

EDUCATING ABOUT NATURE CONSERVATION, SUSTAINABLE DEVELOPMENT AND SOCIAL RESPONSIBILITY THROUGH AN INTERACTIVE AND EXPERIENTIAL APPROACH

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Abstract: The Institute of the Republic of Slovenia for Nature Conservation has developed an educational tool which can be used by teachers and lecturers on different levels of formal and informal education to teach about nature conservation, sustainable development and importance of participation and communication in different reconciliation processes. The didactic game is designed in the interactive and problem solving way. The purpose of the game is that participants learn about basic nature conservation principles, become aware about different interest groups and that they experience the role of communication and inclusive problem solving in search of common solutions. The main message of the educational tool is to show that it is possible to plan the (societal) development in a manner that will preserve the natural balance in ecosystems and provide, in a long term, for a healthy and safe living environment.

Keywords: *experience-based education, nature conservation, sustainable development, social responsibility, didactic game*

IZOBRAŽEVANJE O OHRANJANJU NARAVE, TRAJNOSTNEM RAZVOJU IN DRUŽBENI ODGOVORNOSTI NA INTERAKTIVNI IN IZKUSTVENI NAČIN

Povzetek: Na Zavodu RS za varstvo narave smo pripravili didaktični pripomoček, s katerim lahko učitelji in predavatelji na vseh stopnjah formalnega in neformalnega izobraževanja učencem praktično in izkustveno prikažejo bistvo in cilje varstva narave in trajnostnega razvoja ter pomen vključevanja in komunikacije deležnikov v usklajevalnih procesih. Didaktična igra je interaktivna in problemsko zasnovana. Skozi igro udeleženci spoznajo nekatere ogrožene rastlinske in živalske vrste ter tipe življenjskih okolij, pomen in nekatere načine varstva narave, bistvo in pomen trajnostnega razvoja, zavejo se prisotnosti različnih interesnih skupin v prostoru ter ob reševanju simuliranega problema izkusijo pomen komunikacije v usklajevalnem procesu ter iskanju skupnih rešitev. Glavno sporočilo didaktične igre je, da je mogoče z znanjem ekologije ter medsebojno komunikacijo in razumevanjem načrtovati razvoj družbe v prostoru tako, da ohranimo naravno ravnovesje ekosistemov in si dolgoročno zagotovimo zdravo in varno življenjsko okolje.

Ključne besede: *izkustveno učenje, varstvo narave, trajnostni razvoj, družbena odgovornost, didaktična igra*

1 Introduction

In the past decades there has been noticed a rapid loss of traditional knowledge, values and attitudes towards nature which were traditionally passed on from generation to generation. Therefore performing and enhancing public educational programs which are educating about the value of nature to our everyday life, our inevitable connectedness to nature and importance of its preservation, has become a highly important and socially responsible task.

As terms as »nature conservation«, »sustainable development« and »social responsibility« cover a wide spectrum of complex processes and interactions between society and nature, it may be quite a challenge for educators to present those terms to pupils in a simple and understandable way.

That understanding the essence and purpose of sustainable development might be a complex learning process, can be well described by the following list of skills that have been recognized to be essential in education for sustainable development (Tilbury & Wortman, 2004):

- *Envisioning* – being able to imagine a better future. The premise is that if we know where we want to go, we will be better able to work out how to get there.
- *Critical thinking and reflection* – learning to question our current belief systems and to recognize the assumptions underlying our knowledge, perspective and opinions. Critical thinking skills help people learn to examine economic, environmental, social and cultural structures in the context of sustainable development.

- *Systemic thinking* – acknowledging complexities and looking for links and synergies when trying to find solutions to problems.
- *Building partnerships* – promoting dialogue and negotiation, learning to work together.
- *Participation in decision-making* – empowering people.

Here we run into a paradox, above mentioned terms can be too abstract and listed skills too complex, especially for the pupils at primary and secondary education, but on the other hand it is essential to start with the education for sustainable development as soon as possible in the educational process. That paradox led us into search for solutions, how to present those topics to pupils in simple, clear and experience-based way.

We have developed a didactic tool named »*Harmonize the interests*« that can be used by teachers and lecturers on different levels of formal and informal education to teach about nature conservation, sustainable development and importance of participation and communication in different reconciliation processes. The didactic game is designed in the interactive and problem solving way. Participants learn about the main principles and tools of nature conservation, they actively think about the sustainable development and experience a role of social responsibility.

2 How does the didactic game »*Harmonize the interests*« look like?

The game is led by a moderator, who needs to have certain knowledge of ecology, nature conservation and sustainable development issues. The participants are divided in groups of five, each group sitting at its own table. In the introductory part, the moderator reads the story, which describes the actual situation, and then makes a sketch of the situation on the blackboard. Then he/she distributes the material (game board, tokens with descriptions of animal and plant species and habitat types) to each group. From here, the game evolves in three steps.

In the first step all participants take a role of field biologist. They learn about certain animal and plant species and habitat types imaged on the tokens and arrange tokens in the appropriate ecosystems on the game board.

