Environmental projects and the topic of sustainable development in education

Kaňka Jan [1], Krotký Jan[2]
kankaj@students.zcu.cz, conor@kmt.zcu.cz
[1] student, [2] academic staff
University of West Bohemia, Faculty of Education, Czech Republic

Summary

This work is partly a follow-up to the bachelor's thesis "Analysis of the Impact of the Energy Industry on the Environment", which was published in 2021 by Jan Kaňka. In the work we focus on the topic of the environment - environmental and the topic of sustainable development in education. The work defines what the environment and sustainable development are. Furthermore, in the work we can find a search for educational activities in formal and non-formal education in the Czech schools. Several activities are selected according to the difficulty for each grade. In order not to make the work comprehensive, we will identify a few key topics that seem to us to be the most important for our generation at the moment. The practical part is a proposal for new activities or innovative solutions, already devised and established activities in education. It is in this part that most will be drawn from the bachelors thesis of Jan Kaňka, in which the newly created pedagogical tools have already been described. For example, it is a board game that is the greatest contribution to easier understanding of the interconnectedness of topics between man and the environment around us.

Keywords: sustainable development, environmental education

Introduction

In this article, we focus on the environmental projects and sustainable development in school education. We try to introduce educational tools into teaching that link the environmental or even the environment with sustainable development. In the article we will deal with educational tools, their benefits in teaching such as, more fun lessons, reducing boredom school, the involvement of other educational tools. These tools are intended to facilitate the understanding of a complex topic, which consists of three areas: economic, technological and political. We are upgrading some already known tools and creating a new one based on the previous ones.

As we can see from the title, this work is focused on the environmental projects and the topic of sustainable development of education in schools. In recent years, the term "environmental" is very often used and has a big impact on everything around us. Environmental projects are among the most important in education. From a young age, we teach children how to deal with municipal waste, how to behave in nature and how to be kind to our planet.

The question here is: "What is sustainable development?" Sustainable development is a way of developing human society that reconciles economic and social progress with the full preservation of the environment. The main goals of sustainable development include preserving the environment for the future generations in the least modified form (MoE, 2008).

These two topics may seem complicated from its title, but when we search up for synonyms, we can find that the words have one thing in common, and that is the environment. Under

the term environment we can imagine almost anything around us, people, nature, food, minerals, industry, chemicals, animals, water, oceans, forests, deserts, etc. In order to be able to deeply engage students in this topic, we should do it other than by simple interpretation. Tereza Vošahlíková (2009) states: "When integrating sustainable development into teaching, it is possible to proceed from different perspectives". Many authors define these perspectives. Helmut Gärtner's (2001) publication mentions the structure of views divided into scientific, technological, economic, geographical, sociological, political, historical, ethical-philosophical and aesthetic views. It is this comprehensive overview that is interesting in the sense that it brings together three very important levels today, namely economic, technological and political. In today's society, dilemmas confronting us with the technological unpreparedness of society, the economic complexity of the process and political will. The whole issue then resonates in the social field and goes to the area: "will we destroy the planet or will we destroy ourselves first economically?"

On the topic of sustainable development, a number of quality educational tools can be created which can facilitate children's understanding of the issue. In this article with my colleague Jan Krotký, we will select several activities that have already been devised and implemented in schools, which we will then evaluate using a questionnaire survey according to several criteria that we determine in advance. We will also look at where and in what form we can use the activity and whether such use is sufficient or could be even more useful under other conditions. According to the evaluation of the questionnaire survey, we will work with the research results and then focus either on innovation and improvement of existing school activities or create our own educational activities for students. As Jan Ámos Komenský once said, we would like to use this slogan "School by Play". By listening to the explanation, taking notes or copying the board, the student quickly gets bored, stops perceiving and acquires new knowledge, and therefore we want to change teaching in schools through fun knowledge activities. We will meet both of our expectations in one thing. Thanks to the activities, the pupil will want to get involved in education, concentrate and find it easier to acquire new knowledge.

To make sure that our activities meet our expectations, we give them to test samples that will test our activities in practice and give us feedback. We will adjust any suggestions for improvement to meet the comments from the test samples.

