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Planning Educational Activities and Teaching Strategies On Constructing a Conservation Educational Module

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This paper describes the design of an educational module which aims to raise awareness and change the attitudes of elementary school students about focal endangered species in protected areas. The proposed design builds on, and extends the General Teaching Model. The educational module which was developed through this approach was pilot-tested in two Greek elementary school classes, involving 29 students who provided their opinion through a questionnaire. The results verify that the educational module had a significant effect on the cognitive level and the attitudes of the students. Therefore, it is argued that the proposed design approach can form the basis for the development of educational activities and strategies which can raise awareness and change the attitudes of elementary school students about the conservation of endangered species. It can also be used in non-formal educational settings, such as National Marine Parks.

Key Words: caretta caretta, educational module, environmental education, general teaching model, teaching methods

Introduction

The Bay of Laganas on the island of Zakynthos in Greece hosts the largest known nesting rookery of the endangered Caretta caretta sea turtle in the Mediterranean (Groombridge, 1990). In 2000, a National Marine Park was established with the prime objective to manage the nesting area and promote sustainable development (Dimopoulos, 2000). As with all protected areas (Kelleher & Kenchington, 1992; IUCN, 1994), the viability and success of the

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National Marine Park of Zakynthos will depend on the level of social consensus and local support. Consequently, there is a need to create citizenry that is well informed about wildlife management and willing to get involved.

Ultimately, environmental education (EE) is about creating citizenry who can help resolve environmental issues (Monroe & Kaplan, 1988). Therefore, developing a long-term environmental education programme on sea turtles for elementary school students may generate local support for the objectives of the National Marine Park of Zakynthos. Such programmes do not affect students only but also their teachers, many of which are active and influential members of local societies.

In order to ensure effectiveness, programmes of this type should be developed in line with the goals and objectives of EE as clearly described in the Tbilisi Declaration (UNESCO-UNEP, 1978). According to Hungerford & Peyton (1994) an intermediate set of goals for curriculum development should be adopted to communicate specific goal statements, which could be translated into instructional objectives around which EE materials could be developed.

According to the Behaviour Flow Chart (Hungerford & Volk, 1990; Winther, Volk, & Hungerford, 1994) there are three groups of variables that contribute to positive environmental behaviour: (a) Entry-level variables: environmental sensitivity, knowledge of ecology, androgyny, attitudes toward pollution, technology, and economics, (b) Ownership variables: in-depth knowledge about issues, personal investment in issues and the environment, knowledge of consequences behaviour-both positive and negative, a personal commitment to issue resolution, and (c) Empowerment variables: knowledge of and skill in using environmental action strategies, locus of control, intention to act, in-depth knowledge about issues. Based on the case of the sea turtles on Zakynthos, the study outlines a specific methodology for designing an environmental education module to positively influence the cognitive and affective domains of fifth and sixth graders regarding focal endangered species in protected areas.

Methodology

The module was based on the case study, also referred to as extended case study, format (Hagenbruger & Hungerford, 1993; Hungerford, Volk, Dixon, Marcinkowski, & Sia, 1988) for the investigation of issues. The case study approach was selected for the design of the module as it provides the instructor with a substantial amount of flexibility and control. The instructor can choose the issue, determine methods to be used and make decisions concerning the depth to which the issue will be analysed. It is an instructional method utilising both primary and secondary sources to deliver issue-focused information and skills to students (Ramsey & Hungerford, 1998) and can be used for learners in fifth and sixth grades (Hungerford & Volk, 1998). Case studies designed for use in K-12 settings usually includes a variety of print and non-print resource materials, as well as a set of accompanying lessons or student activities (Marcinkowski, Volk, & Hungerford, 1990).

