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PROMOTING THE SCHOLARSHIP OF TEACHING: RESULTS OF A WORKSHOP ON ENHANCING EDUCATION IN WILDLIFE CONSERVATION

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ABSTRACT: We describe the justification, format, and assessment of a workshop "Enhancing Education in Wildlife Ecology, Conservation, Management: An Exchange of Ideas" facilitated at The Wildlife Society's Fourth Annual Conference. The workshop was designed to meet the professional development needs of college and university wildlife educators. Over 80 participants from academic and agency backgrounds attended a keynote address and breakout sessions to discuss pedagogical techniques and approaches to teaching specific wildlife course content. Breakout sessions on active learning in large classrooms, constructed controversies, and using writing in the classroom were identified by most participants as most important. The diverse backgrounds of session participants affected the nature of discussions in course-content focused sessions. Participants routinely expressed satisfication about the opportunity to exchange ideas about teaching methods with colleagues.

INTRODUCTION

Among the stated objectives of The Wildlife Society (TWS) is to "seek the highest standards in all activities of the wildlife profession" (TWS 1989). The Society, through its high-quality journals, professional conferences, and support for continuing education, has enhanced the development of wildlife management and research professionals since its inception. For most wildlife professional working in colleges and universities, however, research or management (service) activities constitute a small proportion of their official responsibilities. TWS programs addressing the professional development of wildlife educators have been slow to develop relative to those for researchers. The College and University Wildlife Education Working Group was formed in 1993 to promote the professional development of wildlife educators. Our goals are to "improve communication among members regarding issues [related to] undergraduate and graduate education" and "to improve the quality of education for students thereby strengthening the professional foundations of wildlife managers... resulting in better stewardship of wildlife resources" (TWS 1995)

The membership of the College and University Wildlife Education Working Group has identified as its most significant need the opportunity to exchange ideas regarding the pedagogy and discipline-specific content associated with educating future wildlife professionals. To foster this exchange the Working Group publishes a quarterly newsletter with book reviews and essays on topics related to teaching scholarship, established a ListServe site, and provided members with information on who is teaching what to whom to allow individual connections. These efforts have been successful to the extent that information about teaching pedagogy and course-specific content is available to members. But the membership has continued to express its desire for direct dialogue about teaching and education issues, explicitly identifying topics related to various approaches to teaching for discussion. Many have stated that they have numerous opportunities to discuss research issues with colleagues at their respective institutions and at a variety of professional meetings, but that there has been only minimal exchange of ideas about the dominant time investment in their careers: teaching. Although there clearly is no reason that such discussions can not happen among colleagues within or among colleges and universities, it is evident that the traditions for such exchange have not been established. We suspect that this is yet another symptom of the poor acceptance of teaching as a form of scholarship (Boyer 1990).

In 1996, we proposed the first college and university teaching-focused workshop for The Wildlife Society's annual conference. It was our intent that the workshop provide a milieu for formal and informal exchange of ideas about

teaching wildlife conservation in colleges and universities. This paper describes the format of the workshop, characterizes the background of its participants, identifies the strengths and weaknesses of our approach, and summarizes the feedback from participants about the workshop. We hope this information is useful to others planning similar workshops in the future.

DEVELOPING THE WORKSHOP

Although articles on challenges in education appear in journals associated with natural resource management societies (e.g., Ledford 1996), few are written on pedagogy or approaches to teach subjects in our disciplines (i.e., what works in the classroom and what doesn't). Because TWS is devoted to the education of wildlife professionals, we believed that perhaps academics and agency personnel with outreach responsibilities might be interested in participating in a workshop based on how to improve teaching and learning in the classroom.

To facilitate the development of this workshop, we prepared a proposal that was initially presented to the TWS College and University Wildlife Education Working Group (CUEWG) and later to the Program Committee for the 1997 Annual TWS Conference. The theme of the proposal was to develop a workshop that would initiate a conversation among wildlife professionals on the scholarship of teaching. Therefore, the focus of the workshop was to discuss how can we teach (with less emphasis on what we teach) to enhance learning.

The proposal was presented to the membership of CUEWG one year prior to when we wanted to conduct it. The objectives of presenting the proposal to our peers was to get input on the subject matter, format, and if it was conducted would people, at least CUEWG members, participate. The membership was very supportive of developing and conducting the workshop. Most the discussion among members centered on if the entire workshop should focus on pedagogy or if some time should be devoted to what people are teaching under various subjects in the area of wildlife conservation. Interest in having a component of the workshop address what was being taught in different subject areas was due to the rate of which wildlife management has changed in recent years. Several subject areas were discussed, however, members decided to focus on what peers were teaching in the areas of ecosystem management and conservation biology, population dynamics and management, and human dimensions of wildlife management.

The three pedagogical breakout session topics selected by the CUEWG were active learning in large classrooms, using writing in large classes, and constructive controversies (Campa et. al 1996, Johnson and Johnson 1992, Johnson et al. 1996) and case studies. At the CUEWG planning meeting we received input on breakout session topics from approximately 25 wildlife biologists that included college and university faculty and department administrators, agency biologists, and graduate students.

