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Approach to the Subject "DETE I EKOL⊕GIJA"
by Applyingict at Preschool Institution

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Abstract

This text represents working approach to the subject **"CHILD AND ECOLOGY"** = „**DETE I EKOL⊕GIJA"** by applying ICT at preschool institution. The work is reflected in a combination of discussions about ecology, practical presentation of rules in recycling and sorting of various waste, projection of the educational film **"EKOL⊕GIJA"** and individual solving of play sheets by children.

Among the others, the aim of the work was to determine attitudes of the educators (on the rating scale) about the presented approach to the work.

Keywords: education, ecology, recycling, ICT, preschool institution

Introduction – "DETE I EKOL⊕GIJA"

Accelerated NEGATIVE environmental changes (*greenhouse effect, rising planetary temperature, melting glaciers and rising ocean and sea levels, pollution of water, air and land*…) that occur due to irresponsible behavior of mankind, have brought the planet Earth to a dead end.Environmentalists and scientists claim that it is the last moment for humanity to give up fossil fuels and general pollution that calls into question the survival of its living world on our "beautiful blue planet". In that sense, the recycling and selection of diverse waste plays a major role.Encouraged by the urgent environmental situation facing the whole world, and in accordance with the slogan "think globally, act locally", we wanted to give our contribution in educating the youngest about ecology, especially about recycling various waste.

EKOLOGIJA = **ECOLOGY**

„KO" = **„WHO" „JA"** = **"I"**

Figure 1

For these needs, we have created an educational lecture entitled **"DETE I EKOL⊕GIJA"**, intended for children in preschool institutions using ICT (Hilčenko, 2003).

Lecture that lasts ≈ 35 minutes has the following contents and course:

1. Projection of animated educational film (Hilčenko, 2008) **"EKOL⊕GIJA"** (2 min.).

2. Discussion on the content of the animated film with a practical presentation of the rules in the process of recycling various waste (15-20 min).

3. Individual solving of play slips by children.

The subject matter of the study. Example of the approach to the subject: "DETE I EKOL⊕GIJA"by applying ICT in preschool institution

The animated educational film "EKOL⊕GIJA" has the following plot: The main "character"is a fish, that lives in a clean pond, but due to various sources of pollution that occur in its immediate natural environment, it gets sick. Those are:

− wastewater from sewage in the city ends up in the lake,

− air pollution from thermal power plants, traffic…,

− accumulation of waste in landfills causes pollution of the surrounding land, underwater waters and lakes, and

− excessive pollution of arable land with pesticides ends up in underwater waters.

In the film **"EKOL⊕GIJA"**, all the negative environmental influences are accompanied by a clock from the title of the film (Figure 1). When the pollution reaches its zenith, and the fish gets sick, clock hands (from position 11.55h) move in the opposite direction, in the direction of possible healing that depends only on man! This means an alternative to everything that led to the ecological catastrophe: filters on wastewater, factory chimneys, sorting and recycling of various waste, use of natural fertilizers in the fields, electric cars ...

The title of the animated film **"EKOL⊕GIJA"** (picture no. 1) symbolically contains or refers to "**WHO**" should be most directly involved in this process, **"I"**, ie. each of us ...

The film is a warning to all of us, but it also gives hope that we still have the opportunity to "heal the planet".

Hardware-software requirements for the realization of the animated film were:

The basic (main) animation in "rough animation" and "clean up" was done in Adobe Animate (Hilčenko, 2004):

1. Effects and various animated objects were done in Adobe After Effects (Hilčenko, 2006).
2. Film length 1:30–2:00 minutes.
3. Resolution 1080 p.i.e., 1920:1080, i.e., Full HD (Hilčenko, 2009).
4. The project was implemented on the configuration of Intel i5, RAM 8GB, optimally Mac mini M1 computer.
5. Wacom Cintiq 16 graphics drawing board (also a monitor), minimum Wacom Intuos M. (Hilčenko, 2010).