Planning the Activities

The module aimed at affecting four variables, adapted from the Behaviour Flow Chart, that were deemed to contribute to positive behaviour toward sea turtles and their management: knowledge on basic sea turtle biology and conservation measures in the protected area (entry-level variable); understanding of and concern for the sea turtle issue on Zakynthos (ownership variable); belief that personal action can make a difference to sea turtles, viz. locus of control, (empowerment variable), and verbal commitment to sea turtle conservation (empowerment

variable). Seven activities mainly address the first variable, 12 activities mainly address the second variable, 10 activities mainly address the third variable and 9 activities mainly address the fourth variable. A comparison of each activity to the four selected behaviour predictor variables is presented in Table 1.

Planning Module Construction

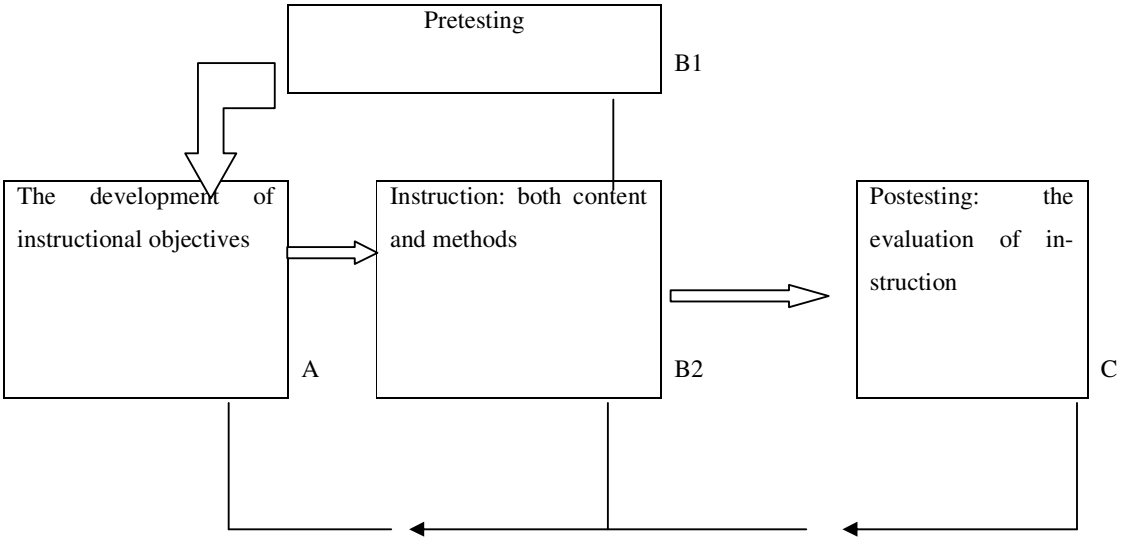
The planning of the instructional module was based on the General Teaching Model (GTM) suggested by Hungerford, Volk, Dixon, Marcinkowski, & Sia (1988) (see Figure 1). The GTM schematic diagram illustrates components of the instructional process recommended for preparing for instruction. Parts A, B2 and C represent the critical components of instruction, i.e. the instructional (learner) objectives, the content and methods to be used and post testing. Pretesting (B1) must also be considered as a critical component when needed in the instructional process. All components are interrelated. Enough other studies exist that use other construction models (Gayford, 2004, Fischer et al, 2005, Eylon & Bagno, 2006).

Table 1. Comparison of the module activities with the four variables adapted from the Hungerford et al. behaviour flow chart

	Variable 1	Variable 2	Variable 3	Variable 4
Activity 1	X	X	X	X
Activity 2	X	X		
Activity 3	X	X		
Activity 4		X	X	
Activity 5		X	X	X
Activity 6			X	X
Activity 7	X	X	X	X
Activity 8		X	X	X
Activity 9			X	X
Activity 10	X	X		
Activity 11	X	X		
Activity 12	X	X		
Activity 13			X	X
Activity 14		X	X	X
Activity 15		X	X	X

Note. Variable 1 = knowledge on basic sea turtle biology and conservation measures in the National Marine Park of Zakynthos; Variable 2 = understanding of and concern for the sea turtle issue on Zakynthos; Variable 3 = feeling that personal action can affect the sea turtle issue, locus of control; and Variable 4= verbal commitment (intention to act) to sea turtle conservation.

