



earth sciences . innovation . multimedia

newsletter n.1

OIKOS

Originating Innovative methods to learn and teach Knowledge in the field of earth and natural sciences derived from an Original and combined use of applicative Software

OIKOS aims to elaborate, develop and test new training methods and new resources in the field of teaching/learning in natural sciences, in general, and specifically in earth sciences.

The results of OIKOS will be usable by a European

Target Group composed of the following cluster:

- * Primary and secondary school teachers teaching subjects inherent to Earth Sciences;
- * Teachers, trainers and learning mediators working in the field of Earth Sciences in other formal and non-formal contexts;
- * Teachers, trainers and learning mediators working in the field of Natural Sciences.

Moreover, in indirectly, OIKOS will produce results usable by:

- * Students in schools at every level. Therefore OIKOS will make available:
- * Methods and instruments for teachers/trainers who propose to bring innovation to their didactic strategies;
- * Training resources for all training sector employees working in the field of natural sciences and specifically for those working with earth sciences;
- * New didactic proposals for students of schools at all levels.

To achieve this purpose the project is divided into three macro-objectives:

OBJECTIVE 1 – the setting up of an innovative didactic methodology, denominated the OIKOS methodology, inspired by methods centred on simulation games and based on the combined use of computer and multimedial tools such as on-line mapping (Web GIS) software, software for simulation and virtual reality (VR) and decision support systems (DSS);

OBJECTIVE 2 - the setting up of a didactic tool composed of various software applications and a guide procedure acting as a linking interface and making utilities available for integration of the various packages;



Above: Car transported by a debris flow triggered by heavy rains.

OBJECTIVE 3 - the setting up of a didactic system for training of the Target Group in the new OIKOS methodology.

The needs that OIKOS intends to satisfy are of a practical and conceptual nature.

In the first case, a report drafted by a European working party composed of representatives of 35 countries, the European Organization for economic co-operation and development (OECD),



Left: Learning natural sciences: Oikos will make available new didactic proposals for students and teachers.





University of Cyprus



University of Crete



Universidad de Zaragoza



Universitatea Babe-Bolyai Cluj-Napoca

Unesco and the European Commission has established that among European fifteen-year-olds, a variable percentage between 7 and 32% do not possess sufficient basic scientific knowledge to be able to keep pace with scientific evolution in the years to come. Taking this situation into account, the European Commissar for Education and Culture, Viviane Reding, expressed the hope that this report will stimulate the Governments of member states to increase investments in the sector of scientific education.



Left: Major road interrupted by a vast landslide movement.

In the second case, traditional teaching, of a formal-descriptive kind, which in itself, as a method, contradicts scientific knowledge, has proved to be a failure; the pedagogy of the last few decades clearly affirms that it is imperative to impose the definition of a problem, steadily forming in the learner a correct mental attitude of investigation, precisely involving the training dimension of scientific thought, a problem-type didactical approach, inducing reflection, analysis, rethinking, rather than a repetitive, rote didactic approach laid out in a handbook, instead of the learner being at the centre of didactic action and finding in the text, and not in the teacher, the arteficer of the curriculum. In fact, youngsters up to 14-15 years old are anchored to concrete thought and experience. It is therefore fundamental to favour a practical approach in teaching, in which laboratory time is above all understood to mean important activities of the mind allowing the building of concepts within wide-ranging itineraries. Specifically OIKOS is based upon that sort of virtual laboratory nowadays to be found in the multimedial and simulation approaches.

The need for proposals to train the trainers, actuated through the exchange of experience among Training Centres, Universities, Companies and Associations, to introduce didactic innovation in the sciences, emerges in many of the studies about the sector. In particular, OIKOS is based on the recent European Commission analysis, "Europeans, science and technology" - Eurobarometer 55.2.

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