The final workshop agenda presented to the 1997 Conference Program Committee consisted of 4 components: a keynote speaker address (35 minutes), three concurrent breakout discussion sessions on pedagogical topics (each 1 hour and 20 minutes), three later concurrent breakout sessions on subject area topics (each 1 hour and 20 minutes), and summary/ evaluation session (20) minutes. For the keynote speaker, we wanted to invite a nationally known academic, outside of the area of wildlife conservation, who had extensive experience applying and experimenting with cooperative learning. Our justification for selecting an educator outside of our discipline was to insure that the presenter focused on discussion pedagogical topics and challenges for teaching students rather than discussing the teaching of subjects related to wildlife conservation. We think this was a critical component for challenging workshop participants to start thinking about not what they teach, but how they teach prior to attending the first breakout sessions. All wildlife professionals are well educated in the principles of the discipline, but how many of us who teach in the academy or in workshops have equal depth in how to teach? For our keynote speaker, we invited Dr. Karl Smith, a civil engineer at the University of Minnesota. Dr. Smith presented an active presentation on, "Teaching Tomorrow's and Today's Students."

Our goals for the two sets of breakout sessions were: to facilitate discussion among participants so that they would leave with information and/or techniques that they could use in their classrooms or workshops, and to model how classes could be conducted using cooperative learning techniques such as the bookends technique (Johnson et al. 1991). Therefore, in each of the six breakout sessions there were periods of presenting introductory material on the specific topic of each session, having participants respond to interpretive questions (M. Salemi, University of North Carolina, Chapel Hill, pers. commun.) presented by session facilitators and discussing responses to those questions. Prior to the workshop, we briefed breakout group facilitators on the goals of the sessions.

Using active learning techniques in large classes takes some risk and extensive planning to conduct meaningful activities that will facilitate learning. A goal of one of the breakout sessions was to share ideas on how to create a more active learning environment in large classes. Participants in this session learned about what active learning pedagogy is, discussed what techniques others were using and in what type of class format (e.g., laboratories, lectures, problem-sets, simulations), and had an opportunity to develop an active learning strategy for one of their own courses. The session ended with participants writing a one-minute essay on how they wanted to implement active learning strategies in their course(s). The essays were collected, along with self-

addressed envelopes, and were mailed back to the participants prior to the beginning of the next semester.

Because wildlife conservation has a rich history of complex management issues, educators often discuss past or current issues in the classroom to demonstrate how professionals historically dealt with issues and to give students an opportunity to see how management concepts and principles are applied to address a current management problem. Teaching with case studies and/or constructive controversies can create or enhance motivation for learning and emulate the type of work environment students will be challenged with as professionals (i.e., how to respond to stakeholders with a diversity of values). Therefore, a goal of another breakout session was to model how case studies and constructive controversies can be used in classrooms. For example, participants in this session were surveyed about the types of issues or controversies that they discuss in classes and workshops and who were the associated stakeholder groups. The facilitator then modeled how they could teach their issues using the constructive controversy format with informal, formal, or base groups to facilitate a more active learning environment. Participants then discussed some of the benefits and considerations to be kept in mind when using this form of cooperative learning.

The process of writing has been widely demonstrated to promote critical thinking and enhance learning of subject area concepts (e.g., Bean 1996, Emig 1977, Langer and Applebee 1987, Moore 1994,). Writing as an active learning tool helps students to organize thoughts, synthesize and analyze information, and evaluate alternatives. In addition, enhancing communication skills is essential in wildlife management especially for communicating with stakeholders about why resources are managed as they are and for disseminating scientific information to peers. Writing skills are improved only with practice. Therefore, to help educators deal with this challenge, the third pedagogical breakout session addressed using writing in the classroom. In this session, the facilitator began by having participants write a one-minute essay (Angelo 1991a,b) on "How do you use writing?" This writing assignment was followed by a mini-presentation on "Writing to Think and Learn." Participants then discussed topics such as suggestions for designing writing assignments and grading such assignments.

Each facilitator of the wildlife conservation breakout sessions was asked to bring copies of course outlines and/or handouts they use in classes. These handouts were used in some sessions to facilitate discussions on what subjects were being taught in various courses, how management concepts and principles were taught, and when particular courses were taught in different curricula. In addition, these handout materials were made available so that participants could use them as references for teaching similar courses at their respective institutions. Each of the three wildlife conservation breakout sessions were attended by college and university faculty and department chairs, agency personnel, and undergraduate and graduate students.

Following the wildlife conservation breakout sessions participants reconvened for a short summary of the workshop outcomes and were asked to respond to several questions as a qualitative evaluation of the workshop. During the summary, we challenged educators (and future educators) to continuously think about the way they teach. Teaching can be approached much the same way we conduct field or laboratory research: we ask questions, determine how to address the question, collect data, and then evaluate the data to see what worked and what did not. Just as we take risks in our research to enhance learning, we need to do the same with teaching. In addition, during the summary we reflected on how breakout sessions were conducted; could classes be taught the same way? Facilitators initially presenting material or asking questions, followed by periods of discussion, reflection, or problem solving. Using this approach in the classroom may be a first step to facilitate more active and a higher levels of learning.