Figure 1. The general teaching model: a model for organising instruction



Note: Adapated from: Hungerford, H. R., Volk, T.L., Dixon, B.G., Marcinkowski, T.J., & Sia, A.P.C. (1988). An environmental education approach to the training of elementary teachers: A teacher education program (Series EE 27, ED-88/WS/39). Paris: UNESCO.

Participants

Elementary school students are a good starting point. It is considered that children acquire knowledge and develop attitudes toward the environment as early as kindergarten (Leeming, Dwyer, & Bracken, 1995). Younger participants are more influenced by interventions because they learn new proenvironmental behaviours easier (Zelezny, 1999). There is also an increased realisation of the potential for school environmental education programmes to influence the awareness, attitudes and behaviour of adults in the community (Ballantyne, Connell, & Fien, 1998). Hence, the need to develop educational programmes that enable students to acquire environmental ethic has been recognised internationally (Engleson & Yockers, 1994).

Evaluation Instrument

To assess the effectiveness and for evaluating the module a questionnaire was used. It consisted of four subscales measuring the four variables the authors had selected. The questionnaire was completed by 29 fifth and sixth graders prior to and after the application of the educational programme and score differences were assessed. The SPSS programme (SPSS BASE 10.0, 2001) was used to analyse data.

Reliability and Validity of Survey Instrument

The survey instrument was completed twice in a class of 29 fifth and fourth graders at an interval of 14 days to determine stability (test-retest reliability). The sample size is similar to that used by Sia, Hungerford & Tomera (1986) to determine stability. The test-retest reliability value was .67 (n = 28, significant at the .01 alpha level). The value for test-retest reliability

was acceptably high as according to Streiner & Norman (1989) stability measure must be over .50. It is also consistent with the r values accepted by other researchers (Culen & Volk, 2000; Musser & Diamond, 1999). A panel of teachers and experts reviewed and accepted the instrument for content validity (Yilmaz, Boone, & Andersen, 2004). The Cronbach's alpha correlation coefficient for internal consistency was .72 for the whole instrument.

Results and Discussion

The development of instructional objectives, instruction (both content and methods) and the evaluation of the instruction, comprise the core of the GTM. If the GTM is applied rigorously it can result in organised, internally consistent and valid EE programmes/materials for any learner group (Marcinkowski et al., 1990). The construction procedure of the module according to the GTM is presented below.

The Development of Instructional Objectives (Component A)

Of the 15 activities 6, 11, 11 and 8 address environmental education goal levels I, II, II and IV respectively. A brief presentation of instructional objectives per EE goal level follows.

A. Instructional level I: the ecological foundation level: Subsequent to the completion of activities below, students will be able to: explain what is meant by environment, explain what a habitat is, describe how species are interconnected (food web), define three main causes of species extinction, describe the basic sea turtle life cycle, describe at least four main threats sea turtles face on a nesting beach, define at least three basic protection measures sea turtles require in a nesting area, define three existing legislation measures in the protected area, and explain three main objectives of the National Marine Park of Zakynthos. Delivery activities for instructional level I: Activities 1, 3, 6, 7, 10, 11, and 12.

Instructional level II: the conceptual awareness level: issues and values. Subsequent to the completion of activities below, students will be able to: realise the complexity of the sea turtle issue, analyse at least five human activities affecting sea turtles and their nesting habitat, identify at least five stakeholders/players and describe their values regarding the sea turtle issue, explain why protection measures are essential in sea turtle conservation, analyse how the protected beaches and the National Marine Park on Zakynthos can contribute positively to sustainable development, explain how their personal actions can impact the sea turtle habitats, and identify three alternative solutions for affected landowners. Delivery activities for instructional level II: Activities 1, 2, 3, 4, 6, 7, 8, 10, 11, 12, and 14.

