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& εξ Αποστάσεως Εκπαίδευση

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Ενσωμάτωση της Αειφορικής Δικαιοσύνης στα
Αναλυτικά Προγράμματα των Οικονομικών
Μαθημάτων της Δευτεροβάθμιας Εκπαίδευσης με
την υποστήριξη των Τ.Π.Ε.

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Embedding Sustainability Justice in Secondary Education Economic Courses Enabled by ICTs

Ενσωμάτωση της Αειφορικής Δικαιοσύνης στα Αναλυτικά Προγράμματα των Οικονομικών Μαθημάτων της Δευτεροβάθμιας Εκπαίδευσης με την υποστήριξη των Τ.Π.Ε.

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Abstract

This paper describes the processes of a PhD research seeking to locate the connections and the contradictions of secondary school economic course curricula with the Education for Sustainability Justice (ESJ) concept based on a deconstruction and a reconstruction process. In order to achieve the above goal, the research adopted the DeCoRe plus methodological approach to embed sustainability justice in school curricula. Nine economist teachers, members of an online community of practice, participated in an action research and implemented the reconstructed curriculum in their schools. The results show that the reconstructed curriculum can support teachers in: 1) understanding teaching as an ethical and political praxis and understanding themselves as active constructors of meaning, knowledge and curriculum and 2) developing sustainability justice literacy.

Key-words: *Education for Sustainable Justice, DeCoRe plus, Economic Courses*

Περίληψη

Η παρούσα εργασία περιγράφει τις διαδικασίες μιας διδακτορικής έρευνας που επιδιώκει να εντοπίσει τις συνδέσεις και τις αντιφάσεις των Αναλυτικών Προγραμμάτων των οικονομικών μαθημάτων της Δευτεροβάθμιας Εκπαίδευσης με την έννοια της Εκπαίδευσης για την Αειφορική Δικαιοσύνη (ΕΑΔ) βασισμένη σε μια διαδικασία αποδόμησης και αναδόμησης. Για την προσέγγιση του παραπάνω σκοπού και την ενσωμάτωση της Αειφορικής Δικαιοσύνης στα Αναλυτικά Προγράμματα η έρευνα υιοθέτησε τη μεθοδολογική προσέγγιση DeCoRe plus. Εννέα εκπαιδευτικοί οικονομολόγοι, μέλη μιας διαδικτυακής κοινότητας πρακτικής, συμμετείχαν σε μια έρευνα δράσης και εφάρμοσαν το αναδομημένο Αναλυτικό Πρόγραμμα στα σχολεία τους. Τα αποτελέσματα δείχνουν ότι το αναδομημένο Αναλυτικό Πρόγραμμα μπορεί να υποστηρίξει τους εκπαιδευτικούς: 1) στην κατανόηση της διδασκαλίας ως ηθικής και πολιτικής πράξης και στην κατανόησή τους ως ενεργούς κατασκευαστές νοήματος, γνώσης και Αναλυτικού Προγράμματος και 2) στην ανάπτυξη γραμματισμού στην Αειφορική Δικαιοσύνη.

Λέξεις-κλειδιά: *Εκπαίδευση για την Αειφορική Δικαιοσύνη, DeCoRe plus, Οικονομικά μαθήματα*

1. Sustainability crisis and sustainability justice curricula

Over the last decades, mankind is experiencing the consequences of unsustainable economic growth based on maximizing economic outcomes leading to the degradation and depletion of global resources, as well as huge global social inequalities (Makrakis & Kostoula-Makraki, 2013). Although world wealth is steadily increasing, about 1.1 billion people cannot meet their basic needs to live, 2.5 billion people do not have access to health system, 101 million children have no access to primary education while 4 million children die in the first month of their lives (Unicef, 2010). Today, about 20% of the population consumes 80% of the world's wealth. At the same time, the populations that consume less try to follow the economic development model of the "developed" countries (UNEP, 2011).

The United Nations predicts that by 2050 the Earth's population will have risen by 2 billion. Half of these people born in Sub-Saharan Africa and 30% in Southeast Asia (Folger, 2014). The Intergovernmental Panel on Climate Change argues that climate change, in combination with population growth, is already leading to food shortages (IPCC, 2014). The same committee predicts that in the next few decades, stocks of water stored in the glaciers will be reduced, causing water shortages for more than 1 billion people while 20% to 30% of all living beings on the planet will face increased risk of extinction if the rise in average global temperature exceeds 1.5-2.5 ° C (IPCC, 2007).