ASSESSING THE WORKSHOP

Attendance at the workshop exceeded our expectations. Over all sessions about 85 people participated. Minimum attendance for a specific breakout session was 14 and several reached capacity of 20 participants. The membership of CUEWG is almost exclusively faculty from 4-year colleges and universities, but the workshop attracted participants from a broader range of TWS membership. Most surprising to us was the significant number of international participants (at least 5), graduate students (15-20), and federal and state agency personnel (ca. 15) in attendance. Although we did not systematically survey these groups regarding reasons for their attendance, informal interactions and comments on formal evaluations suggested some reasons for their participation.

International colleagues expressed notable interest hearing how American universities approached discipline-specific topics (e.g., conservation biology) and how American curricula were structured (this apparently was the result of discussions outside of the formal workshop process). Graduate students (primarily, but not exclusively Ph.D. candidates) indicated a desire to gain exposure to innovative teaching methods, learn how other universities structured courses and curricula, and to discuss course content and design as they envisioned developing their own courses in the near future. They also expressed the sentiment that participation in such a workshop would look good on a curriculum vitae and that the workshop milieu gave them the opportunity to network with possible future employers. Several agency personnel indicated a primary interest in learning what colleges and universities were teaching regarding specific concepts (e.g., ecosystem management). Others, particularly those that worked for agencies in public

education roles, were interested in discussing mechanisms for the delivery of information to clients. In informal surveys, faculty routinely expressed satisfication with the opportunity to talk with peers about their teaching, to hear what others were doing in the classroom, and to establish contacts for further interaction.

Each of the authors facilitated a breakout session on a pedagogical issue and a subject area issue. It was our impression that the sessions on pedagogical issues produced more animated discussion, that was more focused, and yielded more valuable outcomes for a larger proportion of the participants. This may have been the result of the diverse audience participating in the workshop. In the pedagogical breakout sessions, experience in using the teaching techniques was not necessary for participation in discussions. Students offered comments on their experience in classrooms using active learning strategies or their feelings about new approaches. Agency personnel commented on their efforts to engage clients in a variety of wildlife-associated activities. All participants asked questions of the facilitators and other participants about their experiences with the various pedagogical approaches. Faculty teaching different course material shared common experiences with a pedagogy or discussed application of techniques across subject area boundaries. Discussions in the pedagogy sessions were spirited, far-ranging, and showed no signs of waning when time expired.

The subject-area breakout sessions were more variable in the intensity of interaction. In one, only 1 participant and the 2 facilitators had experience teaching the material (ecosystem management and conservation biology), and in the others, participants with content-specific teaching experience were in the minority. Many participants were keenly interested in hearing about such topics as what concepts were being taught, how specific principles were being presented, and what exercises were used to engage students in learning the material. But, discussions encompassed smaller segments of these breakout sessions than the more general pedagogy-focused ones. Nonetheless, faculty participants in content-oriented discussions expressed considerable excitement about the opportunity to exchange ideas.

The formal evaluations of the workshop tended to bear out our qualitative impressions. We asked participants to respond to 3 questions: What is the most important thing you learned; What are you willing to try to implement; and What topics would you like more information on? Although specifics were varied, clear patterns of what was most effective emerge from these data. Although each of the 6 breakout sessions was identified by participants in providing the "most important thing learned," 65% of the participants responding to this questions (n = 20) cited a pedagogical technique as being most important. Issues related to problem-based learning, cooperative learning, and interactive teaching were the most commonly noted components under "most important." Additionally, 81% (n = 21) indicated the willingness to implement a specific pedagogical technique in their courses. Given that not all respondents were faculty, these numbers may underestimate the significance of the value of the pedagogy focused interactions. Participants most frequently identified case studies, problem-based learning, and interactive exercises as likely to be implemented.

Respondents identified several issues about which further discussion or information was desired. Curriculum issues (undergraduate and graduate) were the most commonly referenced by participants (6 of 12 responses). Five responses referenced general or specific pedagogical issues (e.g., group project evaluations, teaching diverse student constituencies). Only 1 of the 12 identified a specific, content-oriented topic.

We do not interpret the formal and informal evaluations to suggest that subject area sessions are inappropriate for future workshops. Soliciting pre-workshop registration for sessions may be useful in anticipating the audience for specific sessions and redesigning the structure to fit the audience composition. For example, breakout sessions on teaching population ecology attended by university faculty could be facilitated to promote exchange of ideas; whereas a session likely to be attended by graduate students could be designed to showcase syllabi, software for laboratory exercises, and discussions of what key concepts should be addressed in an undergraduate course.

Informal feedback from participants, and non-workshop attendees who heard about the sessions at the conference, indicated a substantial demand for future workshops. Our experience suggests that workshops with a substantial component on innovative pedagogy will meet a significant need among wildlife conservation educators. In our case, discussions of pedagogical issues took off and required limited facilitation. Sessions devoted to subject areas within the discipline are valuable, but may need more careful structuring to be fully effective. Most importantly, teaching workshops will contribute meaningfully to building networks among educators, including perspective faculty and educators outside of academia.

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