Lastly, we determine how the activities will be published. Here are some ways to spread the activities among the schools, classes or the pupils themselves. We can create a textbook, worksheet or a guide for teachers on how to work with the activities, we can create video tutorials that students will be able to see themselves on school tablets.

Board Game

This game was created by Jan Kaňka and can be used not only in class, but also in the free time of pupils/students. The game focuses on the environment and the energy industry and everything around that. The game includes a playing field with 41 playing fields, including the START and FINISH fields. The game will be used for educational purposes in a fun way. Its main benefit is the acquisition of new knowledge or it can be used as a tool for repeating the subject, where the pupil/student anchors the acquired knowledge in memory. This method of education for pupils/students also contributes to the development of their social skills such as communication and cooperation with other players. The game could well serve outside the school environment to others who are interested in environmental issues in other subjects (Jan Kaňka, 2021).
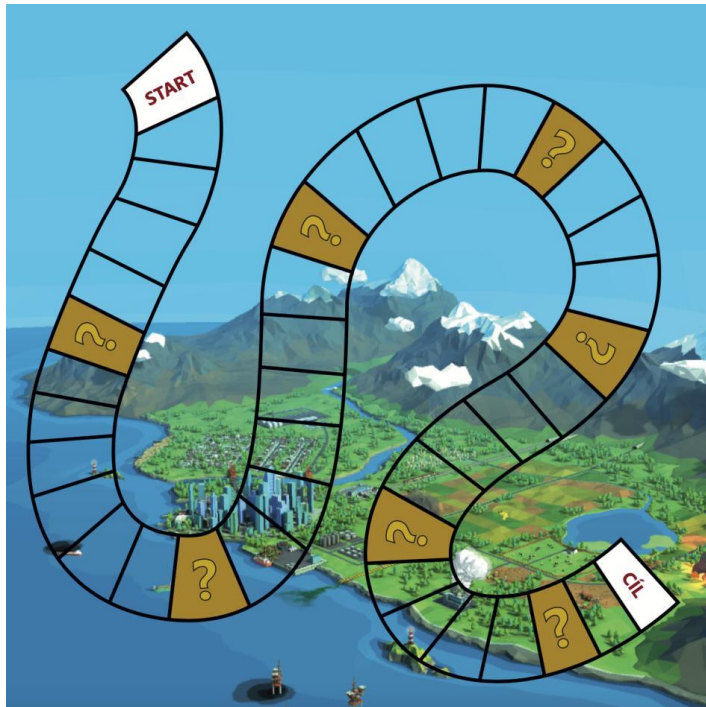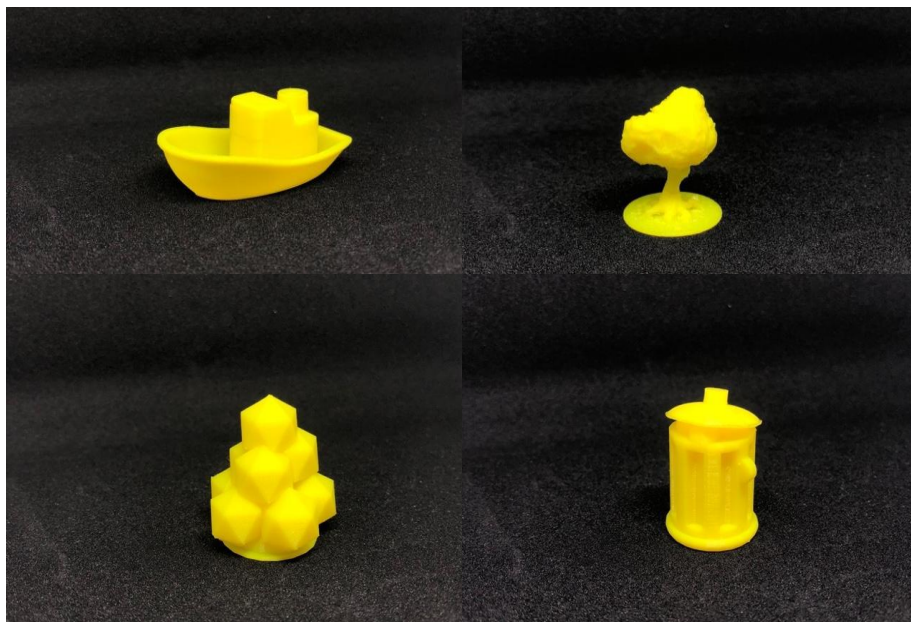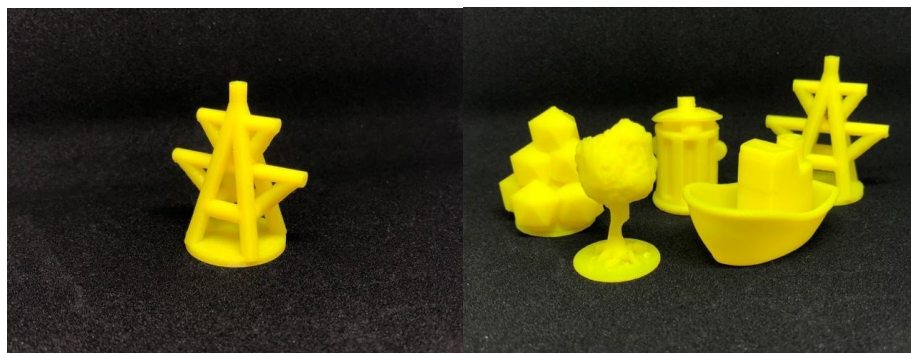
Figure 1. Board game

