Teachers in North Carolina's Environmental Education Certification Program

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Abstract:
This article describes the North Carolina Environmental Education (EE) Certification Program, which was established in 1997, and examines the certification experiences of the kindergarten through 12th grade teachers who have completed the program. Because this program is central to describing and assessing the status of K-12 environmental education in North Carolina, the authors make some policy suggestions to encourage a more focused, more intense, more aligned approach to education for the environment.
KEY WORDS: environmental education certification, in service environmental education, state environmental education, teacher environmental education

She is a white woman with 17 years of elementary school teaching experience. She lives in the Piedmont of North Carolina and teaches in a public school. It took her nearly 2 1/2 years to complete the North Carolina environmental education (EE) certification program. The certification program included seven workshops (e.g., Project Wild and Project Learning Tree); 50 hours of experiences in the outdoors; opportunities to become familiar with the environmental education resources in North Carolina, such as the state aquariums and the state natural history museum; 30 hours of required teaching experiences, and a 20-hour action partnership. She traveled from the mountains to the coast to participate in the EE experiences.

She is licensed to teach science, yet did not participate in EE as a part of her preservice teacher education program. She is likely to be a member of the state EE association, as well as a few other environmental organizations. She attributes her interest in the environment to early life experiences in the outdoors and the environmental interests of her parents. She sought this certification because she identifies herself as both a teacher and an individual who is interested in environmental issues. While seeking certification, she particularly enjoyed attending the workshops and meeting other teachers and facilitators who share her interest in the environment, although she didn't enjoy the paperwork necessary for receiving credit for attending those workshops.

This description of the teacher who completed North Carolina's EE certification program is, of course, an overview of the findings from this study. However, this general composite serves to personalize the demographic data and report on the 62 K-12 teachers who have completed EE certification and responded to our survey.

Article:

EE in North Carolina
North Carolina was the first state in the United States to have a statewide EE certification program. The purpose of the North Carolina EE certification program is "to recognize and honor educators who complete a required number of professional development experiences in EE" (North Carolina Department of Environment and Natural Resources [NCDENR], 1995, p. 11). Since the certification program's inception in 1997, 300 individuals of the 1,300 people enrolled have received EE certification. Over one third of these certified individuals are K-12 teachers.

This EE certification program was created as the first objective of the North Carolina Environmental Education Plan (1995), a plan developed in response to the 1993 passing of the North Carolina Environmental Education Act (143B-285.20). At that time, North Carolina joined 30 other states in passing EE legislation.

North Carolina's Environmental Education Plan (NCDENR, 1995) consists of principles, concepts, and objectives of environmental education. Section 1 of the plan describes the rationale, goals, principles, definitions, characteristics, evaluation, and development process of EE in North Carolina. Section 2 includes inservice and preservice teacher education, higher education, an EE clearinghouse, curriculum correlation, model library collections, North Carolina environmental data, measures and evaluation, EE centers, government agencies, funding, partnerships, the media, and adult education. The Office of Environmental Education addresses all of these objectives; however, objectives are currently at different stages of execution, ranging from planning to full implementation.

Recently, the Survey Research Center (2002) at East Carolina University assessed North Carolina teachers' views on EE. Significant findings in this study included the fact that only 2% of the teachers reported that they were enrolled in the EE certification program. When asked whether they would be interested in learning more about the program, 53% of the respondents replied that they would, and 43% said they would not. However, 84% of the respondents were interested in learning more about EE facilities and resources for training, and 83% of the teachers agreed that EE should be integrated into all subject areas. Overall, North Carolina teachers were positive about EE and demonstrated a willingness to become acquainted with EE resources and facilities in North Carolina.

Two research questions guided our study: What are the characteristics of the North Carolina teachers who have completed the EE certification program? How do these teachers describe their EE certification experiences?

Method

Because of the need to describe the EE certification experiences of a fairly large number of K-12 teachers, we selected survey research for this study. In January 2003, we mailed the Survey of Teachers with North Carolina Environmental Education Certification to all 101 K-12 teachers in North Carolina who had received their EE certification. We developed portions of the instrument by adapting items from several existing valid and reliable surveys: Environmental Education in Illinois: A Teacher Survey (Smith-Sebasto & Smith, 1997), Environmental Education in Wisconsin: A Teacher Survey (Lane & Wilke, 1994), and Elementary School Teachers' Beliefs About Teaching Environmental Education (Middlestat, Ledskey, & Sanchak, 1999).

The survey was based on key concepts and four themes that emerged from the literature on state-level EE: (a) teacher demographics, (b) teachers motivations and life experiences, (c) certification experiences, and (d) EE teaching practices and beliefs. In this article, we address only the demographics and certification experiences.