On the pictures number 2 and 3, phases in the realization of the animated film **"EKOL⊕GIJA"** can be seen.
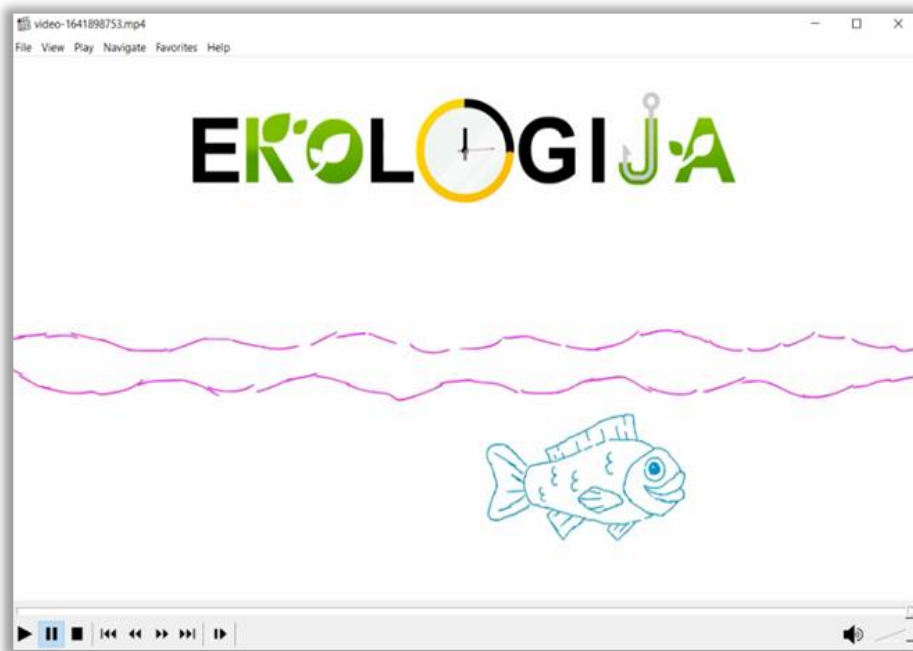
Figures 2

Figures 3

Research methodologies and tools

Discussion about the film with a practical presentation of the rules in the process of recycling various waste should provide educators with feedback on what children already know about the recycling of various waste, what they learned from the film, to know where to start upgrading their knowledge. Children need to understand the cause-and-effect relationshipsin environmental pollution and what needs to be done about it, in order to restore better environmental conditions (Hilčenko, 2011).

In this regard, educators should acquaint children with the process of recycling various waste and the containers in which it is disposed of. At the very end, children independently practice sorting and disposal of various waste with prepared didactic materials (various waste samples and pictures of containers in various colors) (Hilčenko, 2015a).

Individual solving of play sheets by children should enable children to confirm the adopted contents in which they participated, and educators to gain insight into the extent to which that knowledge has been improved, and which parts should be emphasized more in the future. From the prepared folder with 10 play sheets, the educator determines the number of worksheets and in which period he plans to offer them to the children to solve (Figure 4).

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Figure 4. Folder layout and 10 play sheets

Analysisresearch results

After the lecture, we interviewed educators (15), asking them to express their views on the way of work. The answers of educators on the assessment scale are presented in Tables 1–5.

Table 1

Question 1	Do you use ICT technologies in your work?					
	1	2	3	4	5	
Answers	I never use ICT in my work	I rarely use ICT in my work	Sometimes I use ICT in my work	I often use ICT in my work	I regularly use ICT in my work	Σ
Σ	/	**9** 59,94%	4 26,64%	**2** 13,32%	/	15

Table 2

Question 2	Would you use the presented mode in your work as well?					
Answers	1	2	3	4	5	Σ
	never	rarely	sometimes	often	always	
Σ	/	/	**5** 33,3%	**8** 53,28%	**2** 13,32%	15

Table 3

Question 3	Do you agree that the mode shown is suitable for children aged 4–6?					
Answers	1	2	3	4	5	Σ
	I don't agree at all	I mostly disagree	neither agree nor disagree	I mostly agree	I totally agree	
Σ	/	/	/	**8** 53,28%	**7** 46,62%	15

Table 4

Question 4	Do you agree that the presented example of work is sufficiently comprehensive processed topic?					
Answers	1	2	3	4	5	Σ
	I don't agree at all	I mostly disagree	neither agree nor disagree	I mostly agree	I totally agree	
Σ	/	/	/	**8** 53,33%	**7** 46,62%	15

Table 5

Question 5	Would you recommend the presented mode to a colleague?					
Answers	1	2	3	4	5	Σ
	I would never recommend	rarely I would recommend	sometimes I would recommend	Often I would recommend	I would regularly recommend	
Σ	/	/	**5** 33,33%	**5** 33,33%	**5** 33,33%	15

From the answers of (representative number of interviewees) educators, we can see that 86,58% of them "rarely" or "sometimes" use ICT in their work. All this speaks of insufficient ICT competencies of educators (Nikolić, Hilčenko, 2021).