The necessity for a transition to a sustainable development model at global level is emerging from a large number of scientific studies and the above facts and figures are a sample of the urgency for this shift. Of course, certain issues such as climate change and pollution, face great resistance due to financial interests. But even if the existence of these problems is accepted, the policies and actions followed are not consistent with the necessity of changing the socio - economic model.

Since 1980s, when the concept of sustainable development has begun to be discussed internationally, much has been said about the need for a change in education at a global level (Education for Sustainable Development) in order to contribute in shaping a new growth perspective for a sustainable future. Makrakis (2017) suggests the concept of Education for Sustainability Justice (ESJ) in order to emphasize the ethics and praxis of education for sustainability. The critical / reflexive conceptualization of curriculum is the key for developing an ethical perspective of sustainability justice curriculum (Makrakis, 2017). In this context teachers should must act as curriculum developers, as facilitators and mentors and as transformative intellectuals (Makrakis, 2017). In this sense, the teacher is transformed from a knowledge transmitter to an active shareholder in the process of learning, to a critical thinker, a researcher and co-researcher of his / her own practices and perceptions (Makrakis, 2017).

In Greece, the curriculum is designed centrally by the Ministry of Education and teachers, in almost absolute majority, are cut off from the development process. In addition, they are obliged to teach a prescribed curriculum content in a restricted time. This fact leads to a lack of critical perspective of the curriculum and also drives the school to act as a reproduction factor of society. Teachers are forced to act as knowledge transmitters and they concentrate mostly on "what" they have to teach and "how". There is no time and place to think to what kind of society this knowledge leads. In this way, the school tends to prepare people that reproduce and perpetuate an unjust growth-oriented society instead of preparing learners for active citizenship and turn them able to challenge sustainability injustices.

Economic courses in Secondary Education can contribute to the direction of ESJ because the economy is one of the four pillars of sustainability along with society, the environment and

culture. The economy justice component, which is directly associated with economic course curricula, addresses issues as economic exploitation, unfair trade, social cost, social counting, economic externalities, unequal distribution of wealth and poverty. Education for a sustainable future cannot be approached unilaterally and subtly based only on a pillar, but this connection needs to be holistic in any possible points of contact between economic science and the natural, social and cultural environment. Today in economic courses in secondary education there is a great need for an interdisciplinary approach to sustainability issues and a need to create teaching programs - approaches based on the pedagogical philosophy of Education for Sustainability Justice as mentioned above.

2. Embedding sustainability justice in curriculum

For Grundy (2003) there are three basic approaches to curriculum theory, the curriculum as a product, as a process and as praxis. To establish these three approaches the writer bases on the theory of Habermas (1972), according to which there are respectively three basic cognitive interests: a) The technical (control and management) b) the practical (understanding and meaning) and c) the emancipatory critical action - social change (Grundy, 2003; Makrakis, 2012). Kostoula-Makraki N. (2013) brings together the three above-mentioned cognitive interests as well as how they are expressed as curriculum forms as a role of the educational process, as a teaching and learning process and as a pedagogical approach.

The technical cognitive interest focuses on environmental control and management. A learning process based on technical interest presents a ready, non-negotiable reality which students must accept. Thus, the role of the educational process in this case is mainly reproductive. (Kostoula-Makraki, 2013) The success of a curriculum of technical interest, is based on whether or not the predefined targets are met. Education in this sense is based on transitive learning where defined knowledge is passed on to students with the most effective methods. The pedagogical process is based on behaviorism (Kostoula-Makraki, 2013) and focuses more on the way in which teaching is dealt with and less on content. (Makrakis, 2013)

The practical cognitive interest, Curriculum as a process, is oriented towards understanding and meaning within a particular environment (Grundy, 2003). In this approach goals and content are shaped by the interaction of students and teachers through open and flexible processes. This means recognizing the active role of the pupils in the creation of knowledge, without necessarily implying the construction of new knowledge, but rather the construction of concepts through pupils' interaction with their environment (Makrakis, 2012). This leads to an interpretive teaching and the transferal perception of knowledge is replaced by the constructivist approach and constructivism (Kostoula-Makraki, 2013) in which knowledge is not transmitted but built by the student himself. Such a process focuses on solving problems on the basis of the pupil's experiences (Kostoula-Makraki, 2013).

