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Shari L. Dann

*Department of Fisheries and Wildlife, Michigan State University, East Lansing*

Jack M. Payne

*University Extension, Utah State University, Logan*

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## **LEARNING AND LIVING: CONNECTING GRADUATE EDUCATION IN NATURAL RESOURCES WITH THE SCHOLARSHIP OF ENGAGED LEARNING INSTITUTIONS AND THE OUTREACH MISSION OF LAND-GRANT UNIVERSITIES**

**Shari L. Dann<sup>1</sup> and Jack M. Payne<sup>2</sup>**

<sup>1</sup>Associate Professor and Extension Specialist, Department of Fisheries & Wildlife and the Bailey Scholars Program, Michigan State University, East Lansing, MI 48824. Tel.: 517-353-0675; fax 517-432-1699; e-mail: sldann@msu.edu

<sup>2</sup>Vice President and Dean for University Extension, 4900 Old Main Hill, Utah State University, Logan, Utah 94322-4900. Tel.: 435-797-2201; fax: 435-797-3268; e-mail: jackp@ext.usu.edu

**ABSTRACT:** The future will involve a lifetime of learning for those who intend to work or live meaningful, productive lives, especially in the fields of natural resources management. Land-grant universities always have recognized this need for lifelong learning of both professionals and citizens. In order for land-grant universities to reach their full potential as learning institutions engaged with communities, they will need to initiate new forms of leadership within an expanded paradigm that maintains core values while altering the way they serve their students and public. New educational models are needed at the graduate level in natural resources. These new models should be designed to meet growing demand among learners for direct application of content to work settings, and for greater understanding of the dynamic complexity and often-interdisciplinary nature of knowledge. There is also the need to develop capacities among our graduate students for partnership building and leadership for change.

So, what is the role of an emerging natural resources “scholar” in relation to society? How can we best prepare graduate learners to have a “fire in their belly” for the important outreach functions they will serve, either as faculty at engaged learning institutions or as resource managers serving citizens? This paper considers administrative, faculty, and graduate students’ views. A summary of experiential learning, service learning, and situated learning theories provides a framework for engaging graduate learners for a lifetime of outreach work within

natural resource management. Course models for a graduate orientation session, a 1-credit seminar, and a 3-credit course are highlighted. Our work at two diverse institutions focuses on learning for living—connecting student learning to real-life outreach to address resource management issues.

## INTRODUCTION

Many believe that we are going through a period of change in our civilization and its educational institutions just as momentous as that which occurred in earlier times such as the Renaissance or the Industrial Revolution. Slowly, but surely, the nature of even the most traditional institutions will change.

What is driving this change? One factor is the Kellogg Commission on the Future of State and Land-Grant Universities (1999). This commission's report challenges higher education to engage more effectively in meeting community needs. In higher education, we have already changed our vision by de-emphasizing teaching and instruction, and re-emphasizing learning and effective strategies for promoting learner-centered processes (Fear et al., 2002; Ryan and Campa, 2000). Now, the Kellogg Commission asserts, higher education requires a similar realignment away from traditional notions of outreach and toward engagement.

Engagement refers to

“institutions that have redesigned their teaching, research and extension and service functions to become even more sympathetically and productively involved with their communities...Engagement goes well beyond extension, conventional outreach, and even most conceptions of public service....[E]mbedded in the engagement ideal is a commitment to sharing and reciprocity. By engagement the Commission envisions partnerships, two-way streets defined by mutual respect among the partners for what each brings to the table.” (Kellogg Commission, 1999, p.9)

The driving questions for this paper are

- How can we foster, nurture, and help our graduates practice outreach and engagement, and do so over a lifetime with a “fire in their belly?”
- What will benefit today's developing professionals, the people they serve, and the resources they strive to improve, use wisely, and protect?
- How can we change institutions?

## THE ROLE OF A SCHOLAR IN SOCIETY: WHAT DOES THE CURRENT DIALOGUE ON “ENGAGEMENT” MEAN FOR NATURAL RESOURCE PROFESSIONALS?