Instructional level III: Investigation and Evaluation: Instructional objectives. Subsequent to the completion of activities below, students will be able to: form a five item opinionnaire and investigate the opinions of adults on the sea turtle issue of Zakynthos, identify at least three problems affected landowners face and suggest alternatives, realise and explain the importance of establishing a protected area for sea turtles, identify and clarify at least three personal value positions to the sea turtle issue, record on paper their opinions on the sea turtle issue and communicate this to other parties, identify three primary sources of information on sea turtles, collect and analyse information and make inferences, and participate in sea turtle issue investigation discussion. Delivery activities for instructional level III: Activities 2, 4, 5, 8, 9, 10, 11, 12, 13, 14, and 15.

Instructional level IV: Environmental Action Skills Level: Training and Application. Subsequent to the completion of activities below, students will be able to: identify at least three stakeholders and decide on what is the best way to approach them to pursue the purpose of sea turtle conservation, write a letter to at least three different stakeholders, evaluate the effectiveness of the three letters sent and decide what follow up action to take, and act individually or as a member of a group. Delivery activities for instructional level IV: Activities 5, 6, 9, 10, 12, 13, 14, and 15.

Pretesting Component B1

According to the GTM pretesting should be incorporated only when needed (Marcinkowski, Volk, & Hungerford, 1990). Because no evaluation existed on the background of students' knowledge and attitudes regarding the sea turtle issue on Zakynthos, a questionnaire was constructed by the authors and completed to record cognitive and affective levels of fifth and sixth graders (Dimopoulos & Pantis, 2003). The results revealed low knowledge scores on the biology of sea turtles and existing protection measures (mean score less than 30%), but high scores (ranging from 77.0% to 84.0%) in the affective domain (understanding and concern for the sea turtle issue on Zakynthos, locus of control and verbal commitment to sea turtle conservation). Consequently, the results of the survey demonstrated a need to increase knowledge level on sea turtles and also to reinforce positive attitudes, because according to researchers (Thielking & Moore, 2001; Wicker, 1969) positive attitudes do not necessarily lead to proenvironmental behaviour.

Instruction: Both Content and Methods (Component B2)

The module constructed by the authors included 15 activities. These aimed at increasing student's knowledge on basic sea turtle biology, ecology and existing protection measures; pointing out the aim of the National Marine Park; clarifying the socio-economic impacts of sea turtle conservation; analysing the role of different stakeholders, defining alternative solutions to the issue and learning basic skills to take action in favour of sea turtle conservation. A short description of each activity follows.

Description of Activities

We designed the 15 activities in accordance with the four instructional subgoals of EE (Hungerford & Volk, 1990) as they have been described previously. Of the 15 activities, 7 address EE Goal Level 1; 11 address EE Goal Levels II and III; and 8 address EE Goal Level TV (see Table 1). All activities were active-learning oriented, and such orientation is essential in EE (Cohen, 1994) and is more efficient than traditional learning methods (Kjellin, Naslund, & Stenfors, 2003). Studies reveal that learning experience is enhanced with the active participation and cooperation of the students (Devine-Wright, Devine-Wright, & Fleming, 2004).

Active participation of students as early as pre-school, is essential in EE (Cohen, 1994). Inspired by the "active learning" tips suggested by Richardson (as cited in Steiner, 1993) the authors took the following into consideration for designing the 15 activities: students had objects to touch (i.e. activities 2,4,11), precise instructions about what is to be done were given before every activity, co-operation between students was promoted either in class or at home and in most activities children worked together in small groups.

A short description of the activities applied to the experimental group follows. Activity 1 involved a slide presentation on basic ecological principles (i.e., environment, food web, biodiversity, endangered species, and extinction). By using old postcards and family stories, stu-

