The Anthropocene project – a solution to the new environmental and digital challenges

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Abstract

The article is based on a study of the Anthropocene project (Erasmus+ programme), developed within a partnership of schools, education and ICT institutions from four European countries: Belgium, France, Italy and Romania. The project focuses on the new environment challenges brought about by two economic and digital accelerated developments and highlights the role that school can play in preparing young people to manage them. The project aims to help teachers prepare young people for the new environment in three steps. To this end it suggests studying how these challenges are addressed in political, societal and educational spheres, raising educators' awareness and offering resources to make teachers' work more effective. The article introduces the project's objectives, outputs and activities. It also gives insights into the research conducted in Romania to explore how the environment and digital issues have been addressed in the education system so far.

Keywords: economic and digital accelerations, environment challenges, education

1. Context

Europe faces new environment challenges brought about by economic and digital accelerated developments. Climate change has become a significant major problem in recent years when extreme events have begun to occur more frequently with often devastating consequences. School must assume and enhance its role of preparing students to face and manage the challenges of the future world. The Anthropocene project aims to help and equip teachers with the necessary tools to prepare young people for the new environment [1].

2. The Anthropocene project

The Anthropocene project (Project Number: 2019-1-FR01-KA201-063149) focuses on two accelerations related to technical mutations. The first is the ecologic acceleration that has ignited debates on how to call our time. Humans have recently left unprecedented geological force-like marks on our planet such as mass extinctions of plant and animal species, pollution of the oceans and the atmosphere. That is why some experts suggest another term: "Anthropocene"- from *anthropo*, for "man," and *cene*, for "new". The second acceleration is the digital one that has introduced the concept of "homo data". The term dataism was coined by David Brooks in an article in the New York Times in 2013 [2], and further developed by historian Yuval Noah Harari in his 2016 book *Homo Deus*. Dataism considers the universe as a system of data streams where the value of objects and people is determined by their capacity to process data [3]. To dataists, data and especially big data are supreme values. According to Harari, big data algorithms are likely to know people better than they know themselves [3].

2.1 The main objectives of the project

The project aims to help prepare young people to handle the new environment by studying how political, societal and educational spheres address these challenges, raising awareness in the educational sector and offering teachers resources to facilitate the teaching/learning process.

2.2 Target groups

The project addresses:

- twelve to twenty year-old European people, the future European citizens, who will have to successfully implement the low carbon transition.
- Teachers, who support young people in daily life and who will be an intermediate target and act as a lever [1].

2.3 Intellectual outputs

The first output is a study investigating how several European education systems address environmental and digital issues, particularly in curricula and related subjects. The study is based on quantitative and qualitative surveys carried out on teachers from the partner countries (Belgium, France, Italy and Romania).
The teachers' e-learning platform aims to raise teachers' awareness and provide them with resources and activities meant to stimulate students' motivation and get them actively involved in the topic.
The teachers' Toolkit consists of a toolbox with educational scenarios, which engage students in experiments and role-plays inviting them to exciting journeys to discover environmental challenges [1].

3. Research on the current environmental and digital education in Romania

The research identified a lack of specialized education in the field of climate change. There is no stand alone school subject tackling the issues of risks and opportunities related to climate and environmental acceleration. Environmental issues are allocated up to 4-8 hours/ year [4] and very often they are integrated into other subjects. However, teachers can opt for the Curriculum at the school's decision and allocate an estimative number of 35 hours / year, as an optional class, within topics such as Create your environment; Ecological and environmental protection education etc.

Table 1: Presence of the Environmental Issues in school text-books

	Subjects	**Answers**
Lower of secondary level	Literary Subjects	√ Non-existent or almost non-existent □ Relatively little addressed □ Significantly
	Humanities	□ Non-existent or almost non-existent √ Relatively little addressed □ Significantly
	Sciences	□ Non-existent or almost non-existent √ Relatively little addressed □ Significantly
	Technological/Professional Education	□ Non-existent or almost non-existent √ Relatively little addressed □ Significantly
General upper secondary level	Literary Subjects (national and foreign languages)	√ Non-existent or almost non-existent □ Relatively little addressed □ Significantly
	Humanities (Hist/Geo, Social sciences, eco, philosophy…)	□ Non-existent or almost non-existent √ Relatively little addressed □ Significantly
	Sciences (Math, PhysSc, Bio)	□ Non-existent or almost non-existent √ Relatively little addressed □ Significantly
	Technological / Professional Education	√ Non-existent or almost non-existent □ Relatively little addressed □ Significantly