In this time of great change and shifting paradigms, land-grant universities must consider the changing nature of the higher education enterprise, itself. We must take great care not simply to build on past successes, but instead to examine the full range of possibilities for the future. Faculty members of the future, particularly in highly applied and rapidly evolving fields such as natural resources management, will find it necessary to set aside their roles as teachers and instead become designers of learning experiences, processes, and environments. Further, today's faculty are learning to discard the present style of solitary learning experiences in which students tend to learn primarily on their own through reading, writing, and problem sets. Instead, faculty-coaches are developing collective learning experiences in which students and faculty work and learn together, in communities of practice.

In the near term, traditional models of Extension education will coexist with new learning paradigms, providing a broader spectrum of learning opportunities in the years ahead. The transitions from student to learner, from teacher to designer/coach/consultant, and from alumnus to lifelong member of a learning community are occur

ring. And with these transitions and new options will come an increasing ability and responsibility to select and design the learning experience.

Nowhere in academe are these endeavors for change more important than in preparing our natural resources graduates for the full scholarly integration of outreach into their work. Fisheries, wildlife, and resource management professional environments have changed markedly. Over the past two decades, there has been increased recognition for the importance of public communications and human dimensions of management. Recently, at our two institutions, transformations have occurred that attempt to take our learners closer to the heart of true engagement of scholars with their communities. The role of the scholar in society today is to share and engage with a multitude of partners and community members to apply the best knowledge possible to resolve complex resource management issues. A critical question is how can we bring this role into the learning space of the graduate student in natural resources?

### LEARNING THEORIES FOR FOSTERING ENGAGEMENT OF SCHOLARS

Several theories can provide the basis for our work in preparing graduate students for leading lives of scholarship in outreach, extending their knowledge for the benefit of society. Most faculty are already aware of experiential learning theory, and practices that are based in this theory. This theory views learning as requiring active involvement of learners in more than just passive reception of information. Instead, learners cycle through several stages, such as having a concrete experience, observing and reflecting on that experience, forming abstract concepts and generalizations, and testing hypotheses in new situations (see summary by Knapp, 1992). In short, learners are asked to “pre-flect” or to think prior to their experience, then to “do,” then to reflect upon and make meaning from that experience. In reality, however, the learning process is not “flat”; rather it is more like a helical Slinky<sup>®</sup> toy, with cycle after cycle, and meaning and growth spiraling up over time. In addition, faculty members should probably be “cycling upward” with their students, sometimes with the students leading the way!

Under the “umbrella” of experiential learning theory, service learning offers another specific theory and research base. Simply put, this theory provides for integration of academic (content) learning with true involvement of the learner in service activities that meet actual community needs (MSU, 1998-1999; Woods, 2001). Service learning includes the processes of doing and reflecting, but goes beyond basic experiential learning. Service (through a real experience) is viewed as *essential* for learning. Learning new information is not the main end goal; instead, major learning goals are to foster in students the senses of care, belonging, personal worth, and civic responsibility (MSU, 1998-1999; Woods, 2001). Philosophically, another important element is that students are not viewed by faculty as “future citizens”; rather, when using service learning, faculty value students’ potential as active, caring citizens bringing their knowledge and expertise to meet the needs of community in the present.

The newest theory that can inform our work as co-learners for a lifetime with our students is that of situated learning. This theory views learning as “a way of being in the world, not [just] a way of coming to know it” (Hanks, 1991, p.24). Learning is “situated” in the processes of co-participation with a community of co-learners; learning is not merely a cognitive, individual phenomenon in the heads of the learners (Lave and Wenger, 1991; Wenger 1998). The educator then, as a facilitator, asks not what cognitive structures or processes to provide learners; instead, the question should be what kinds of social contexts provide the best environments for learning? Situated learning theory views that the social environment for learning includes both “masters” and “apprentices” who are involved in complex relationships of sharing over a length of time. In addition, there are those who are peripheral to this community, either just coming into the group or remaining at the “fringes.”

Using this theory in our learning environments involves the intentional building of “communities of practice.” A community of practice is a “new organizational form...groups informally bound together by shared expertise and passion for a joint enterprise” (Wenger and Snyder 2000, p.139). Members of communities of practice “share their experiences and knowledge in free-flowing, creative ways that foster new approaches to problems” (Wenger and Snyder, 2000, p.140). Many organizations—business, educational, and community-driven groups—are using this approach to drive strategy, identify new product lines or services, solve problems,

promote the spread of best practices, develop professional or personal skills, and recruit, retain, and mentor newcomers to the group. (For specific techniques in developing communities of practice, see Wenger et al., 2002.)

