

**Warren Wilson College:  
A Model for Preservice Experience in Environmental Education**

Jill Drzewiecki, M.S.  
Mallory McDuff, Ph.D.  
Warren Wilson College

**Abstract:**

Inadequate teacher training is one of the main reasons K-12 educators are not including EE in their teaching. Yet, integration of EE into K-12 curricula improves performance in traditional measures of competence. Warren Wilson College's EE major and EcoTeam program stand as a model for preservice training in EE that prepares students to teach EE in formal and non-formal settings. The NAAEE *Guidelines for the Initial Preparation of Environmental Educators* provide the framework for the WWC preservice EE model. WWC institutionalizes its commitment to high-quality EE through this model.

**NEEDED: Environmental Educators**

UNESCO has described environmental education as the “priority of priorities” in forming a global citizenry capable of moving society towards an environmentally sustainable path (Tilbury, 2000). In its report *Teach Our Teachers Well*, Second Nature reports that by 2005 one-third of K-12 educators will be new to the field of education (Second Nature, 1996). Increasingly, research indicates that inadequate preservice training is one of the primary reasons K-12 educators are not including EE into their teaching (Plevyak et. al., 2001). At present, there is “an almost universal lack of effective environmental teacher education programmes” (Scott, 1996).

Most colleges and universities have not institutionalized a commitment to EE (McKeown-Ice, 2000). Only a few states in the US have mandated preservice EE requirements (Wilke, 1985). As a result, only a handful of teacher preparation programs require courses or other preparation in EE. Few institutions of higher education offer EE majors, minors, or concentrations and lack faculty who specialize in the field (McKeown-

Ice, 2000). Faculty who are not knowledgeable about EE often advise students interested in teaching about the environment to enter science education programs. This trend runs contrary to EE goals that promote teaching about the environment across the curriculum (Wilke, 1993).

When comparing K-12 schools that use EE as a focus of curricula with traditional educational approaches, case studies indicate that environment based education improves performance across the curriculum (ASCD, 2001). Lieberman and Hoody's *Closing the Achievement Gap: Using the Environment as an Integrating Context for Learning* reports the results of a nationwide study that measured the effectiveness of an EE approach in 40 schools. Using the environment as an integrating context (EIC) "appears to have benefits over traditional compartmentalized approaches." EIC adopts constructivist educational approaches to use a school's surroundings and community as a context for learning. Schools using EIC demonstrated dramatic improvements in traditional measures of competence as well as increased enthusiasm for learning (Lieberman & Hoody, 1998).

### **A Model for Preservice Training in EE**

Warren Wilson College's EE major and EcoTeam program provide a model for pre-service training in EE that prepares students to teach EE in formal and non-formal settings. Warren Wilson College (WWC) is one of nine work colleges in the US. The "triad" educational program at WWC consists of a combination of liberal arts academic study, participation in a work program, and 100 hours of required community service prior to graduation. Each part of the unique triad program plays an important role in the education of the whole person.

In addition to EE classes, EE majors take core courses in Environmental Studies such as Introduction to Environmental Studies, Biology, Chemistry, Ecology, Environmental Ethics and Statistics. The EE major provides students with a wide range of opportunities to develop their skills as environmental educators. In the class, Introduction to Environmental Education, students interact with a breadth of EE professionals, ranging from the director of a grassroots environmental organization to the minority outreach coordinator for the North Carolina Office of EE. Students in the EE Methods and Materials course plan and conduct an Earth Day event at a local elementary school, as well as design an adult EE campaign for an environmental nonprofit in Asheville.

EE classes also involve students in workshops for certification in nationally-recognized EE curricula including Aquatic Wild, Food, Land, and People, Project Learning Tree and Project Wild. Through these workshops students satisfy requirements for the North Carolina EE Certification program. In the senior-level technical writing course Program Planning and Design, students develop their own EE program from needs assessment to evaluation. Students also complete an internship in the field of EE.

The Environmental Leadership Center (ELC) operates under the non-profit status of WWC. The mission of the ELC is *“to raise awareness of local, national, and global environmental realities and to inspire citizens—especially our youth—to reflect, to communicate, and to act as responsible caretakers of the Earth.* EcoTeam is one the ELC’s flagship programs. Since its creation in 1997, EcoTeam’s unique teaching model has forged collaborative relationships between higher education and elementary schools.

WWC students who are studying Education and/or Environmental Education coordinate and deliver seven EcoTeam lessons in third grade classrooms throughout Buncombe County, North Carolina. In 2001-2002, the EcoTeam work crew, comprised of six students, delivered 273 lessons in 40 percent of the schools in Buncombe County. EcoTeam lessons teach third graders about concrete environmental and ecological concepts and provide undergraduate students with preservice experience in EE. The lessons are designed as learning cycles and are correlated to the North Carolina Standard Course of Study.

EcoTeam has joined in a formal partnership with Roots & Shoots, the Jane Goodall Institute's global environmental and humanitarian program. Completing projects designed by Roots & Shoots fulfills the final phase of each learning cycle. In this final, student-centered phase of the learning cycle, children engage in projects designed to apply and extend their knowledge of scientific concepts. In addition, students become part of a global network of youth that demonstrate care and concern for animals, the environment and the human community.

Collaboration between the Environmental Studies Department and the ELC programs, specifically the EcoTeam epitomizes the WWC triad experience. The balance of academic study with work and service provides students with a comprehensive preservice experience in EE.

