from different perspectives: scientific, social, economic, political, intercultural, national, European, global, etc.

This innovative methodology could be adapted and used in various forms of non-formal and formal education and has a long-term potential for impact on direct and indirect target groups.

The main goal of the project is to develop a methodology for building socio-environmental and eco- entrepreneurial knowledge and skills that can be developed and tested with youth workers and large numbers of young people, all with an innovative interdisciplinary approach.

With this, we can contribute to their social literacy and personality!

An important part of the project is development, active civic participation, and provision of freely accessible educational resources.

"Social ecology - a model for sustainable European development in the 21<sup>st</sup> century" is an innovative methodology that has set long-term goals. It strives to make a significant impact in both formal and non-formal education.

It offers a number of learning strategies that can be used in a variety of situations. (teamwork problems, information search, problem-solving strategies...) All of this can be used in formal and non-formal education systems.

However, each application is determined by the 4 modern didactic principles of the methodology:

- municipality
- cooperation
- constructivism
- contextuality

The specific goals of the project are as follows:

- Analysis and synthesis of good European practices of social ecology, as

well as the exploration and connection of eco-challenges with the social component;

- Developing an innovative socioecological methodology that can be used in formal and non-formal education;
- Incorporating digital tools into non-formal education by creating an online platform (according to methodology), through which they can learn about activities and practical exercises aimed at a positive environmental impact
- Testing the methodology with young people, youth workers, students, teachers or by interested parties
- Improving the level of key competencies and transversal skills of project participants, including future-oriented skills, initiative and creativity development;
- Development of eco-entrepreneurial thinking and skills;
- Development of civic and intercultural competences;
- Encouraging the relationship between research and practice in the field of social ecology;
- Strengthening the international dimension of the partner organizations' activities.

The teaching of social ecology has 3 main strategies:

- 1) Game-based learning - This contributes to the development of motivation and socialization skills to make learning easier and faster
- 2) Group-based learning – The development of study skills is achieved through the joy of research and the acquisition of study skills
- 3) Team-based learning – Provides students with tangible learning outcomes

The 3 main strategies listed work in practice based on the figure: (see figure 1).



## 2. The methodology of problem-based learning during the learning process related to enterprises (Perspectives on the role of society and social ecology)

One of the most important issues of the 21<sup>st</sup> century is the existence of entrepreneurial competencies. With the help of this, one can earn money from any idea or skill.

### Outlook on the role of society and social ecology:

Ecology is an area of natural science with significant social implications, as its questions and answers reflect the most important problems of our time, affecting the present and future of all human beings.

In the second half of the 20<sup>th</sup> century, the view that human culture, society as a whole, and their sub-phenomena cannot be fully examined and interpreted without taking the natural environment into account gained more and more ground in the social sciences. This was not a new idea:

proponents of environmental determinism, from ancient Greek thinkers to 20<sup>th</sup> century scientists, argued that the natural environment determines human culture.

The goal of social ecology is therefore to create a theory about the development of the relationship between man and nature, the logic and methodology of transformation of the natural environment. The purpose of social ecology is to clarify and bridge the gap between man and nature, the humanities and natural sciences.

Social ecology explores patterns of relationships between nature and society that are as fundamental as physical patterns.

Throughout history, the learning of individual family handicrafts has been integrated with the learning of entrepreneurial actors. Here, the product or service must not only be created, but also sold. However, the business environment is diverse and rapidly changing, so entrepreneurship skills are also changing, so new learning strategies are needed.

In addition, it is now necessary to involve people who have special knowledge in various business areas. Different professions and fields that require a lot of creativity. And creativity can only be developed through interactive learning methods and is based on a variety of intellectual and behavioral manifestations. One of the main cognitive bases of creative thinking is the association, interpretation and visualization of emerging learning objects. Accordingly, a problem-based learning process is modeled, the essence of which is the implementation of the learning cycle, which usually consists of four elements: problem structuring, information research,



strategy generation and monitoring/reflection.

## **Methods of social ecology**

Examining its place in the system of culture, social ecology is the discipline that is located at the intersection of sociology, ecology, philosophy, science, technology and culture. To illustrate the connections, we can list the following areas:

1. The economics of nature management
2. Human ecology
3. Environmental Protection Act
4. Environmental policy
5. Ecological ideology
6. "Deep" ecology
7. Environmental ethics
8. Ecology
9. Geological ecology
10. Anthropogeography

In this field of science, many new areas came to the fore when the relationship between the entire human and natural environment was investigated. For example, natural sociology, noology, noogenics, global ecology, social ecology, human ecology, socio-economic ecology, modern

ecology, macroecology, etc.