The emancipatory cognitive interest leads Grundy (2003) to a Curriculum as praxis. Here the active participation of pupils in the learning process for acquiring meaning is not sufficient unless it is accompanied by critical self-awareness and social awareness with the aim of transforming one's own person and society. (Makrakis, 2012) In this perspective, the political and social dimension of the educational process is not based on predetermined and absolute principles and practices but on a basis of critical and dialectical reflection (Makrakis, 2012). The role of education here is not reproductive but transformational, and therefore school can act as a vehicle for changing society.

Pedagogy that is consistent with this approach is critical pedagogy leading to autonomous and collective action (Kostoula-Makraki, 2013). The teacher, together with the pupils, is involved in a praxis where he/she focuses on critical analysis and the reconstruction of their own beliefs, knowledge and practices. (Makrakis, 2012) The curriculum is not just a set of projects to be implemented but is created through an active process of all stakeholders in which the design, action and evaluation are interconnected. (Grundy, 2003)

In such a curriculum approach, teachers and pupils develop a critical attitude towards the current social, economic and environmental realities such as social inequality, poverty, overconsumption, violence, discrimination and pollution (Makrakis, 2012) and in addition, they revise and transform their attitude towards these social problems. Thus, a curriculum as praxis examines whether it manages to contribute to social reconstruction and transformation, but also to the creation of critical and responsible and active citizens. (Makrakis, 2012) The evaluation of such a learning process is based on what Kostoula-Makraki & Makrakis (2006) calls collectively feedback and relates to reflection before and during the action. The curriculum as praxis, therefore, is more related to a transformative approach to building a sustainable future (Kostoula-Makraki, 2011).

Makrakis (2017) has developed the DeCoRe plus methodological approach in order to embed sustainability justice in curricula. The theoretical background of this approach holds on critical social theory, critical pedagogy, postmodern conceptions of teaching – learning and the perspective of a curriculum as praxis (Makrakis, 2017). This approach contains six not linear processes which are: Diagnostic Evaluation, Deconstruction, Construction, Reconstruction, Implementation, summative evaluation as explained in the following table.

Table 1. DeCoRe plus Processes

DeCoRe+ Processes	Key concepts in each process
Diagnostic Evaluation	Reflecting on: a) who we are; b) what we have (existing knowledge); c) where we want to go; and d) why we want to go there.
Deconstruction	Analysing critically the functioning of personal perspectives/habits of mind and chosen curriculum units/modules.
Construction	Gathering resources, creating ideas and constructing new meaning (perspectives).
Reconstruction	Integration of new constructed knowledge in line with the reconstructed frame of reference.
Implementation	Carrying out the reconstructed curriculum unit/module supplemented by service learning.
Summative Evaluation	Reflecting and evaluating on what has been learned and changed.

Makrakis (2017, p. 112).

3. The role of ICTs in Embedding Sustainability Justice

The question of the integration of ICT in the educational process depends significantly on the methodological approaches - educational framework (Raptis & Rapti, 2006) and is determined by factors related to the cognitive interests (Habermas, 1972) of the participants in the process as well as the wider social and political context (Kostoula-Makraki & Makrakis, 2006).

Makrakis (2017) supports that Online learning communities, open software tools, repositories of learning objects such as learner support tools can be used to enhance education for sustainability justice. An online learning community could be a Virtual Community of Practice (VCoP) where knowledge is built on previous experiences of people with the same interests and is being negotiated, interacting and collectively shaping (Wenger et al., 2002). For Davenport (2001) a VCoP is a group of people who interact with interdependent tasks and have common interests driven by a common goal. These communities can be used to help teachers reflect on their practices in a collaborative and supportive learning environment (Kirschner & Lai, 2007). In such community, stakeholders can co-modulate, share, design and evaluate educational material, experiences, and every element that could contribute to the effectiveness of the curriculum. Online social network sites are perfect communication tools for constructing knowledge based on communication, collaboration and task sharing (Balasubramanian et al., 2014). There are various online teaching tools that are suitable, open and free for teachers. Edmodo is a free social learning platform designed for collaboration, communication and for sharing of the knowledge and can be used to create an online community of practice (Ekici, 2017· Balasubramanian, et al., 2014).

4. The research

4.1 Methodology of research

The research adopted the DeCoRe plus methodological approach in order to embed sustainability justice in secondary school economic course curricula. This approach has highlighted the connections and internal contradictions of the economic curriculum courses with sustainability issues. As a result of this process the researcher built a reconstructed curriculum based on open and flexible educational scenarios as teaching and educational material. These scenarios can be used in all economic courses in Secondary Education as they are adaptable and they are not dealt as a ready-made outcome to be applied, but as a living process for the integration of sustainable justice in economic courses.