The survey carried out in Romania, within the Erasmus+ Anthropocene project 2019-1-FR01-KA201-063149, involved 70 teachers and 150 students (from over 40 schools from 4 counties - Iasi, Suceava, Vaslui, Bacau; schools from rural and urban areas).
The vast majority of teachers considered that the number of classes is insufficient and in most cases the issues are dealt with theoretically rather than practically. To meet students' needs teachers have to organise extracurricular activities regarding the environment and climatic changes. The most popular are educational projects in partnership with other schools followed by school competitions and the celebration of special days (March 22nd - World Water Day, April 7th - World Health Day, April 22nd - Earth Day, May 22nd - International Day for BiologicalDiversity, June 5th - World Environment Day).
Teachers also complained about the lack of educational materials developed by specialists in the field of environmental protection. Regarding the way the topics are addressed in the official programme / curriculum only two out of 70 considered this to be appropriate.
Most of the teachers stated that they had no in-service training: "I consider myself a self-study learner. I always find something to read to learn about what could threaten human well-being, first and foremost. Questions like What Happens? on various environmental issues (Air pollution, Biodiversity, Chemicals, Climate change, Environment and health, Overuse of soils, Natural resources, Noise, Soil, Waste and material resources, Water, etc.) incite students' curiosity".
As for digital education, this has recently become one of the priorities in Romanian education. The integration and use of various types of technology in the educational process is no longer seen as an avant-garde movement, but as a necessity. Virtual education has become a phenomenon in recent years, and its short, medium and long-term effects should be evaluated more carefully.
The national curriculum includes the study of Administration of computers and networks or professional occupational studies but there is no school subject addressing the issues of risks and opportunities associated with digital acceleration and big data. Teachers can allocate an average of 4-8 hours/year for the study/debate on issues of risks and opportunities associated with digital acceleration and big data within counselling or optional classes [5]. Nevertheless, even for the specific ICT schools, the specific approach of the digital acceleration and big data issues are under the responsibility of each teacher. The digital acceleration and big data issue is relatively little addressed.

Table 2: Presence of the Digital Acceleration Issues in school text-books

School level	**Subjects**	**Answers**
Lower secondary level	Literary Subjects	√ Non-existent or almost non-existent □ Relatively little addressed □ Significantly
	Humanities	□ Non-existent or almost non-existent √ Relatively little addressed □ Significantly
	Sciences	√ Non-existent or almost non-existent □ Relatively little addressed □ Significantly
	Technological/Professional Education	□ Non-existent or almost non-existent □ Relatively little addressed √ Significantly
General upper secondary level	Literary Subjects (national and foreign languages)	√ Non-existent or almost non-existent □ Relatively little addressed □ Significantly
	Humanities (Hist/Geo, Social sciences, eco, philosophy…)	□ Non-existent or almost non-existent √ Relatively little addressed □ Significantly
	Sciences (Math, Physics, Bio)	√ Non-existent or almost non-existent □ Relatively little addressed

		□ Significantly
	Technological / Professional Education	□ Non-existent or almost non-existent √ Relatively little addressed □ Significantly

All teachers agreed that although there were programmes for digitizing schools, they are insufficient in relation to the existing needs. Having technology at our disposal means learning not only how to use it but also how to manage its challenges. Our school covers this issue superficially (4-8 hours / year during Counselling classes), in most cases through extracurricular activities. "The technologically saturated space in which children grow up is constantly changing. Children grow up in an environment of converged media devices, where significant opportunities for sociability, expression, learning, creativity and participation are provided by online media and especially mobile media. Beyond opportunities, children may encounter a number of risks on the Internet. The more children use the Internet, the wider the range of opportunities, as well as increasing their exposure to risky experiences. Given that mobile media has improved the access to the internet new research is needed on the opportunities and risks of the mobile internet for children." Teachers agreed that the topic is important and deserves to be addressed in the official curriculum. It also requires new methodological approaches and training for teachers.

4. Conclusions

The importance of studying the issues of environmental changes and digital acceleration and big data is not yet reflected in our educational system. There have been programs for environmental and digital education, but they are insufficient in relation to the existing needs. At the school level, risks in this regard are insufficiently controlled.

The Romanian authorities do not, yet, focus specifically on the issues of climate change and digital acceleration, but slow steps are being made. Under the current situation, the Romanian authorities launched a new strategy for the pre-university education system (in February 2020). The law is expected to be enacted, and the two most important "transformations" contained in the bill adopted by senators are [5]:

- The change in the proportion between the common core and the curriculum at the school's decision: instead of 80-20, it is now 65% by 35%. This is the most significant as it means greater openness to students' decision and greater weight in the school's offer.
- The second important aspect is the configuration of the current Article 262, which, in fact, develops/proposes an entirely new model of teaching and standardization careers, focused on equivalent horizontal options. This means that, from now on, teachers will be able to be remunerated not only for teaching, but also for other non-teaching actions such as, for example, career counselling for children, coaching and mentoring for teachers-beginners, project management for the benefit of the school [4,5].

5. References

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