The survey instrument consisted of 35 closed- and open-ended questions, and closed-ended questions with ordered choices (i.e., Likert scale). We presented a draft instrument to the staff of North Carolina's Office of Environmental Education and to a focus group of three experts in either EE or survey research design. Eleven teachers from one North Carolina county also pilot tested the instrument (Bennett, 2002). Based on the suggestions of the experts and pilot study participants, we added several questions and revised others for clarification.

This study integrated both qualitative and quantitative research methods during data collection and data analysis, thus employing a parallel mixed-model methodology (Tashakkori &: Teddlie, 1998). As part of these analyses, we quantified some of the qualitative data by counting the frequency of occurrence of events. In addition, we qualified some of the quantitative data by forming groups of teachers on the basis of responses to the survey instrument, accompanied by a discussion of the certification experiences these teachers encountered.

RESULTS

Demographics

Ten questions requested demographic information, including gender, years of teaching experience, area of teacher certification, type of teaching institution, geographic location of the school, and a list of their organizational affiliations (see Table 1). Of the 62 respondents, there were 54 women and 8 men. Ninety-five percent of the teachers were Caucasian. Teachers taught in North Carolina for an average of almost 17 years (SD = 8.79), with a range from 1 to 33 years. The respondents came from 30 of 100 counties in North Carolina, with no single county dominating the survey. Fifty-three percent of these teachers taught in counties that either contained or were adjacent to urban areas (Asheville, Durham, Greensboro, Raleigh, Wilmington, and Winston-Salem).

The EE-certified teachers taught mostly in public schools. Almost half of the teachers taught at the elementary level. EE-certified teachers were licensed to teach across a wide spectrum of disciplines, and many were licensed in more than one subject. The most frequently listed license was science or science-related subjects (41.1%). Only 29% of the respondents had received EE training in their preservice teacher education program. A majority of the EE-certified teachers (56.5%) were members of environmental organizations, most with memberships in more than one organization. Almost twice as many teachers were members of the state EE association versus North American Association for Environmental Education.

At the time of the survey, EE-certified teachers made up less than 1% of the practicing teachers in North Carolina. This means that few teachers and few students have been exposed to an educator with extensive EE training who has access to materials and networking contacts within the field. There was an underrepresentation of men and minorities among EE-certified teachers. Men accounted for only 13% of the population of the EE-certified teachers, whereas they accounted for nearly 20% of the entire population of North Carolina K-12 teachers. A more dramatic difference is evident in the difference between minorities represented in the EE-certified teacher population (1.6%) versus that of the population of North Carolina teachers as a whole (16.7%).

EE-certified teachers tended to teach in counties that are either in or are near an urban center. Teachers in more urban areas may have better access to resources, including large public libraries, universities, and museums, which typically provide access to EE materials. Perhaps larger school systems may provide more EE inservice workshops, more funding for leave to pursue EE certification, or more flexible leave policies.

Findings indicate that EE-certified teachers have been teaching on average for 17 years. In fact, 71% of these teachers have been teaching for 11 or more years. This result indicates that teachers do not embark on ambitious undertakings, such as seeking EE certification, until they are well established in their careers. This has important implications for EE teaching practices. First, unless teachers receive preservice EE in their teacher education programs, teachers may spend at least 10 years of their teaching careers without the benefit of formal methods and materials on teaching EE. This issue is compounded by the fact that this study revealed that only 29% of teachers had received preservice training in EE. Second, as North Carolina's population grows, the need for teachers is increasing. The result of this trend is that there will be more teachers who likely will have had no

chance to experience EE preservice training. With the arduous task of seeking licensure during their first few years of teaching, it is unlikely that these teachers will seek EE certification in their early careers. This means that many K-12 students are not likely to receive EE in their learning experiences.

TABLE 1. Demographic Profile of North Carolina Teachers Receiving Environmental Education (EE) Certification (N = 62)

Characteristic	n	%
Gender		
Female	54	87.1
Male	8	12.9
Ethnicity		
Caucasian	59	95.2
Other	1	1.6
Missing	2	3.2
Geographic distribution		
Coastal plains	18	29.0
Mountains	16	25.8
Piedmont	28	45.2
Teaching experience (years)		
< 10	18	29.0
11-20	22	35.5
21-30	18	29.0
> 30	4	6.5
Type of school		
Public	52	83.9
Public charter	2	3.2
Private	8	12.9
Parochial	0	0
Teaching licensure (top 3 listings)		
Science related	58	41.1
Social studies	11	7.8
Mathematics	10	7.1
Grades taught		

K-5	30	48.4
6-8	15	24.2
9-12	12	19.4
K-12	5	8.0
Received preservice teacher education in EE		
Yes	18	29.0
No	44	71.0
Membership in state EE association		
Yes	26	41.9
No	36	58.1
Membership in national EE association		
Yes	8	12.9
No	54	87.1
Membership in environmental organization		
Yes	35	56.5
No	27	43.5
Top 3 environmental organization memberships		
Nature Conservancy	11	17.7
World Wildlife Foundation	7	11.3
Sierra Club	6	9.7

The Certification Process

Eight open-ended questions asked teachers to describe their experiences with the North Carolina EE certification process. We asked teachers how they learned about the certification program, how much time it took to complete the program, distances they traveled to fulfill certification requirements, and questions about networking as part of the certification process. We also asked teachers to discuss their likes and dislikes about the certification process.

