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Research & Innovation

Description of the funded research project
1st Call for H.F.R.I. Research Projects to Support Faculty
Members & Researchers and Procure High-Value
Research Equipment

Title of the research project:
Promoting sustainable living through the education
about the ecological footprint (RRO.S.L.E.E.F.)

Principal Investigator:
Georgios Malandrakis

Reader-friendly title:
Sustainability and Greek ecological footprint

Scientific Area:
Social Sciences (Education for sustainability)

Institution and Country:
Aristotle University of Thessaloniki, Greece

Host Institution: Aristotle University of Thessaloniki

Collaborating Institution(s):
Global Footprint Network (GFN), University of Western
Macedonia (UOWM), University of Ioannina (UI), Democritus
University of Thrace (DUTH)



Principal Investigator: George Malandrakis
Assistant Professor Department of Primary Education AUTH



Research Team Members (left to right, top to bottom): Penelope Papadopoulou
George Palaigeorgiou, Kostantinos Gavrillakis, Dimitrios Pnevmitikos, Aikaterini Dimitriadou
George Panaras, Athanasios Mogias, Nikolaos Galanis, Alexandros Amprazis

Budget: 148.500 €

Duration: 36 months

Research Project Synopsis

This funded project aims to promote the sustainable way of life of Greek citizens through the development of (a) an online calculator for the individual ecological footprint (EF) and (b) corresponding educational material for its effective use and teaching, in order to reduce individual EF. In addition, it intends to identify and describe the factors that affect the EF of Greek students of all ages, as well as to suggest sound ways in which their EF can be reduced.

This concept (EF) is considered as a powerful tool for assessing the impact on the environment from the consumption of natural resources, and through this awareness in guiding informed decisions, individually and collectively, to enhance sustainable lifestyles and behaviours.

The project is divided into four phases: (i) Adaptation to the Greek data of the online calculator of the individual EF, (ii) Pilot application of the calculator to a large number of students and teachers of all levels, (iii) Development and pilot application of educational material and activities for EF and the educational use of the online calculator (iv) Large-scale application of the educational material (N>300) in order to determine its effectiveness in practice.

The products of the project will be freely accessible and available not only to members of the educational community, but to citizens of all ages and social groups in Greece who wish to adopt a more environmentally friendly lifestyle, by reducing their individual EF.

The project involves 8 faculty members, 2 Ph.D. and 5 postgraduate students from four (4) Greek universities and lasts 36 months, with a total budget of 148,500 euros.

Project originality

One of the main goals of education for sustainable development is to reduce our global ecological footprint (UNESCO, 2009). Initially, the development of an online EF measuring tool was carried out by the Global Footprint Network (GFN), founded by Mathis Wackernagel in 2003. In Greece there were already two other online measuring tools, one for the personal ecological footprint and one for the carbon footprint. However, both were essentially evaluating the energy footprint which is considered part of the ecological.

On the other hand, the existing GFN online measurement tool that evaluates individual EF is based on global averages and data, without adapting to any specific country. Consequently, its translation into Greek, and its adaptation to Greek national data and statistics is a global originality.

Therefore, the adoption and adaptation of the international EF measurement system to the Greek national data, in addition to the reliability of the method, allows the direct comparison of Greek results with international ones, providing more valid conclusions.

Finally, because our ultimate goal is for students to understand the environmental impact of their daily activities, with the objective of changing them to more sustainable lifestyles, educational and audio-visual material and activities for students and teachers of all levels of education will be developed and tested. In addition, in this way, Greek teachers will be facilitated in the implementation of new Greek curricula for sustainability which, following international trends, include the ecological footprint and the carbon footprint in their contents.

Expected results & Research Project Impact

The project addresses a leading topic in the environmental sciences, that of human impacts on the environment which are calculated through the Ecological Footprint (EF). In addition, it bridges the traditional gap between sciences, and in particular the environmental sciences, with the humanities (e.g., education), through the use and integration of the online calculator into the educational activities.

In particular, the measurement of EF and the development of appropriate educational material and teaching methods will promote the understanding of the concept of sustainability among members of the educational community at all levels, facilitating the teaching of relevant subjects in Primary, Secondary and Tertiary Education (social pillar).

The educational material produced, the online measurement tool and the audiovisual material will be free for use by citizens of all ages, in order to evaluate their ecological footprint in a way that is directly comparable to other EFs worldwide (social pillar). This will enable them to realize both the amount of consumption of natural resources that they make, and the excess in the use of these resources in relation to those that are naturally renewable (ecological overshoot), as well as the differences and inequalities in the consumption of renewable natural resources, compared to other populations.

In addition, such a calculation makes it easier for individuals to take steps towards a more sustainable ways of living, reducing their individual EF (environmental pillar), changing their lifestyle (social pillar) and consumption patterns (economic pillar). Furthermore, the creation of a profile that describes the main factors and conditions that affect the EF of Greek citizens will help educational and political actions towards sustainability (pillar of governance). The project is supported by the development of a website (<http://greekecologicalfootprint.web.auth.gr>). Finally, four Universities located in Northern Greece (AUTH, UOWM, UI, DUTH) participate directly in this project. As a result, the current practices will have a positive impact not only on the local community but also on the entire country and its visitors.

The importance of this funding

The importance of this funding lies on the following:

- **Participants:** 15 researchers from Greece and one (1) partner organization from the USA (Global Footprint Network)
- **Deliverable:** 29 different
- **Development:** (a) Online tool for measuring the ecological footprint, adapted to Greek data (i.e., based on national statistics and the Greek language), (b) Educational material on EF for primary and secondary school students, University students and practicing teachers
- **Pilot test:** Application of the online tool for measuring EF and analysis of the data that will be collected to determine quantitative and qualitative aspects and factors of the Greek EF
- **Dissemination of results:** Proceedings to international / national conferences, publication in relevant scientific journals, presentation day for all stakeholders (teachers and non-teachers)
- **A free access website to which will be available, except the online EF calculator, all the produced educational and audio-visual materials** (<http://greekecologicalfootprint.web.auth.gr>)



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