At the moment, however, we can talk about three main directions with confidence.

The first direction is the study of the relationship between society and the Earth's biosphere on a global level, that is, humanity's relationship with Earth. In this area, Vladimir I. Vernadsky's studies, especially the research of the biosphere, play a significant role. This direction can be called "global ecology". The work of Mikhail I. Budyko, "Global Ecology", is also of great importance. It focuses on climate aspects, but also takes into account the amount of Earth's resources, global indicators of environmental pollution and the characteristics of global circulation.

The second direction is the research of the relationship between society and the natural environment, from the point of view of understanding man as a social being. Human relationships are closely related to the social and natural environment. Man's relationship with nature determines his relationship with other people, and vice versa. This direction can be called "social ecology", which examines the interactions, effects, and mutual influence of social relations and the natural environment.

The third direction is the examination of the sustainability of social systems, that is, how society and the natural environment can be designed in such a way that it is sustainable in the long term. The central question of this research area is how to harmonize social development and the sustainable use of natural resources in order to preserve the stability of the environment and ensure suitable living conditions for future generations.

Focusing on these directions, they help to understand and analyze the interactions between social systems and the natural environment, and determine the steps taken towards sustainable and balanced development.

B. Commoner's work outlines four main global environmental laws as laws of social ecology can be interpreted as:

Law 1: Human desire for the environment stems from the breakdown of cause-and-effect relationships within the ecological system. Because an impact on any natural system of the Earth causes a number of effects, the development of which is difficult to predict.

Law 2: This contains the provision that man lives in a closed space, therefore everything that is created and everything that we take from nature returns to it in a certain way.

Law 3: Indicates the relationship between our knowledge of nature and our influence on it. In other words, if we don't know how to transform nature, if we can't "fix" it with our actions, then we must return to forms of life that represent ecological harmony.

Law 4: Says that global ecological systems are an indivisible whole, and anything that humans take from them must be compensated. Therefore, the use of natural resources cannot be unlimited.

More specifically, the common laws say:

Ecological happiness cannot be achieved in one country, the whole community must fight against ocean pollution, the greenhouse effect and the creation of the ozone hole. The international community finances

scientific projects to maintain the biological balance.

The international community has adopted special laws, which prohibit the transportation and disposal of toxic and radioactive waste in poor countries. The oceans are not dumping grounds either. Man must maintain the ecological balance of the biosphere, not trying to be smarter than nature, and not create an artificial environment for the mind - the noosphere.

The five laws of social ecology were established by Nikolay F. Reimers who arranged them in this order:

1. The rules of social-ecological balance.
2. The management principle of cultural development.
3. The rules of socio-ecological substitution.
4. The law of historical (social-ecological) irreversibility.
5. The law of the noosphere V.I. Vernadsky.

### **Law "Rules of social and ecological balance"**

Demographic saturation, society's pressure on the living environment and the pace of changes in society can be formulated as follows.

The rules of social and ecological balance:

Society develops as long as and to the extent that it maintains a balance between the burden on the environment and the natural and artificial restoration of the environment.

If people's living environment and/or the operation of their economy is destroyed or noticeably deteriorates, the reproduction of natural resources and the maintenance of social and ecological balance require significant labor and material resources.

The stage of extensive development of society in the widest range of people, was based on his pan-ecumenism, humanity's maximum desire to "conquer" nature, increase your productivity, increase your energy production, and increase your working-age population (which leads to an overall increase in people) and rapid movement of goods.

The only criterion for development is economic profit, enrichment.

### **Law "Management principles of cultural development"**

It says that religion, custom and legal laws set the rules for people's behavior in their relationship with nature and within society as just stated.

The international conference dealing with the problems of the planet Earth was held in Rio de Janeiro in 1992.

179 heads of state participated in the conference, where the world community developed a jointly agreed development strategy for the first time. The basis of the concept is sustainable development, which was based on the decisions made at this conference for creation.



*Group photo of world leaders meeting at the 'Earth Summit' in Rio de Janeiro, Brazil, 13 June 1992. UN Photo/Michos Tzovaras*

### **Law "Rules of socio-ecological substitution"**

The rules of socioecological substitution refer to the tendency of human society to use and substitute natural resources and ecological services with other resources when the resources are limited or already exhausted. These rules indicate that such substitutions may have consequences and that ecological effects as well as socio-economic and cultural factors must be taken into account.