dents in Activity 2 researched how nesting beaches were 20-30 years ago and compared them with how they are today. Activity 3 involved a slide presentation on basic sea turtle biology and ecology, natural and human-induced threats, the role of nongovernmental organizations (NGOs) in sea turtle conservation, and the purpose of the NMPZ and local participation. In Activity 4, students ranked photographs of a pristine and a developed nesting beach and drew conclusions about which beach the turtles preferred. In Activity 5, students drew onto paper pictures of how the nesting beaches look today and how they visualized them to be in 20 years. For Activity 6, students wrote letters from the point of view of a turtle that had returned after many years to her natal beach and found it unsuitable for nesting. They described her disappointment and what she needed to be able to nest. Activity 7 involved a slide presentation on basic conservation measures and the purpose of the NMPZ. In Activity 8, students identified and analyzed the beliefs and values of players or stakeholders involved in the sea turtle issue (e.g., landowners, speedboat owners, local authorities, conservationists). In Activity 9, students wrote a letter to a local newspaper and to the Minister of Environment requesting effective measures for sea turtles and alternative solutions for landowners who had been affected by protection measures. Activity 10 involved a slide presentation on the concept of zoning within the NMPZ. In Activity 11, students picked out items (e.g., seashells, fishing nets, fishing hooks) from a box and explained how they related to the sea turtle issue. Activity 12 was a game in which students in a circle impersonated items that were related to sea turtles (i.e., sand, seashell, fisherman, lights, speedboat). The students on the circumference of the circle were connected by a ribbon to a student in the center of the circle identified as the sea turtle. The students on the circumference then explained their relationships to the turtle. In Activity 13, a questionnaire with five items was prepared by the students and completed by their families to record their opinions on the sea turtle issue. In Activity 14, students assumed the roles of stakeholders or players (i.e., landowners, conservationists) involved in the sea turtle issue and supported their interests in a debate held in the classroom. In Activity 15, students discussed and drafted the objectives of an NGO that they planned to establish with the aim of protecting sea turtles.

Teaching/Learning Approach

Background

Children's attention span is short, therefore, it is necessary to use a variety of clear, attractive teaching methods to hold their interest and promote learning (Glasgow, King, & Morris, 1994). A lot of strategies of teaching development exist but are reported mainly in the sciences education (N.S.R.C., 1988, 1998; Flick & Liderman, 2004; Jacobson et al., 2006).

Each activity was designed in response to the cognitive and moral development of learners (Lewis-Webber, 1994). At this age group concrete thinking is shifting to abstract and deductive reasoning based upon logic of all possible combinations is being developed (Braus & Wood, 1993). The content of curricular textbooks for fifth- and sixth- grade students used in Greek schools was analysed to investigate students' knowledge level on environmental concepts. All activities were designed in co-operation with elementary teachers and education experts. It must be noted that for children aged 11 to 13 major emphases should be given on acquiring knowledge, citizen action skills and environmental ethics (Engleson & Yockers, 1994). Additionally, for the same age group it is essential to include affective components in educational programmes (Iozzi, 1989b; Wilson 1993). At least 7 of the 15 activities focused primarily on imparting knowledge on sea turtles and protection measures and 12 focused on

developing action skills (critical thinking, observing and comparing, communicating and discussing, formulating questions, reading, writing, drawing, and conducting surveys).

Specific Teaching/Learning Strategies Used

The teaching/learning strategies used in this study were: *instructions, lectures, questions, discussion, slide presentations, reading, text writing, artwork/drawing, observation/comparing, field survey, critical thinking, value/issue analysis, simulation and gaming.*

It is important to communicate objectives, give instructions and present content clearly to students. As we acquire nearly all we know (88%) through a combination of seeing and hearing (Iozzi, 1989b) the authors imparted oral and/or written instructions at the beginning of the programme and each activity. Activities were accompanied by the appropriate combination of visual (photographs, slides, students' drawing displays in classroom, written keywords on sheets of paper or on the blackboard) and verbal teaching approaches. Photographs, drawings and slides convey information by providing experiences to the viewers (Engleson & Yockers, 1994). Also, it is imperative to explicitly connect material to previously studied concepts and provide feedback (Gagne, Yekovich, & Yekovich, 1993). For this purpose the instructors systematically repeated the meaning of new concepts during each activity. Repetition can enhance the acquisition or transfer of knowledge, intellectual skills and attitudes (Volk, 1997; Dark & Holsman, 2002).