But there are some paradoxes inherent in using situated learning theory to foster growth and learning. From a managerial perspective, a paradox is that true communities of practice should emerge and ebb and flow, rather than be mandated. Within our courses and our professions, these groups should be tended and nurtured, much like a garden grows best with informal nurturing and guidance; the groups should not be required and over-supervised (Wenger and Snyder, 2000). Another paradox is that fostering communities of practice takes courage to break away from the traditional notion of an “expert” teaching students. Faculty are viewed as co-conveners, meeting along with their community of learners, and willing to learn and grow with their students as they jointly view the subject (or “great thing”) at the center of their focus (Palmer, 1998). In this model, “good teachers possess a capacity for connectedness. They are able to weave a complex web of connections among themselves, their subjects and their students, so that students can weave a world for themselves” (Palmer, 1998, p.11).

### **COURSES AND A LEARNING MODEL FOR GRADUATE EDUCATION FOR ENGAGEMENT**

At Michigan State University, in our Department of Fisheries and Wildlife, we have been involved with three approaches to using these learning theories and fostering involvement of our graduate students in outreach. These three opportunities are

- a non-credit, required graduate orientation for all students (with an hour-long experiential session on the outreach mission of our land-grant universities);
- a one-credit graduate seminar on “Best Practices in Fisheries and Wildlife Outreach”; and
- a three-credit course, “Outreach in Fisheries, Wildlife and Natural Resource Management,” which may be used to fulfill our department’s graduate requirement in Human Dimensions.

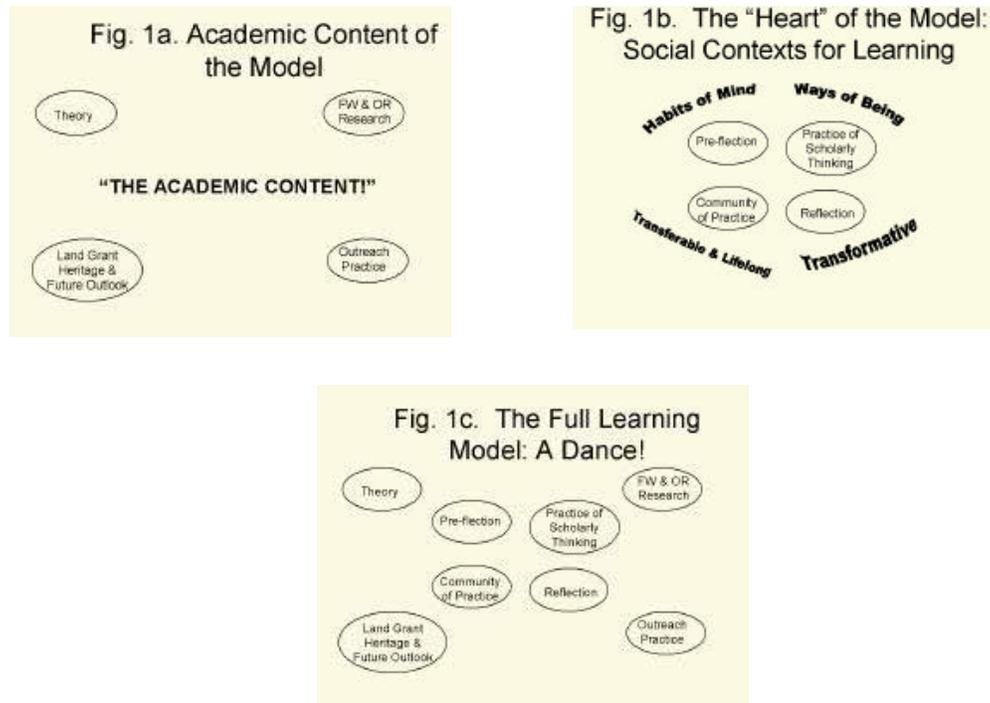
In all three offerings, similar topics, processes, and contexts emerge (Figure 1). The first question is what will be the academic content of the offering? Even in the short, one-hour session for all graduate students, the session begins with the critical question: What is or should be or could be the role of the scholar in relation to society?