### **Law "The law of historical (socio-ecological) irreversibility"**

The law of historical (socio-ecological) irreversibility points out that certain human activities can have long-term, irreversible consequences for the natural environment and society. For example, deforestation or species extinction can cause changes that cannot be reversed or are very difficult to reverse and can have significant impacts on biodiversity and ecosystem functioning.

## **Law "The Law of the Noosphere V. I. Vernadsky"**

We associate it with Vernadsky's name, it refers to the role of consciousness and intelligence in earthly systems. It is the system of laws that shapes human society and influences earthly development, and that consciousness and intelligence are key factors in evolution. The law of the noosphere points out that human activity has a significant impact on our planet, and we must responsibly manage the opportunities created by consciousness and intelligence to create a sustainable future.

## **Methods of social ecology in brief**

*A sociological approach to the study of environmental problems. The technical and technological component of the concept.*

A "method" is basically a way of building and supporting knowledge. In science, a method is a way of achieving new results. During the development of philosophy, a universal method of cognition, dialectic, was developed. Dialectic is an important form of thinking. Man perceives the world dialectically, since the world itself develops according to dialectical laws.

Socioecology is a relatively young science, the method of which has not yet been fully developed. Therefore, you must use the methods of natural sciences and social sciences. The method of social ecology is determined by objective laws, which are the essence of the subject of the study.

Due to the complexity of scientific research, multiple research methods are needed. This allows social ecology to develop a common approach and understanding of many theoretical problems, such as the systemic understanding of the world, the ecological crisis, the crisis of human existence in the modern world, the impact of profit-oriented industrialization on the ecological crisis. , overcoming the ecological crisis as a prerequisite for civilizational development, in order to solve global environmental problems and universal responsibility.

### **Tasks of social ecology**

Social ecology is a scientific field that examines the relationship between society and nature. Its goal is the theoretical foundation of the relationship between man and nature, as well as the logic and methodology of transforming the natural environment. Social ecology reflects efforts to understand and bridge the gap between humans and nature, and between the humanities and natural sciences.

The research field of social ecology covers a wide range, including the use of natural resources, ecological impacts, the consequences of human interventions, and the sustainability of human activity. The goal is to understand how the relationship between man and nature develops and how man changes the natural environment. This understanding allows us to better manage and plan social and economic development in harmony with nature.

Social ecology is an empirical discipline that builds on real-world data and experience. The patterns and laws formulated by him are generalizing and



reflect the relationship between society and nature. However, as this field of science is still relatively young and complex, further research is needed to gain a deeper understanding of the dynamics and interactions between society and nature.

The common goal of social ecology is to provide a comprehensive picture of the relationship between man and nature and to contribute to the development of sustainable development and balanced socio-economic systems. Research and results in the field can help us take measures that are in harmony with nature and ensure long-term sustainability.

## 2.1 Structuring the problem phase

Structuring the problem phase is an important step in the problem-solving process. This process helps you break down the problem into parts, understand the relationships between them, and find effective solutions.

Some important steps for structuring the problem phase:

- Problem identification: The starting point for the structuring of the problem phase is the identification of the problem. We need to clearly define what the problem is and why it is a challenge or difficulty.
- Determination of problem areas: The problem can usually be approached from several sides. Each problem area or aspect needs to be defined in order to get a comprehensive picture of the problem.

For example, if it's a business issue, it could be marketing, finance, logistics, etc. areas affected.

- Identification of sub-problems: Sub-problems can be identified by further

breaking down the problem areas. These sub-problems represent special problems that require special attention.

- Identifying relationships: It is also worth recognizing the relationships between problem areas and sub-problems. These connections can help you understand the problem and find solutions. For example, if we are looking at financial problems, sub-problems may be related to cost reduction or new revenue streams.
- Determination of priorities: At the end of the structuring of the problem phase, it is important to determine the priorities. Which problem areas or sub-problems are most important to the solution? This allows us to focus our resources and time on the most critical areas.

Structuring the problem phase helps make the problem transparent and enables an effective solution.

## 2.2 Information research stage

In the information research stage, information is collected and analyzed to support the research questions or objectives. Topics that require creative thinking require greater exploration of conceptual knowledge, which better reveals gaps in existing conceptual insights, allowing the discovery of new aspects of the studied phenomenon that generate more innovative business ideas or discover new aspects of entrepreneurial activity.

The following questions are asked:

What is the problem? What is the structure of the question? What is the solution? What it means? What is prevalence? What's the use?

The questions of the examination of procedural knowledge usually also require the exploration of operating procedures and methodologies:

How do we do it? How do we achieve it? What methodology and procedure should we use?