The instructors asked questions in the process of all activities, especially when new concepts had to be clarified. Asking questions is very effective as it initiates opportunities for students to obtain feedback and increase possibilities to learn accurately (Gagne, Yekovitch, Yekovitch, 1993). Questions and short discussions were also systematically used during lectures (Activities 1, 2, and 7), a teaching method used to provide facts (Muthoka & Rego, 1985). Visual effects (slides) also accompanied the lectures. The instructors for all the activities initiate discussions in the classroom. By taking the floor and discussing a point, students learn to express themselves, explain their point of view, accept and understand the views of others (Souchon, 1985). It is acknowledged that children gain confidence and communication skills through addressing issues and sharing opinions in small groups (Hollweg, 1997; Lane & Rossow, 1997; Steiner, 1993,).

Reading and/or writing skills and various overtones of the critical thinking approach were used in all activities of the module. Reading and writing skills are an important part of all curriculum programmes (Braus & Wood, 1993). Critical thinking, which is reasonable reflective thinking that is focused on deciding what to believe or do, is also an important educational approach (Braus & Wood, 1993). Understanding the complexities of the interrelationships between the natural environment and human activity is a condition necessary for the protection and improvement of environmental quality (Disinger, 1997).

Simulation and role-play as teaching methods were used in four activities (6, 12, 14, and 15). Simulations are contrived activities based on real situations that help students understand a complicated process or interaction. Role play is a type of simulation that allows students to step outside their normal perspective and on an issue and get into someone else's "skin" to better understand how this person feels about an issue (Braus & Wood, 1993; Engleson & Yockers, 1994). Glasgow, King, & Morris (1994) identify three stages for organising simulations: briefing by the teacher, action, and debriefing. The instructor before application of activity must give an explanation, orally and/or written, and the results must be discussed at the end to ensure better learning.

Drawing was used as a teaching method in two activities (5 and 10) because arts provide a source of comfort, satisfaction and enjoyment for students during the learning process (Bloom,

1978). Children can draw pictures illustrating how they would improve the environment or project into the future what could happen, that is they can draw "before' and 'after' pictures of different environments (Iozzi, 1989a). This was the case with Activity 5, where students were asked to draw the beaches in their current state and in 20 years time.

Two activities (11 and 12) used a gaming/playing approach. Games can provide a medium through which students can learn (Hewitt, 1997). School learning activities should be made more play like (Block, 1984) therefore, gaming is an important teaching approach in education (Braus & Wood, 1993; UNESCO-UNEP, 1985).

Two activities (2 and 13) involved field surveys. Field surveys can help students gather and work with data about topics, find out how people think about an issue, learn how to ask questions and evaluate responses (Braus & Wood, 1993). Field surveys teach students how to collect and analyse information, how to examine their own values and determine their personal position on the issue and how to develop an action plan to resolve the issue (Engleson & Yockers, 1994). At early grade levels, student investigation can take the form of teacher-led group inquiries into local issues (Volk, 1997).

One activity (8) involved issue and belief/value analysis. Belief/value analysis are considered to be essential in EE (Marcinkowski et al., 1990) and allow students to identify players understand their beliefs/values and compare these with their own (Hagengruber & Hungerford, 1993; Volk, 1997).

Observation and comparing were used, to various degrees, in all activities. Prompting students to compare is an effective teaching method (Gagne, Yekovitch, Yekovitch, 1993). Observation and comparing were also teaching methods highly preferred by educators in a survey carried out by Smith-Sebasto (2001).

Posttesting: The Evaluation of Instruction (Component C)

The module was pilot tested at a school with 29 students (15 fifth graders and 14 sixth graders). There was no sufficient time available for the full implementation of the module in class, so some activities had to be undertaken outside the school. Hence, activities 1, 3, 4, 7,8,11, 12, 14, and 15 were instructed and facilitated during 9 class sessions. The remaining activities were carried out as homework.

A Pre-Posttest design for summative evaluation (Bennett, 1988-89) was used to evaluate the effects of the module on the students. Students prior to the application of the module completed the questionnaire that was used in component B1. Four weeks after completion of the application of the module the students filled out the same questionnaire.