For all three graduate offerings, the rest of the academic content includes

- theory informing outreach (e.g., experiential learning, situated learning and communities of practice, environmental education, persuasion, diffusion);
- land-grant university history, heritage, mission, and future policy outlooks;
- specific fisheries and wildlife outreach programs and associated research bases; and
- research-based best practices, and practical experiences in outreach techniques (Figure 1a).

However, just as attention is given to the content of the offerings, more attention goes to the design addressing what Wenger and his associates believe is important: what social contexts to provide in order to enhance learning. These social contexts for learning lie at the “heart” of the model (Figure 1b). These experiences all start with significant “pre-flection,” allowing learners to think carefully about what it is they believe, hope to gain, hope to share with their community of learners, and where they hope to go with their learning experience (Table 1). Likewise, there is ample time sprinkled throughout for reflection after the community of practice has specific learning experiences, either through active learning in the actual meeting, or through the experiences of assignments or field trips with the group. Finally, as is the case with all graduate teaching, a significant element of our co-learning is the practice of scholarly thinking. This occurs through reading for depth of meaning (e.g., Book-of-the-Month Club™ assignments), and scholarly writing integrating the learners’ personal meanings with those

of the “great” writers and thinkers in outreach, resource management, and environmental philosophy. At this “heart,” this core, we are fostering in our community of learners the “ways of being” that Wenger and his associates say are so necessary for true learning. We are fostering habits of mind, and at the same time providing for learning that is transferable when these students grow to become members of other communities of practice, with agencies, universities, and nonprofit organizations. Finally, we are providing for learning that is transformative, touching the soul both professionally and personally, changing views of the role of engagement in community. Thus, in the long run, we perhaps are transforming institutions to have greater value in their engagement with community.



**Figure 1. Fisheries and Wildlife Outreach at the Graduate Level: A Learning Model**

How do these elements interact? Putting the model together, we have several elements of the learning experience, and we could draw the requisite arrows and lines attempting to show direct interactions and a linear process among the elements. Rather, the best vision of this process, integrating the academic content of outreach in resource management with the learning contexts of community and reflection, is really like a dance (Figure 1c). Picture a folk dance, where there is spinning motion, from one partner to another, from content back to community, from scholarly thinking practice, to the specifics of the land-grant heritage. The topics and the learning processes dance among the community members certainly during each week of our 3-credit course, and sometimes within one class-meeting period. The before- and after-class discussions focus both on the content of the course experience (i.e., environmental education research and how it informs outreach practice), and on the dynamics of who is doing what for their next outreach practical, community-based program and on the personal stories of our most recent field trip adventures!

**REFLECTIONS ON LEARNING FOR A LIFETIME: FOSTERING GROWTH AND CHANGE IN OUR LEARNERS, CHANGING OUR PROFESSIONS, CHANGING OUR INSTITUTIONS**

How do students, our co-learners, our community of engaged outreach practitioners, react? Their insights (shared, here, with permission of the writers) and their outreach products are remarkable, showing the potential for this sort of collaborative venture in learning to matter for our society's natural resource problems.

One student writes this in his end-of-semester statement of professional and personal philosophy of outreach in fisheries and wildlife:

“Community-based management of resources fits nicely into my conservation education philosophy. Since the focus of community-based management is on local resources, conservation education programs can concentrate on increasing knowledge, attitudes, and behaviors toward wildlife and other natural resources of the area. Learner-based activities that allow participants to have meaningful outdoor experiences, which increase knowledge of resource issues and strategies for resource management, near their own homes, will cause positive changes in the variables that determine environmentally responsible behavior. My conservation education philosophy has not only been shaped by my own experience and environmental education theory, but by my own experiences as a lifelong learner....”

Writes another student:

“It is important to remember that, although as educators we want to foster positive environmental attitudes in our learners, it is imperative that learners are encouraged to make their own decisions. Allowing learners to come to their own conclusions rather than being told what to think will help to nurture the sense of ownership that a particular citizen has over an environmental problem. This is something you can see in every day life; people often are much more engaged in activities that they choose to do rather than ones that they are told to do....Outreach for environmentally based organizations is particularly important due to the fact that they want to appeal to their constituents and neighbors. Extension and outreach programs across the country have successfully incorporated behavior change educational theory models in their programs...For example, Extension programs develop local partnerships in offering outreach focused on helping people make responsible environmental decisions about local conservation efforts such as habitat preservation and improvement.”