### 2.3 **Strategy creation stage**

The essence of the strategy generation stage is the generation of innovative ideas and the possibility of problem management, or the transfer of detailed procedural provisions that facilitate the achievement of predetermined goals. In this process, certain problems may require more creative solutions, while other problems require joint solutions organized in a new context.

This stage involves making strategic decisions to achieve goals. Strategic decisions are the decisions of an organization or individual about the use of resources, the exploitation of competitive advantages, and the determination of market position. This could be, for example, the pricing strategy, product development direction, business expansion or innovation strategy. It is also important to develop a detailed action plan for the implementation of the strategy, which includes the specific steps, deadlines, responsibilities and resources that can be used to implement the strategic goals. The action plan details how we will implement the strategy on a tactical level and prepares the organization for practical steps.

### 2.4 **Reflection/monitoring section**

The reflection/monitoring phase is part of the strategic process when we

evaluate and monitor the implementation and results of the strategy. This stage is crucial for understanding and improving the effectiveness and adaptability of the strategy. This includes reviewing performance indicators and targets, evaluating results and sharing information with stakeholders. This creates an opportunity to share feedback and new ideas and improve the strategy process.

### **3. Learning cycle approach**

As mentioned above, project-based learning to promote young people's entrepreneurial competencies is based on a learning strategy that includes four key elements within the learning cycle:

- repeating a problem scheme
- information research
- developing a strategy
- monitoring of problem solving

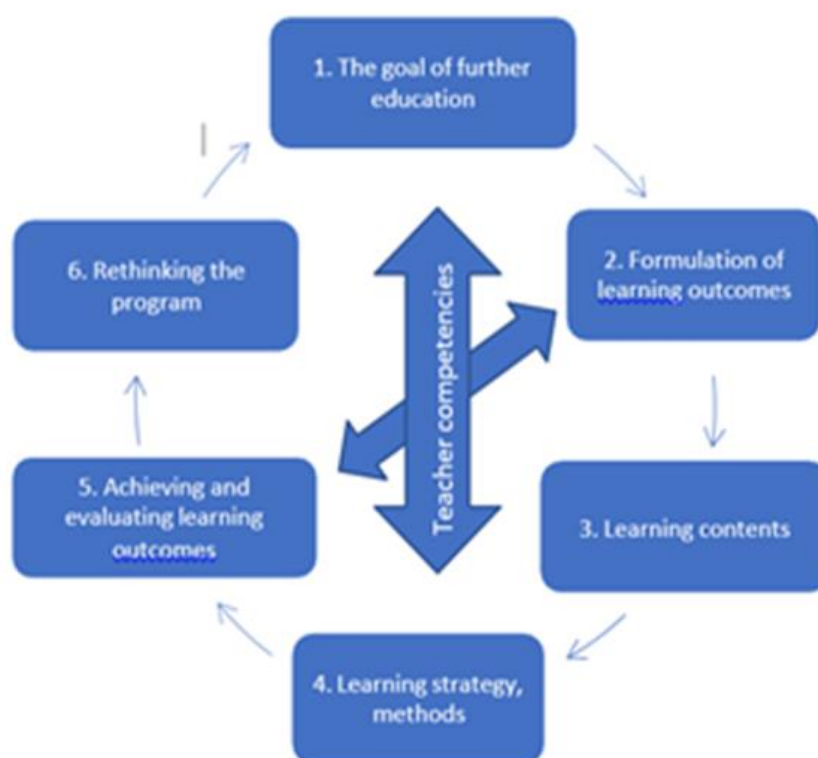
The cyclical nature of the learning process means that learners may return to earlier stages of the learning process from time to time to better analyze different aspects of the learning object, clarify information and gain new insights into the learning specifications.

Cyclical learning strategies have several advantages over linear ones because they focus on deep learning—analyzing the problem until there is no certainty.

The intended learning compounds are:

### 3.1. Creating a problem diagram

It is a tool or technique that helps identify and visualize problems and their associated cause and effect relationships. This can be a drawing, diagram or image. It is important that the result of group work clearly reveals the essence and boundaries of the learning subject. In the process of problem-based learning, various learning problems are used - from simple logical problems to complex dilemmas.



### 3.2. Studying information about the problem

Problem information is determined based on the problem diagram. They are

expressed through the students' experiences and observations related to problematic situations. To explore these, students generate as many questions as possible, which they classify and select to find the most relevant information. The quality of the wording and the choice of questions decisively influence the success of the learning results of the problem. Most often, it is recommended to formulate 3-6 questions related to the subject of a problem. The more complex the problem, the more objects there can be. The information search phase is the most individualized learning phase of problem-based learning, since most of the information search is performed by all members of the group in the form of information search tasks. After that, the group summarizes the information found and formulates a common position on the topic.