In the context of an action research, the above material was tested by a group of nine economist, teachers, placed all over the country who were acting as co-researchers. The research used the free web platform Edmodo in order to build an online community of practice. Furthermore, for the teachers who want to integrate the sustainability vision in their daily educational practice an educational blog-website (www.teach-economics-sustainable.com/) has been created to serve this purpose.

The experimental stage of the action research has been completed and now the research is in the phase of data analysis. The action research employed had two main axes. The first axe aimed in improving and re-constructing the learning scenarios through the Implementation process of the DeCoRe methodological approach. The second axe was to reflect educational practices and perspectives of the participating teachers.

Here, we present some of the qualitative data that refer to the 2nd axis that emerged from the discussions on the Edmodo platform, through the teleconferences as well as from the personal educational diary of the teachers who participated in the action research. In the second axe, the research focused in 1) understanding teaching as an ethical and political praxis and understanding teacher as an active constructor of meaning, knowledge and curriculum and 2) developing economist teachers' sustainable justice literacy. These factors can give an emancipatory cognitive interest in the educational practices and perceptions of involved teachers.

4.2 Presentation and discussion of research results

A. Understanding teaching as an ethical and political praxis and understanding teacher as an active constructor of meaning, knowledge and curriculum

Contrary to the conservative view that pedagogy is just a set of strategies and skills in order to teach a predetermined subject, pedagogy is defined as a moral and political practice that represents a deliberate effort on the part of teachers to influence how and what knowledge, values and subjectivities are produced through particular sets of social relationships (Giroux, 2010). School is a place of politics, as the content of curriculum as well as the educational process are formed by relations of power (Makrakis, 2017).

Teachers as curriculum developers have to reorder and enrich curriculum and critically access school knowledge (Makrakis, 2017). As it was mentioned above the researcher with the help of DeCoRe plus methodological approach constructed teaching and educational scenarios for economic courses in Secondary education. This material has been shared to the research team not as non-negotiable material but as a lively process to be tested in practice.

During the whole research process, it emerged that the participating teachers realized and perceived the educational process as a political and ethical act. The CR4 coresearcher says “After my participation in the research I see the official curriculum from a more critical point of view. It is sterile knowledge of the capitalist model, that is driving us to consume and nothing else. I definitely went into a process inside me and I started thinking about more things. My thought is to make a suggestion for changing the books we teach”. The same teacher during the last discussion when was asked if the action research satisfied her expectations answered: “I did not have any experience from an action research so I did not have great expectations. But it was more than what I thought. While I thought I was just going to participate and that I was just going to help a colleague, therefore you, it finally made me so much worried that I went into the process of thinking about it, wanting to plan scenarios like you, browse our books and look for it. It was a very good chance for reflection”.

In the reconstructed scenario about economic circular flow diagram the official curriculum ignores the factor environment. The CR1 says about that “there was a diffuse reflection during the lesson because the curriculum and the book we use neglects a few things, we were discussing why the book puts it in this way; and why we discuss it differently;”.

The CR6 concludes in the last discussion: “The curriculum bears an ideological framework; the issue is if we realize it and what we do about it”. As she says this fact along with the restrict context of school procedures make it harder to reflect about this: “In the classroom there was an attempt to discuss this issue but the pressure to teach a specific curriculum for the exams made it difficult”.

The CR8 doing her reflection of the learning procedure, says: “There has been a very intense reflection on what we are learning and why we are learning that; who decides what I need to know; why we did this scenario while the book says something else; Because the book’s reference of this subject is limited, we think how much we need to filter all the information. The existing curriculum was strongly criticized. Apart from that, there was an intense concern about the books which are used.”

CR5 teacher says about the teaching procedure: “The pupils who participated in the public relations team in the scenario presented collective views. All views were recorded and discussed. They all participated in the formation of views and results. This is an extension of what kind of citizens we want.”

The CR7 says “The curriculum is definitely influenced by the political flag of everyone who construct it and the time that it is written.” She recognizes her previous practices and perceptions and revises them: “While we know it (she means the ideology that curriculum bears) we have not thought about it well. And I tend to be typical in the implementation of the official curriculum, but in fact this is not quite right. If you are too typical you are out of time as well. In this social and economic crisis, we must have a critical view. I believe that crisis is a consequence of not having this view. We must have a critical view of everything, our books and our curriculum”.