More than half of the EE-certified teachers learned about the certification program through either inservice workshops or colleagues. Most of the teachers (61%) completed the certification process individually. However, one third of the certified teachers (29%) went through the process with a group of colleagues, a friend, or spouse. A majority (88.4%) of the respondents made new EE contacts, typically with state park personnel or educators from the North Carolina Wildlife Resources Commission.

The workshops and outdoor learning experiences required for EE certification are offered in a variety of

locations around the state of North Carolina. EE-certified teachers said that they traveled an average of 171 miles to complete a certification requirement. The certification took an average of 31.45 months to complete.

North Carolina's Department of Public Instruction (NCDPI) does not recognize North Carolina EE certification as an official DPI certification. When asked if they knew that the certification would not be added to their North Carolina teaching license, most of the individuals reported that they were aware of that fact. However, 40.3% of the EE-certified teachers indicated that they were not aware that EE certification would not be added to their teaching licenses when they first began the certification program.

EE-certified teachers mostly enjoyed the program itself (83%), networking with other environmental educators (15%), and the sense of accomplishment (2%) for having achieved EE certification. More than half of the teachers said that the workshops in general or a specific workshop was the most enjoyable part of the program. Only 16.5% of the teachers said that the knowledge (both teaching and environmental) they gained from the EE certification program was the most enjoyable part of the program.

Even when given the opportunity to describe the part of the program that they "least enjoyed," one third of the teachers said they enjoyed all of it. One third of teachers listed "paperwork" as the part of the certification process that they least enjoyed. The process for submitting the required paperwork included filling out forms for all workshops, all out-of-door experiences, all EE facility experiences, all teaching experiences, and the action partnership. This paperwork must then be organized, compiled, and submitted when all requirements have been completed. This often means keeping track of paperwork for longer than 2 years or retracing paperwork and contacting workshop facilitators to grandfather courses for certification credit.

Several teachers compared the requirements of EE certification to the certification of the National Board for Professional Teaching Standards (NBPTS), which is recognized by NCDPI with a 12% pay increase (NCDPI, 2003). North Carolina currently has the highest percentage of teachers (16.3%) with NBPTS certification (NCDPI). The NBPTS process involves 200-400 hours of work outside the classroom (NCDPI). To support NBPTS certification, the state pays the required $2,300 enrollment and assessment fee, provides teachers with 3 days of paid release, and pays certified teachers a 12% salary differential. DPI supports teachers in this endeavor because "the ultimate result is improved performance and achievement for North Carolina's students" (NCDPI).

In contrast, teachers with EE certification receive no official recognition from DPI, despite the fact that the certification process similarly involves more than 200 hours outside the classroom. The only fee associated with North Carolina EE certification is the initial $25 enrollment fee. The required certification workshops are offered at no charge to the participants on weekends and during the summer, limiting the necessity for teachers to take time away from their classrooms.

DISCUSSION

The quality of the environment is a salient concern among all Americans (Roper-Starch Worldwide, 2000). Standards, authentic assessment, high-stakes testing, and the current administrations policy of the No Child Left Behind Act of 2001 (NCLB; Pub. L. No. 107-110) describe the multitude of education reform initiatives that are currently being promoted in the United States. The NCLB Act describes its major tenets as increased accountability; more choices for parents and students; greater flexibility for states; school districts, and schools; and stressing reading first. Notably absent in this legislation is the mention of EE.

The EE movement's practical experiences could benefit the education reform movement. EE-certified teachers in this study made use of effective pedagogical methods, including hands-on activities, problem-solving exercises, and field experiences. EE also includes subject matter that is relevant to everyday life and includes topics that these teachers say are engaging for students and allow them to become active participants in changing the way the world works.

Americans recognize that the state of the natural world is fragile, and the duty to create a balance between the natural world and human needs lies in everyone's hands. Few have the knowledge, tools, and motivation to influence the effort to create a sustainable environment. Environmental education can provide that knowledge and hone those skills. The teachers in this study have taken the North Carolina EE certification program as both an opportunity and a challenge, so that their students may reap the benefits of their efforts.

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ADDED MATERIAL

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