In the second step participants receive a sheet with three variants of planned activities affecting nature. Now they all take a role of nature conservation expert and need to decide which of the three variants is less harmful from the view of nature conservation.

In the third step each participant in a group receives a role of representative of one of the five different interest group (for example forester, agricultural adviser, local community, building contractor, and nature conservation expert). A group then simulates a liaison meeting, they adjust the interests among themselves, and opt for one of the variants.

At the end each group presents their solution and share the experience about the liaison meeting. The game does not have a single correct solution. Any variant can be correct, the most pertinent being the detailed explanation and discussion on the final decision.

The moderator actively monitors each group, raises additional questions during the game, offers additional examples and is attentive to the players' alternative solutions (for example mitigating measures, re-naturalization, decision that certain construction will not take place at all, original technical construction operations). It is essential that in the introductory part or during the concluding discussion the moderator wraps up the significance of nature conservation, biodiversity and natural balance in the ecosystems, the most frequent reasons for destruction of nature and the most effective ways of its conservation. The moderator concludes the discussion with the directives or instructions, how each of us can contribute to the nature conservation and sustainable development.

There are three versions of a game, each tackling a different problem: construction of a road between two villages, construction of a ski slope between chalet and settlement below and construction of a dam and reservoir for a hydroelectric power station on the river.

The presented cases are covering issues of a sustainable development in sectors of spatial planning, energetics and tourism. There are also covering nature conservation issues concerning different ecosystems: lowland landscape with woodlands, farmland and wet meadows, mountain landscape with peatbogs, pastures and mountain woodlands and lowland river watershed with surrounding wetland habitats.

The main message of the educational tool is to show that it is possible to plan the (societal) development in a manner that will preserve the natural balance in ecosystems and provide, in a long term, for a healthy and safe living environment.

3 Educational and pedagogical goals of the didactic game

There are several educational and pedagogical goals that the didactic game is set for.

First group of goals can be addressed as knowledge oriented goals. Through the game the participants gain *knowledge* about:

- new terms in the field of ecology and environment
- endangered species, habitat types and ecosystems
- ecosystem services and value of nature to humans
- main threats to biodiversity
- importance of nature conservation and sustainable development
- main methods and tools of nature conservation.

The second group of goals influence the development of the sound position of an individual towards society. Participants evolve *personal skills* as:

- holistic and global thinking
- critical thinking
- systemic thinking
- developing own opinion
- proving own opinion
- problem solving
- decision making
- long term planning and envisioning consequences
- accepting responsibility.

And last but not the least, there is group of goals that promote communications skills and social awareness. The game enhances *interpersonal skills* as:

- awareness of different opinions
- listening to different opinions
- capability of »putting yourself in the other people's shoes«
- participation in decision-making
- promoting dialogue and negotiation
- learning to work together.

4 Experience with the didactic game

The didactic game was initially developed for the high school pupils, but testing in practice showed that it is suitable for far wider spectrum of participants. The game can be used in all kinds of formal in informal education programs from upper grades of primary schools, to secondary school (high school, vocational school) and university programs as well as at different occasions (workshops, seminars, conferences, meetings) including adults with different educational and professional background.

So far we have performed over 20 workshops using this didactic game at different occasions of formal and informal education. As the experience show the didactical game was successfully accepted among participants and provided very positive feedback. The main reasons may be different, interactive and experimental way of learning, as well as problem solving and role playing approach which is allowing place for creativity and spontaneity.

5 Further implications for use of the didactic tool in formal and informal education programs

As the experience show, the didactic tool can be used as a successful didactic tool in programs of formal and informal education in modules of biology, ecology, environmental sciences and geography. The game is designed as indoor activity aiming to promote understanding of the interdependence of nature and society.

Nevertheless, it has to be stressed that incomparably the most efficient method of influencing positive attitude towards nature is direct contact with nature itself. The positive effects on environmental attitude and awareness have been recorded already in a week long experimental programs held in nature (Mittelstaedt et al., 1999). The other important method that is influencing positive values and enhancing social responsibility is service-learning education in concrete community service projects (Furco, 1996).

Therefore for achieving goals that the presented didactic tool is aiming for, it is necessary to combine it with experimental outdoor learning in the nature itself and environmental community service learning.

6 Conclusions

The highly important role of education for sustainable development in modern society is inevitable. As educating about issues of sustainable development, nature conservation and social responsibility can be a challenging task, it stimulates search for educational methods which would present those topics to pupils in simple, clear and experience-based way.

We have developed a didactic tool that can be used by teachers and lecturers on different levels of formal and informal education to teach about nature conservation, sustainable development and social responsibility in interactive and experimental way. The game covers wide range of educational goals, from acquiring new knowledge to enhancing personal and interpersonal skills. The purpose of the didactic tool is to acquaint participants with the gist and significance of sustainable development, nature conservation and adjustment of different interests in society in empirical way, i.e. through solving a certain problem that simulates the true situation.

Nevertheless, it has to be stressed that the presented didactic approach has to be supported on one hand with experience-based learning in the nature itself and on the other hand with environmental community service learning, as only the actual direct outdoor experience do shape the sensible values about nature and influence personal values that further contribute to collective sense of social responsibility.

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