Regarding their experiences in the graduate seminar, students write that they found that the most engaging parts of the seminar were “the conversational nature...casual, all opinions valued.” Another observes that “getting to know the classmates better and working with people has been a real joy. There isn't any pressure to perform like a dancing bear in this class. I like the fact that it's relaxed and that we are covering a large base of material.” Students comment positively about the impact of their learning on their views of outreach and engagement. They state that

“The work we have done on our applied outreach project has been the most enriching, engaging and enjoyable experience for me. I think it really speaks to the experiential learning concept. As soon as I was the one trying to apply the things we have been learning, it all clicked for me. The first days were also enjoyable for me. I love getting to know new people and exploring new things. I got to do both of those in the first couple of weeks, and am continuing to do so.”

“We all get called upon to share our knowledge with others. This can come in the form of conversation, informal presentations, meetings with community groups, youth programs. As holders and producers of knowledge, we need to be effective at communicating it—I feel this is our responsibility!—And since there is a body of research on outreach theory and practice, we need to take advantage of that to best communicate.”

These quotes illustrate that this approach to graduate education is relevant for learners wishing to grow in their abilities and confidence to extend knowledge for the benefit of society, for new professional resource managers, and for the land-grant institution in its quest for “engagement.” Today, more than ever, learners in the natural

**Table 1. Specifics of learning experience design for three different graduate offerings in fisheries and wildlife outreach at Michigan State University.**

	Graduate Offerings in Fisheries and Wildlife Outreach		
	1-hour orientation	1-credit seminar	3-credit course
<b>ACADEMIC CONTENT</b>			
Theory	PowerPoint: Experiential Learning Theory, Examples of FW Programs, Ways of Doing FW Extension, MSU's role as "Pioneer Land-Grant College"	Student-led presentations and products for peers on specific theory	Lectures, readings on theory base
Fish/Wildlife Outreach Research		Student-provided examples; readings from Fedler, 2001	Readings, reflection, application to professional and personal interests
Outreach Practice		Skills: Facilitation, program planning, working as and in community	"Fabulous Fridays": guest lecture, field trips to outreach sites
Land-Grant Heritage, Future		Interactive activity with notable events posted on wall	Readings, lecture, interactive activity, guests
<b>WAYS OF BEING, KNOWING</b>			
Pre-reflection	<u>Experience:</u> Learning Style Inventory and Discussion of Learning Theory and Implications for the Role of a Scholar in Bringing FW Knowledge to Benefit Society	Exploration of personal and professional learning goals	Exploration, and in-depth discussion of lifelong learning experiences, goals
Practice of Scholarly Thinking		Literature review and summary on outreach topics, prepared for peers	Readings: "Book of the Month Club", Leopold, Carson, others; written book review for scholarly peers; reading, writing about outreach "classics" and cutting-edge work
Community of Practice		Group planning and implementation of an original outreach program, as service	Group dialogue; outreach/service products shared with peers
Reflection		Sharing of group outreach program, seminar debriefing	Course debriefing; take-home exam asks students to write personal professional statement of outreach philosophy, practice

resources professions recognize the need to apply their knowledge base to real, not contrived, community-based issues and challenges. Now is the time for faculty, students and their institutions to support true, authentic engagement through viewing the learning process through the use of situated learning theory. To do this, we must strengthen our work in fostering communities of practice within natural resource management that value outreach and extension of knowledge for the benefit of local communities. When we use this approach to the learning process, it is more likely to become a habit of mind, a habit of practice for our students, our co-learners, in turn, to use this approach when they apply their knowledge. We then help our graduates view knowledge as complex and interdisciplinary and themselves as sitting with community, as co-learners with their constituencies to solve the problems we face now and into the future.

This sort of graduate teaching about outreach in natural resources requires the courage to give up the formal, traditional structures of graduate education of the past, and to model the formation of communities of practice. As we welcome a continual interaction of new perspectives, “everyone can to some degree be considered a ‘newcomer’ to the future of a changing community” (Lave and Wenger, 1991, p.117). We are moving beyond traditional experiential education, service learning, and Extension into a new realm of authentic engagement of natural resource scholars within communities of practice to generate outreach that really matters. This meaning is real and essential, for both our students who will be lifelong learners in a changing world, and for the changing world itself.

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