### 3.3. **Generating problem strategies**

It should be emphasized that problem-based learning does not actually solve the problem, but provides significant insight into problem-solving. This helps us understand how the definition, structure and practical use of the object of learning is structured, as well as its relation to the environment and ourselves. The information discovered during the generation of problem strategies is used in action plans, activity projects, methodologies, operating procedures, operating principles, models, etc. are presented. The results of problem-based learning can be used not only in a formal or informal form by students, but also by practitioners in order to solve problems arising in professional practice.

### 3.4. **Problem-solving monitoring**

In the problem-solving monitoring phase, the strategy is checked for compliance with the defined goal and success criteria. Students also perform metacognitive reflection on learning, discussing difficulties and successful aspects of the learning process. The learning process is completed by the fact that the problem-based learning groups present each other's learning results, and the facilitator summarizes the learning process from a holistic perspective. In addition, regardless of the entrepreneurship subjects we teach, it is important to start by presenting, analyzing, and reflecting on a real or assumed problematic situation. This requires a problem situation (problem case) related to the relevant topic of social ecology.

## 4. **Facilitation of problematic courses**

One of the bases of the facilitator's activity is not to disturb the students, but to let them work successfully independently. Its task is to teach problem-based thinking, design and develop such situations, inspire conversations, monitor and evaluate the learning process, and gradually transition away from the direct learning process.

The facilitator gives students situations that they need to identify, understand and analyze according to the learning methodology. It consists of the implementation of the four main problem-oriented learning cognitive skills - problem schema development, information research, strategy development and problem-solving monitoring. Facilitators can help students at every stage of the learning process find the right way to solve problems if independent learning proves difficult at a given moment.

During problem-based learning, the facilitator takes an active role in the learning process. Initiate inspiring conversations, ask questions, make comments, make suggestions, and take analytical notes. It monitors not only knowledge, but also process skills. These include information acquisition, strategy development, monitoring, and metacognitive reflection.

In a formal learning environment, the facilitator plays the role of a subject expert, while in non-formal learning this is optional. Facilitating such problem-based learning is a complex process, usually involving several facilitators, taking into account the characteristics of students, the number and proportion of groups/teams. The helper's flexibility, student-centeredness, empathy and quick response to different learning situations are key to promoting student development.

## **5. The methodology template must be used in the methodology model (see below)**

1. *TEMPLATE: TEMPLATE FOR STRUCTURING PROBLEMS*
2. *TEMPLATE: INFORMATION RESEARCH TEMPLATE*
3. *TEMPLATE: TEMPLATE FOR CREATING A STRATEGY*
4. *TEMPLATE: MONITORING TEMPLATE FOR PROBLEM SOLVING*
5. *TEMPLATE: FOR CREATING A PROBLEM CASE*
6. *TEMPLATE: EXPLANATION OF GAME-BASED LEARNING CRITERIA*
7. *TEMPLATE: FACILITATORS' INDEPENDENT DIARY: OBSERVATION OF LEARNING ACTIVITIES IN A GROUP*



## 1. TEMPLATE: TEMPLATE FOR STRUCTURING PROBLEMS

CHRACTERISTICS OF PROBLEM	QUESTION
Type of the problem	Answer - why do you think so?
The main problem	Answer - why do you think so?
Other problems	Answer - why do you think so?
The goal of problem solving	Answer - why do you think so?
Criteria for success in problem solving	Answer - why do you think so?
Analogical problem	Answer - why do you think so?

## 2. TEMPLATE: INFORMATION RESEARCH TEMPLATE

CHARACTERISTICS OF INFORMATION RESEARCH	ANSWERS / JUSTIFICATIONS				
Identify the information known in the problem	What is known about situation from problem case / your personal experience?				
Information to find to solve the problem (asking questions) Know-WHAT? Know-HOW? Know-WHY? Know-WHO?	Question No. 1	Question No. 2	Question No. 3	Question No. 4	Question... n
	Formulate the question	Formulate the question	Formulate the question	Formulate the question	Formulate the question
Information search strategy	Please describe what kind of information are you going to search and where are you going to search it				
Definition of keywords	Keywords	Keywords	Keywords	Keywords	Keywords
Information from Vocabularies, Encyclopaedias, Thesaurus	Info source (IS) No Title of IS	...	...	...	...
Information from scientific books / internet based law cases' base	...	...	...	...	...
Information from science databased (Scientific articles)	...	...	...	...	...
Information from statistical data bases / audio-visual information / popular internet sites and other	...	...	...	...	...