On the other hand, 66,6% of educators would "often" and "regularly" use presented example of the work by applying ICT (Hilčenko, 2017, 2019).

53,28% of tested educators "predominantly" think, and 46,62% of them "totally agree" that presented wa of the work is suitable for children between 4 and 6 years old.

53,33% of educators "predominantly think, and 46,62% of them "totally agree" that the presented example of the work sufficiently covered the processed topic.

33,33% of educators would "sometimes recommend", or "often recommend" or "regularly recommend" presented example of the work.

Conclusion

The presented way of the work on the subject **"DETE I EKOL⏣GIJA"** represents combination of work using ICT and practical work of educators and children. According to a larger percentage of surveyed educators, it is a desirable approach to work that they would like to apply in their practice (Hilčenko, 2015b).

Our goal is to convince Ministry of Education to implement presented way of work in all preschool institutions, in order for children to get closer and in this way get acquainted with this urgent topic – such as **"DETE I EKOL⏣GIJA"** and recycling of various waste.

References

Hilčenko, S. (2003). *Multimedijalni nastavni model instrukcionog dizajna u radno orijentisanoj nastavi tehničkog obrazovanja.* Zrenjanin: Tehnički Fakultet Mihajlo Pupin, PhD thesis.

Hilčenko, S. (2004). Kognitivna psihologija i instrukcioni dizajn kao polazne osnove u razvoju obrazovno-računarskog softvera. *Pedagoška stvarnost*, 1–2, 84–10.

Hilčenko, S. (2006). Multimedijalni obrazovni softver: "Od igre do računara" (2). *Pedagoška stvarnost*, 9–10.

Hilčenko, S. (2008). *Obrazovni softver kao interaktivno manipulativno i motoričko podsticajno sredstvo u razrednoj nastavi. Pedagoška stvarnost*, 1–2, 69–78.

Hilčenko, S. (2009). *Two Examples of redloženi pristup for Working with Multi Media Educational Software in Primary School 1st Grade.* The University of Rzeszow, The Institute of Technology, Department of Didactics of Technology and Computer, The Seventh International Scientific Conference, Education – Technology – Computer Science, Iwonicz Zdroj, Anthology of Works.

Hilčenko, S. (2010). Model preventivno-korektivnog softvera na primjeru nepravilnosti i poremećaja u pisanju brojeva. *Informatologia*, *43*(1), 63–67.

Hilčenko, S. (2011). Reflections of a Teacher about the Study of Geometrical Shapes Through an Animation Movie in Primary School (Year 1 to 4). International Year of Youth, May 5th and 6th.

Hilčenko, S. (2015a). A model: animated logical mathematical tasks for the younger elementary school children. *IOSR Journal of Research & Method in Education*, *5*(4), 39–42.

Hilčenko, S. (2015b). An E-model of a Flipped & Heuristic and Functionally & Logical Learning for the Generation "Z" in the Classwork. *International Journal of Elementary Education*, *4*(3), 65–79.

Hilčenko, S. (2017). *Metodika razvoja početnih matematičkih pojmova, udžbenik za studente vaspitačkih škola, Visoka škola strukovnih studija za obrazovanje vaspitača i trenera – Subotica.*

Hilčenko, S. (2019). IKT u vaspitno-obrazovnom radu, udžbenik za studente. Subotica: Visoka škola strukovnih studija za obrazovanje vaspitača i trenera.

Nikolić, S., Hilčenko, S. (2021). *Primena načela poliformnosti digitalne kompetencije nastavnika izazvane Kovidom 19, 12th International Interdisciplinary Scientific Conference "HORIZONS 2021", "Quality of life in pandemic conditions", Subotica, on 14th and 15th May* (pp. 331–339).