WWC alumna Lindsey Carroll is now an Associate Teacher at Evergreen Community Charter School in Asheville, North Carolina. Carroll was a member of the EcoTeam work crew for two and a half years. As a member of the crew, Carroll gained

more than 300 hours of teaching experience in public and private schools throughout Buncombe County. Carroll writes:

I can't count the number of times I would rush back from a lesson, trying desperately to make it to class on time. As soon as I would sit down for a lecture or discussion in Child Psychology or Ecology, the topic would be exactly what I had just been doing in a third grade classroom thirty minutes before across town.

The North Carolina EE Certification program indicates that if teachers such as Carroll are introduced to EE techniques through preservice experience, they are more likely to incorporate teaching about the environment into their classrooms as well as serve as stimuli for introducing EE into the greater school curriculum (Second Nature, 1996).

### **Framework for Preservice Experience in EE**

The framework for the WWC preservice EE model is NAAEE's *Guidelines for the Initial Preparation of Environmental Educators*. These guidelines are organized around six themes that outline basic abilities and knowledge educators need to provide high-quality EE. For example, the EcoTeam crew members gain hands-on experience planning and facilitating developmentally appropriate EE curricula that is consistent with NC Standard Course of Study and the NAAEE *Excellence in Environmental Education—Guidelines for Learning (K-12)*. At the same time, their Introduction to EE class provides background in the history of EE. (See table.) These complementary experiences in the WWC model are correlated to the six themes outlined in the guidelines. As a result, students gain competency and confidence as environmental educators.

Correlating the WWC preservice EE experience to the *Guidelines for Initial Preparation for Environmental Educators* helps identify areas where more or less emphasis on certain knowledge and skills is appropriate. Through this framework, WWC institutionalizes its commitment to preservice experience in EE and recommits to its tradition of academics, work and service. The National Wildlife Federation (NWF) has recognized WWC as one of 24 US schools working for a sustainable future. The WWC preservice EE experience exemplifies this environmental leadership as it propels a small but significant number of educators into society who model effective EE instructional techniques.

**Table 1.1 Theme #4—Planning and Implementing Environmental Education**

<i>Number</i>	<i>Guideline</i>	<i>EcoTeam EE Program</i>	<i>WWC EE Major</i>
4.1	Knowledge of Learners	Curriculum: <ul style="list-style-type: none"> <li>▪ Compatible with third grade science textbooks</li> <li>▪ Correlated with the NC State Standards for Education</li> </ul> Activities: <ul style="list-style-type: none"> <li>▪ Required reading, journal entries &amp; crew meetings</li> </ul>	Class(es): <ul style="list-style-type: none"> <li>▪ EE Methods &amp; Materials</li> <li>▪ Program Planning &amp; Design</li> </ul>
4.2	Knowledge of instructional methodologies	Curriculum: <ul style="list-style-type: none"> <li>▪ Based on the Learning Cycle Model for science education</li> </ul>	Class(es): <ul style="list-style-type: none"> <li>▪ EE Methods &amp; Materials</li> </ul>
4.3	Planning for instruction	Curriculum: <ul style="list-style-type: none"> <li>▪ Consistent with <i>Excellence in Environmental Education—Guidelines for Learning (K-12)</i></li> </ul>	Class(es): <ul style="list-style-type: none"> <li>▪ Introduction to EE</li> <li>▪ Program Planning &amp; Design</li> </ul> Field Experience: <ul style="list-style-type: none"> <li>▪ EE Internship</li> </ul>
4.4	Knowledge of environmental education materials & resources	<ul style="list-style-type: none"> <li>▪ Enrolled in NC EE Certification Program</li> <li>▪ Involved in many aspects of non-profit management</li> </ul>	Class(es): <ul style="list-style-type: none"> <li>▪ Introduction to EE</li> <li>▪ EE Methods &amp; Materials</li> <li>▪ NC EE Certification workshops</li> </ul>
4.5	Technologies that assist learning	<ul style="list-style-type: none"> <li>▪ Facilitate lessons that require safe &amp; proper use of tools for environmental</li> </ul>	Class(es): <ul style="list-style-type: none"> <li>▪ Biology</li> <li>▪ Chemistry</li> </ul>

		observation	<ul style="list-style-type: none"> <li>▪ Ecology</li> <li>▪ GIS</li> <li>▪ Program Planning &amp; Design</li> </ul>
<b>4.6</b>	Settings for Instruction	<ul style="list-style-type: none"> <li>▪ Facilitate lessons with indoor &amp; outdoor components in 40 percent of schools in Buncombe County (public, charter &amp; private)</li> </ul>	<p>Class(es):</p> <ul style="list-style-type: none"> <li>▪ Introduction to EE</li> <li>▪ EE Methods &amp; Materials</li> </ul> <p>Field Experience:</p> <ul style="list-style-type: none"> <li>▪ EE Internship</li> </ul>
<b>4.7</b>	Curriculum planning	<ul style="list-style-type: none"> <li>▪ Participate in correlating EcoTeam curriculum with state education standards for national program</li> <li>▪ Work with classroom teachers to plan concept application</li> </ul>	<p>Class(es):</p> <ul style="list-style-type: none"> <li>▪ Introduction to EE</li> <li>▪ Program Planning &amp; Design</li> </ul>

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