Figure 2. Game pieces

Rules of the Game

The game starts on the START field. Each player chooses one piece to place on the board and starts the game by rolling the dice. The number that fell after rolling the dice indicates the number of squares the player will move forward. The next move of the piece depends on how the player answers the game question. If the question contains one correct answer, the player advances one square forward. If the game card contains more than one correct answer, it advances by as many squares as he said correct answers. Game questions are read to the player by his teammate on the right. There are seven squares on the playing field, which are marked "?". Each question mark card has some advantage or disadvantage. The card is either a benefit or a loss for the player for the course of the game. The used card with the "?" Symbol always returns to the bottom of the deck. The game ends when the penultimate player is in the FINISH field. There is one question on each card and there are several answers to choose from, with at least one answer being correct. In total, there is of 120 playing cards in the game, but only 116 of the states the one correct answer and the remaining four questions have two to five correct answers. For these four cards, the player does not have to answer all the correct answers, but only one correct answer is enough. The player gets a point for each correctly given answer (Jan Kaňka, 2021).

Conclusions

In this article, we have described what sustainable development in education is. We have described the educational tools as in regular teaching and what their main goal is. Pedagogical tools that were tested in practice were mentioned in the article. It turned out that the pedagogical tool - the board game was beneficial for the children, they remembered the material better, but too complex questions were also invented in the game questions, to which the pupils rarely knew the correct answer. These challenging questions have been modified so that children can deduce them logically. The game fulfilled our goal, the children had a better approach to work and an interest in understanding such a complex topic.

References

Haan, G., & Kuckartz, U. (1998). *Umweltbildung und Umweltbewußtsein*. VS Verlag für Sozialwissenschaften Wiesbaden.

Haan, G. de, & Harenberg, D. (1999) *Bildung für eine nachhaltige Entwicklung Gutachten zum programm*. BLK, Geschäftsstelle.

Kaňka, J. (2021). *Analýza dopadu energetického průmyslu na životní prostředí*. ZÁPADOČESKÁ UNIVERZITA V PLZNI.

Vošahlíková, T. (2009). In *Jak pracovat s tématy udržitelného rozvoje ve vyučování*. essay, Metodický portál RVP.CZ.

Udržitelný Rozvoj. (2008, August 14). Retrieved from https://www.mzp.cz/cz/udrzitelny_rozvoj

Vzdělávání pro udržitelnost: cesta k zelené budoucnosti. SchoolEducationGateway. (2022, April 4). Retrieved from https://www.schooleducationgateway.eu/cz/pub/latest/practices/learning-for-sustainability.htm