



Universidade do Minho
Instituto de Educação

**Eighth conference of
EUROPEAN RESEARCHERS IN DIDACTICS OF
BIOLOGY
ERIDOB 2010**

**Organised by
Institute of Education, University of Minho
Braga, Portugal
13th to 17th July 2010**

THURSDAY – 15

Paper Session IV**11:00 – 12:30 Auditorium A****Strand – 1 – Student conceptions and conceptual change****Chair: Boersma, K.T. – The Netherlands**

9 – Schrenk, M., Baisch, P. – Germany

Can primary school students achieve a basic understanding of scientific concepts of the cycling of matter?

64 – Jördens, J., Asshoff, R., Kullmann, H., Hammann, M. – Germany

Interactions between student conceptions and teaching materials on evolution of life

155 – Zabel, J. – Germany

Darwin's mental landscape: Mapping students' learning trajectories in evolution theory

11:00 – 12:30 Auditorium B**Strand – 3 – Student values, attitudes and decision-making****Chair: Ben-Zvi Assaraf, O. – Israel**

12 – Basten, M., Wilde, M. – Germany

Who does and who does not? The decision of German adolescents concerning post-mortem organ donation

52 – Paraskeva- Hadjichambi, D., Korfiatis, K., Hadjichambis, A. Ch., Arianoutsou, M. – Cyprus

Charismatic threatened plant VS road development: Value driven decision-making through computer-based, scaffolded learning activities

96 – Menzel, S., Bögeholz, S. – Germany

What influences young peoples' commitment to protect biodiversity in Chile and Germany?

12:30 – 14:00 Lunch**14:00 – 15:00 Auditorium A****Business Meeting** (all participants are invited to attend)**15:00 Tour**

52 Charismatic threatened plant VS road development: Value driven decision-making through computer-based, scaffolded learning activities

Paraskeva-Hadjichambi, D., Korfiatis, K., Hadjichambis, A. Ch.& Arianoutsou, M.

Department of Educational Sciences, University of Cyprus, Nicosia – CYPRUS

Cyprus University of Technology & Cyprus Centre for Environmental Research and Education, Limassol – CYPRUS

Department of Ecology and Systematics, Faculty of Biology, National and Kapodistrian University of Athens – GREECE

This paper reports data from the evaluation of a learning intervention aiming to the development of student's decision making skills and argumentation for the conservation of threatened plants. The study addresses the role that children's value-based arguments play in the formation of a decision by applying the optimization strategy. Computer based, scaffolded learning activities were designed challenging students in solving an authentic local problem. The problem was related to the conflicts among the inhabitants of a village derived from the need of a new road development. Four options were presented; two of which causing direct and indirect impacts on the ecosystem of a threatened plant population and other two affecting directly or indirectly the inhabitants of the village. The learning environment provided necessary scientific information through digital learning objects for the consideration of the multiple aspects of the problem, the study of the effects of the possible options and the formulation and balancing of criteria before selecting the best compromise. Children were asked to come up with concrete decision, in order to help inhabitants with the problem.

The research is aiming to answer three main questions: 1. Which are the substantive arguments and the decisive values driving student's decision? 2. Are there any patterns among the decision-makers? 3. Can a computer-based, scaffolded learning environment deal effectively with the complex topic of biological conservation?

Findings highlight that even though children incorporate several criteria in the decision making process, however, what is finally driving their decisions are some substantive arguments which are based on decisive values.

The results exhibited three value-driven patterns of decision-makers: Ecocentric, Weak anthropocentric and Strong anthropocentric. Transmission of decision-maker patterns from strong anthropocentric towards weak anthropocentric and ecocentric, by increasing quality of ecological reasoning, was revealed after the learning intervention.

That transmission in patterns implies that integrated learning strategies of placing threatened organisms in the frames of the complex system of ecological and societal components, through computer based-scaffolded learning activities, were proved to challenge children develop values, skills and action competence needed to face complex situations and act on critical decisions regarding the conservation of organisms in danger.

Such integration in teaching strategies effectively engage students with the complex topic of biological conservation; not just in terms of science content, but also in terms of preparing citizens for competent participation in environmental decision making and facilitate the issues as future stakeholders, managers or policy makers.
