

Are Greek pre-service teachers literate on marine pollution issues?

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To achieve an ocean literate society, ocean sciences must be integrated into educational practice, research, curricula, textbooks and assessments (Tran *et al.*, 2010). Considering that teachers play a key role in the environmental literacy of future generations (World Commission on the Environment and Development, 1987), it is a reasonable assumption that successful integration of ocean literacy in schools requires the commitment of teachers who have a secure knowledge of ocean literacy principles and positive attitudes towards the marine environment. Marine pollution is one of the fundamental concepts which support the principle that the ocean and humans are inextricably interconnected (Cava *et al.*, 2005). This study aims a) to assess Greek pre-service primary teachers' knowledge, attitudes and self-reported behaviour related to marine pollution issues and b) to examine the relationships of these variables with background factors.

A structured questionnaire, based on a previous instrument concerning an environmental literacy assessment (Yavetz *et al.*, 2007), was administered to 435 pre-service primary teachers of the Democritus University of Thrace, Greece. The questionnaire included three Likert-type scales, namely knowledge, attitudes and behaviour related to marine pollution, as well as a set of questions regarding background factors.

Cronbach's alpha showed an adequate internal consistency for all the items in each of the three scales. Exploratory factor analysis revealed one factor for the knowledge scale, three factors for the attitude scale, identified as willingness to pay, locus of control and attitudes towards the environment and two factors for the behaviour scale, identified as individual action and collective action.

Pre-service teachers demonstrated a relatively moderate level of knowledge about marine pollution issues having, though, misconceptions, possibly because they attain information mostly from mass media and less from formal education. They scored high or relatively high on all attitude factors, namely they demonstrated very positive attitudes towards the marine environment, an internal locus of control and a rather strong willingness to pay; all three of them being important characteristics of future teachers who can positively influence their pupils' attitudes towards the environment. They scored moderately high on individual action and low on collective action probably reflecting their perception of responsible environmental behaviour, as well as the way Greek society addresses environmental issues. Pre-service teachers grown up in a coastal hometown environment demonstrated a significantly higher level of collective action compared to students from a non-coastal hometown environment, probably indicating that childhood experiences of the coastal environment can stimulate their collective action while their mother's education significantly affected their individual and collective action.

Considering the growing focus on the necessity of ocean literacy, our findings can be utilized for improving marine education in teacher education programs so as to equip pre-service teachers with secure knowledge on marine pollution issues, appropriate teaching strategies and necessary skills to act. Then, probably, they themselves, as well as their future students will be able to make informed and responsible decisions regarding marine pollution issues and to act both individually and collectively for the protection of the marine environment.

References

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