### 3. TEMPLATE: TEMPLATE FOR CREATING A STRATEGY

No.	Procedural steps of creation strategy	Description
1	<b>Generation problem solving strategies</b>	<p>The information found about the learning object can be divided into several categories that serve as a model for the to develop problem-solving strategies.</p> <p>The procedural information found can be converted into separate strategies. For this purpose, we recommend several steps:</p> <ul style="list-style-type: none"> <li>• Grouping of procedural information into several categories;</li> <li>• Formulation of problem-solving strategies based on several categories;</li> </ul> <p>The result of generating a problem-solving strategy – generates one or more problem-solving strategies in the form of a declaration.</p>
2	<b>Structuring of problem solving strategies</b>	<p>It must be structured with one or more problem-solving strategies and broken down into smaller components – tactics/actions. Tactics should help achieve the project's goal.</p> <p>Several steps are recommended for structuring a PS strategy:</p> <ul style="list-style-type: none"> <li>• Dividing the problem-solving strategy into separate actions;</li> <li>• Breakdown of a problem-solving strategy into several phases: planning, organization, implementation, evaluation criteria;</li> <li>• Applying the information found to structure a problem-solving strategy: tactics and activities.</li> </ul> <p>Result of generational problem-solving strategies: structured, one or more problem-solving strategies.</p>
3	<b>Selection and justification of problems solving strategies</b>	<p>After explaining the problem-solving strategies, a strategy must be selected and justified. Choosing the most relevant strategy includes the most feasible, realistic and effective strategy.</p> <ul style="list-style-type: none"> <li>• The strategy must meet the problem-solving objective and the defined problem-solving success criteria.</li> </ul>

#### 4. TEMPLATE: MONITORING TEMPLATE FOR PROBLEM SOLVING

No.	PS monitoring process	Description
1	<b>Strategy-aim coherence</b>	<p>The coherence of the prepared strategy must be checked with the problem-solving objectives raised in the structuring phase of the problem. The following questions should be considered:</p> <ol style="list-style-type: none"> <li>1. Does the strategy fully meet the PS goal? What do you think?</li> <li>2. Does the strategy partially meet the PS goal? What do you think?</li> <li>3. Which target characteristics were achieved the best and the least?</li> <li>4. Would you change your PS goal if you were to solve the problem again? Why?</li> </ol>
2	<b>Strategy-success criteria coherence</b>	<p>The prepared strategy must be checked to see if it meets the success criteria of problem solving. A problem-solving strategy should meet most of your project-solving criteria. The following questions should be asked:</p> <ul style="list-style-type: none"> <li>• Does the chosen strategy meet all the success criteria? Why?</li> <li>• Which success criteria were implemented most and least successfully? What do you think? Would you change success criteria if you solved problem again? Why?</li> </ul>
3	<b>Strategy transferability for solving of the problems</b>	<p>The chosen strategy must be evaluated in terms of its suitability for solving other problems. The following questions may be considered during the evaluation:</p> <ul style="list-style-type: none"> <li>• Is this strategy suitable for solving other problems? Why?</li> <li>• Please give examples of how this strategy can be used to solve other problems?</li> </ul>

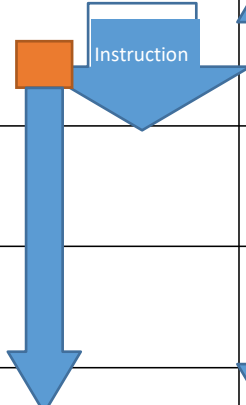
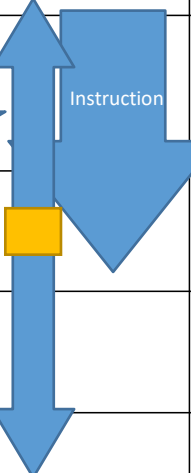
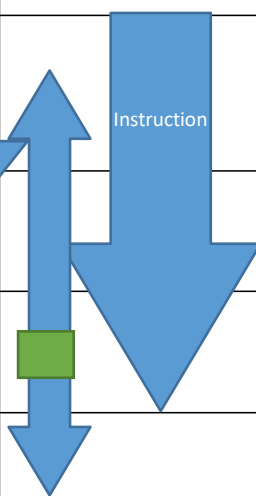
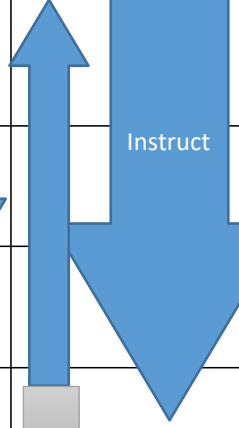