Nonparametric statistics for analysis of acquired data were used as they require relatively few assumptions about the population (Agresti & Finlay, 1997; Fink, 1995; Rosenthal & Rosnow, 1991) and because sample sizes were small (less than 30). As the questionnaire was anonymous, it was not possible to pair each student's correspondence, hence, the Mann-Whitney test was used to compare mean scores before and after implementation of module. Mean scores for each of the variables and the results of the Mann-Whitney test are presented in Table 2 and Table 3 respectively.

The module had a significant effect on the knowledge scores. The authors anticipated an increase, as knowledge scores were rather low to start off with, but were surprised to see an almost 112% increase. After the module intervention, there was an increase in the understanding of and concern for the sea turtle issue variable by 5.2%, despite the high mean score measured prior to the module application. The increase was marginally significant at the .05 level that is also accepted by other researchers (Gillian, Werner, Olson, & Adams, 1996). After the module intervention there was an increase by 3.1% for the locus of control score, but

Table 2. Comparison of means for the four variables before and after application of module

Variable	Time	N	Mean	Std. Deviation	Std. Error
Knowledge	Before	29	29.2	13.1	2.4
	After	30	62.1	13.1	2.4
Understanding and concern	Before	29	78.4	8.2	1.5
	After	30	82.5	6.5	1.2
Locus of Control	Before	29	79.9	13.3	2.5
	After	30	82.3	12.8	2.3
Verbal commitment	Before	29	87.3	14.7	2.7
	After	30	82.3	17.1	3.1

not in a statistically significant manner, despite the high mean score measured in the pretest. It is interesting to notice that, contrary to the score increases observed after the module intervention in the three previous variables, the mean score for verbal commitment decreased by 5.7%, however, not in a statistically significant manner. Despite the decrease the verbal commitment mean score still remained high. It must be noted that the verbal commitment variable had the highest pretest mean score compared to the scores of the other variables in the affective domain. The score decrease could probably be attributed to the fact that students, after participating in the module, became more aware of the complexity and ramifications of the issue and hence became more "reserved" in expressing their desire to act.

Conclusions

The module, despite the limited instructional time, influenced the students' mean scores on the four variables tested (knowledge, understanding and concern, locus of control and verbal commitment). For the two first variables the effect was positive and statistically significant. For the third variable the effect was positive and for the fourth negative; however, in both cases the effect was not statistically significant. Hence, the pilot implementation of the module indicated that it achieved to a degree the goals of environmental education. In other words, the module did affect variables that are considered to contribute to positive behaviour, which is the ultimate goal of EE.

It can therefore be concluded that the methodology followed for the construction of the module was successful. The module, based on the extended case study and following the General Teaching Model, introduced an interactive way of teaching and promoted group work among students. Both these practices are not promoted in the national school curricular of Greece.

However, it must be stressed that the four variables tested are behaviour predictor variables, and more investigation is needed to establish an actual positive behaviour. In order to

Table 3. Mean score comparisons before and after application of module

Variable	Mann-Whitney test	Z	Sig. (2-tailed)*
Knowledge	32.50	-6.155	.0005
Understanding and concern	312.50	-1.864	.062
Locus of control	384.50	-.773	.440
Verbal commitment	342.00	-1.427	.154

draw better conclusions the module should be implemented with a larger sample of students and over a longer period as part of a school curriculum. Further, a control group should be used to draw safer posttest conclusions. An in-service training should be prompted to empower teachers in using the module in their classroom.

The present study provides for environmental educators the methodology for planning activities and designing an effective conservation educational module for students. The module can be used as a model for designing and evaluating EE programs for endangered species in protected areas. This use is of utmost importance because protected areas have just recently been established in Greece, and local community support is much needed for their success. EE programs starting at an elementary school level may not only be a long-term investment in creating pro-environmental citizens but may also have immediate results, because children are known to directly affect behaviors of their parents (Ballantyne, Fien, & Packer, 2001). Therefore, the conservation educational module can be used as a tool to support better environmental governance by broadening stakeholder acceptance and involvement at a local level.

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