Problems of the Environment in the Science Classroom. Introducing the STSE Teaching Program

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This presentation is concerned with the question as to how the teaching of environmental problems, namely that of climate change, can be integrated into the Science Curriculum.

This task has to consider the nature of the environmental problem ie. that an environmental problem arises from the interaction between natural and cultural systems and that environmental problems operate in nature but at the same time have a strong social character since are caused by humans and social institutions are involved in their solution.

Furthermore, one has to take in account that in their traditional forms environmental education is mainly concerned with the teaching of values while science education is grounded more on an empirical analytical perspective.

However, in the last decade a tendency appeared pointing towards the inclusion of the teaching of values in science education.

Gough (2002) argued that if we are to achieve sustainable development then science education must have a role in encouraging ecological thinking while Hodson (2003) argued that science education should guide the students to responsible social action. It has been also proposed that Science and Technology Education in the new century must aim at much more than environmental knowledge and competence. It must, at its basic level, offer everyone the opportunity of a learning experience that contributes to personal autonomy and responsible citizenship (UNESCO, Division of Environment, 2001).

This orientation relies on the fact that science education is a social activity operating within communities which posses value systems. Therefore, a change in the cognitive status of the communities influences the status of their ethical and social values. Thus, if a student acquires knowledge not only about the physical processes but also about the roots and causes of the environmental problem, s/he then becomes an active citizen and a critical thinker.

In this framework, we are examining how by utilizing the STSE Education framework the teaching of one of the most important environmental problems, namely Climate Change, can be integrated in the science curriculum of the pre-service science teachers and how this teaching can provide both adequate scientific background and ethical motivation in order to guide the students to-

wards critical thinking and responsible decision making.

References

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