## 5. TEMPLATE: FOR CREATING A PROBLEM CASE

<b>Type of problem foreseen</b>	Please indicate the type/s problem to be created
<b>Subjects covered</b>	What subject/s this problem covers?
<b>Competences of Veterinary Nurses' covered</b>	What competences of specialists covered by this problem?
<b>Learning objects codified</b>	What are the main concrete learning objects? How many of them in the case?
<b>Problem's structural components</b>	What are the structural components in the case?
<b>Problem's situational components</b>	What are the situational components in the case?
<b>The most important questions to raise</b>	Please list the most important and relevant questions to be raised by learners?
<b>The most important keywords to be used in the case</b>	The most important keywords to be used in the case?
<b>Possible bibliographical sources for problem solving</b>	Please list precise bibliography sources for solving this particular problem.
<b>Time limit foreseen for problem solving</b>	What's the time limit for solving this problem
<b>Problem case</b>	

## 6. TEMPLATE: EXPLANATION OF GAME-BASED LEARNING CRITERIA

Types of games	Criteria	Description
Simulation games	Originality	<b>Positive characteristics:</b> original performance / visualizations created by learners' themselves;
	Vizualizations	<b>Positive characteristics:</b> number of visual components involved: nature, special clothes, furniture, and special spaces.
	Improvizations	<b>Positive characteristics:</b> group performed from themselves, without reading: clearly and fluently improvised the roles.
	Team work	<b>Positive characteristics:</b> each group member had specific role in the game. <b>Negative characteristics:</b> group members duplicated each other roles.
	Reflection	<b>Positive characteristics:</b> reflected on feelings, motions and learning outcomes. <b>Negative characteristics:</b> lack of reflective thinking; no comments.
Discovery games	Team work	<b>Positive characteristics:</b> each group member had specific role in the game. <b>Negative characteristics:</b> group members duplicated each other roles.
	Strategical thinking	<b>Positive characteristics:</b> group had a clear strategy how to perform to succeed; <b>Negative characteristics:</b> group acted without any strategy – trying possible solutions.
	Operativenes	<b>Positive characteristics:</b> Good time management; No wasting of time – no big time windows.
	Reflection	<b>Positive characteristics:</b> reflected on feelings, motions and learning outcomes. <b>Negative characteristics:</b> lack of reflective thinking; no comments.
	<input type="checkbox"/> Other criteria	<b>Positive characteristics:</b> <b>Negative characteristics:</b>
Decision making games	Team work	<b>Positive characteristics:</b> each group member had specific role in the game. <b>Negative characteristics:</b> group members duplicated each other roles.
	Strategical thinking	<b>Positive characteristics:</b> group had a clear strategy how to perform to succeed; <b>Negative characteristics:</b> group acted without any strategy – trying possible solutions.
	Operativenes	<b>Positive characteristics:</b> Good time management; No wasting of time – no big time windows.
	Reflection	<b>Positive characteristics:</b> reflected on feelings, motions and learning outcomes. <b>Negative characteristics:</b> lack of reflective thinking; no comments.
	Other _____	<b>Positive characteristics:...</b> <b>Negative characteristics:...</b>

## 7. TEMPLATE: FACILITATORS' INDEPENDENT DIARY: OBSERVATION OF LEARNING ACTIVITIES IN A GROUP

<b>Group name</b>	NAME OF THE GROUP				<b>Groups leaders evaluation</b>
<b>Groups members</b>	1. <NAME SURNAME>; 2. <NAME SURNAME>; 3. <NAME SURNAME>; 4. <NAME SURNAME>; 5. <NAME URNAME>;				
<b>Groups leader</b>	NAME SURNAME				
<b>Learning object</b>	TITLE OF LEARNING OBJECT				
<b>Associations with other learning objects</b>	RELATIONS WITH OTHER PREVIOUSLY LEARNT OBJECTS (THEORETICAL-LOGICAL; PRACTICAL-APPLICATORY)				
<b>Name of Facilitator NAME</b>	Facilitator observes individual and group based consultations gives proposals in the process.				
<b>Group leader NAME</b>	Able to give proper definition of LO; (Gives clear definition of the issue)	Able to describe structure of LO (Gives structural visualization on the issue)	Able to give proper Procedural information on LO (demonstrates practically how problem solved / issue used)	Able contextualize information giving real examples on LO (Gives real life proper examples according interests of learner)	<b>Group leader gives formative evaluation</b>
<b>Group member No. 1 Name</b>					
<b>Group member No. 2 Name</b>					
<b>Group member No. 3 Name</b>					
<b>Group member No. 4 Name</b>					