At the begging of research, the CR7 said in a discussion: “The scenarios are structured in a nice way and I would also like to get to a point where I can construct scenarios in the same way on a subject that interests me and I want to reveal other dimensions”. In her personal educational diary reflecting about the research process she declares that she will be a curriculum constructor with a critical view: “As a teacher, I think I also benefited from the whole research process and I can use it as an example in order to build my own scenarios for reflection, active participation and change of attitude for all of us. I usually try to approach a subject with critical judgment and filtering, etc., but without deviating too much from the structure of the book. Eventually I realized that this is not helping the process of going deeper, as I would like, and this "undermined" my effort. But if we do not leave behind the traditional one we cannot reconstruct it, we just modify it slightly each time, which is not enough for the change we want to bring.”

Taking under consideration the above data, we can conclude that the reconstructed curriculum can lead to critical consciousness as it gives the opportunity to the participating teachers to realize the politic and ethic side of the educational procedure as well as to negotiate along with their pupils the content of the official curriculum when it reproduces the social injustices. In this way, they are also involved in a critique of their own ideologies, perspectives and practices in teaching, learning and curriculum (Makrakis, 2017).

B. Developing economist teachers' sustainability justice literacy

The process for enabling sustainable justice has two very crucial factors and these are the teachers' role and perceptions (Makrakis, 2017). If we want to face the curriculum as praxis and as a living process we have to realize that knowledge is a social construction. The curriculum is not a set of texts that the teacher must implement, but a procedure where the construction, the action, the observation and the reflection are interconnected (Grundy, 2003). In this context, the target of the action research was to develop economist teachers' sustainability justice literacy. As the data analysis is still in progress the qualitative data shows at the moment that the research approached this target.

The teacher CR4 says: “The scenario issues were interesting and modern. For example, the sustainable consumption, which is part of our everyday life but the children do not deal with it in the school book and it is something which brings the knowledge in contact with the reality”. It is very interesting that she can realize how she can integrate sustainability justice in her teaching content: “the curriculum has a brief outline about the issue of poverty in the course *Principles of Economics* (in technical school). It does not approach the social part of the issue and gives no space for reflection to children. It is a very small section. And she concludes “From now on I can depict the issues and try to integrate them into a sustainable education that gives substance to the progress of society”.

The teacher CR1 in her reflection of teaching procedure in the scenario of GDP declared: “In class we thought about our lives and society and how we are affected by values that are not included in GDP. A good example is that article about Africa where is stated that the GDP may

look good but the society suffer (high GDP but great unequal distribution of wealth). We made a connection in class with the Greek society today. We measure our lives with indicators but we do not understand the real quality of life.”

The teacher CR2 identifies the difference in his point of view after the participation in the action research: “With the avocation with these scenarios, I noticed that I started to pay attention to certain material, e.g videos, that I wouldn’t have noticed before. Moreover, now I can focus on issues in our books that can be related to the concept of sustainability”

The teacher CR8 realizes how she can think through the lenses of sustainability justice: “When we teach one subject e.g. the factors of production, we talk about the factors of production and we do not go deeper into the logic of seeing how this is related to anything else. Until now, when I mentioned the factors of production, I would not go into the logic of talking about workers in a textile industry in Bangladesh. We are used to give our children knowledge detached from reality.”

These results show that reconstructed curriculum can lead the participants in questioning of how we can integrate the vision for a sustainable future in our daily educational practice and perspective. They are encouraged to actively participate in a process of questioning themselves about the economic courses in secondary education and sustainable justice. This process has definitely a specific direction of changing the reproductive role of education.

5. Conclusion

During the last decades, there is a strong discussion about sustainability in the education processes. The concept of Education for Sustainability Justice emphasizes in ethics and praxis of education for sustainability. Using of DeCoRe plus methodological approach and an action research that was conducted, a reconstructed economic curriculum for Secondary Education in Greece was implemented by nine economist teachers. In this research, the participants interact and communicate through the online platform Edmodo. As the research is still in progress this article discusses some of the qualitative data that derived from the online platform Edmodo, teleconferences and personal educational diaries of the teachers. The results are showing that the reconstructed curriculum involves participants in an emancipatory process of giving a political and ethical extension in their educational practices and perceptions as well as an important sustainable justice literacy.

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