Mentoring support - for any training - can be provided individually or in groups, both have advantages and disadvantages:

	Individual mentoring	Group mentoring
Advantages	The focus is on personal support, completely tailored to the individual	In the center, it relies on joint and mutual learning, on the dynamics of the group
Disadvantage	Expensive, requires a lot of mentors	Individualized learning can be achieved with quotas





## **Training academy for development of comprehensive socio-ecological knowledge**

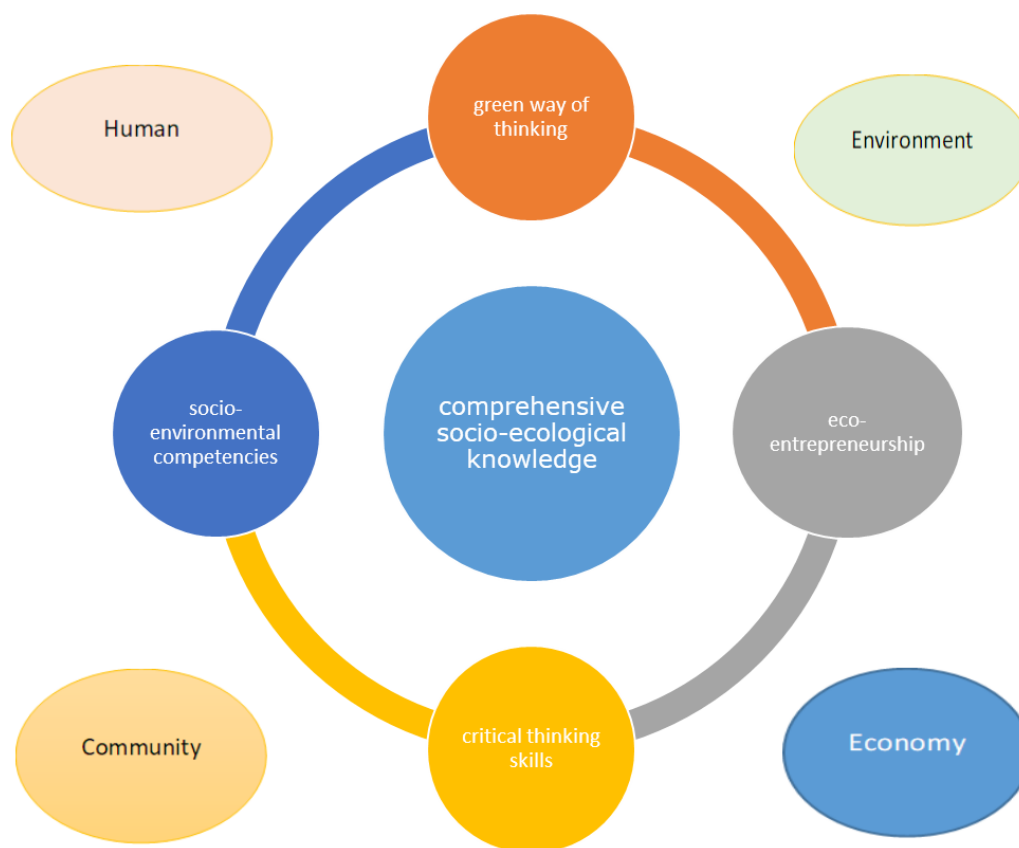
In conclusion, we suggest that young people with further interest in social ecology take part in a Training academy for development of comprehensive Socio-ecological knowledge, unveiling the interrelations “human-community-economy-environment”.

The academy is comprised of 4 mutually complementing workshops that reflect the 4 components of the socio-ecological log-frame outlined above and develop a set of skills, competencies and knowledge defining the place of human in the system of dynamic bio equilibrium of the planet.

The 4 workshops aim at:

1. Acquisition of socio-environmental competencies through informal educational methods.[Community]
2. Formation of a green way of thinking, based on the person contribution to the environment. [Environment]
3. Building knowledge about eco-entrepreneurship and the concept of sustainable development.[Economy]
4. Development of critical thinking skills through case-studies in an environmental context. [Human]

## Components of the Innovative Socio-ecological methodology:





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