The Role of University Wilderness Education in America: A Conceptual Design

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Abstract—The complexity of wilderness, as an idea and a practice, demands an interdisciplinary curriculum and innovative teaching methodology. Universities can make unique contributions to wilderness education by drawing on diverse disciplines and faculty, and innovative teaching methods. This paper examines the content and methods of wilderness education in the context of the American university and current learning theory. A conceptual framework is developed, and assessment processes proposed. An international dialogue about wilderness education and assessment of student learning outcomes can contribute to this effort.

Wilderness is a multifaceted and complex concept, a cultural construct and a biophysical reality, increasingly relevant and controversial. As such, wilderness poses certain educational challenges and opportunities. How should current and future generations learn about the elusive, yet compelling, idea of wilderness? And what role should American universities play in wilderness education? This paper builds on Western theories of learning and education to explore how desired learning outcomes might be facilitated at the university level. Perspectives on wilderness, learners, educational outcomes, and the university context are drawn into a conceptual framework. This conceptual framework is the first step toward assessment of the “Wilderness and Civilization” program at the University of Montana. The purpose of this paper is to share our discoveries and ideas with regard to wilderness studies and higher education, and to engage an international audience in a dialogue about the nature of wilderness education and the assessment of learning outcomes.

A Convergence of Resources

A university experience has unique potential—students for extended periods of time, diverse human and institutional resources, and a mission to discover and challenge. For universities to live up to their potential, they must understand learners, reflect on their own institutional capacity, be explicit about desired learning outcomes, experiment with a variety of teaching methods, and discover effective tools for assessment.

Understanding Learners

Learning begins with students, and the diverse ways that learning and knowing occur must be accounted for in the design of any effective educational program. When Howard Gardner published “Frames of Mind” in 1983, he initiated a revolution in American education. Gardner (1983, 1998) drew on cross-cultural research to identify the human intelligences:

- Linguistic
- Musical
- Logical-mathematical
- Visual-spatial
- Bodily-kinesthetic
- Intrapersonal
- Interpersonal
- Naturalist

As Gardner points out, only two of these eight intelligences, the logical-mathematical and the linguistic, are traditionally valued and assessed through American education. Others, such as bodily-kinesthetic and naturalist are rarely accessed under current systems. Gardner’s illumination of the failure of the American educational system to explore the full breadth of its students’ capacities initiated an effort to redesign learning environments.

Truly interdisciplinary curriculums, those that combine arts and humanities with science and management, capitalize on multiple intelligences. Varied teaching methods also access multiple ways of learning and knowing. Wilderness studies provide a plethora of opportunities for varied methods and interdisciplinary curriculums. Faculty need to value, recognize, and facilitate students’ diverse capacities to nurture a broader understanding of wilderness.

The American University

The institutional context in which students learn must also be considered. American universities can bring a unique set of resources to bear on wilderness education. Universities have access to expert knowledge in a diverse set of disciplines. They also are places of discovery, innovation, and research. Thus, university-level students are uniquely situated to explore questions of ethics and personal values. Rising to the potential of wilderness education, however, requires overcoming obstacles inherent to the structure and culture of the university.


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The structure of most universities produces significant barriers to interdisciplinary education. David Orr (1994) argues that the compartmentalization of academic disciplines is a central problem in higher education. Interdisciplinary programs in a variety of fields have overcome these barriers, but many constantly struggle to retain a diverse curriculum. In addition to drawing together an eclectic mix of disciplines, wilderness is also infused with questions of values and ethics.

Universities are often resistant to the integration of values and ethics in the curriculum. In fact, a Gallup Poll entitled “Attitudes About American Colleges” (1989) found that only a third of Americans polled believed that institutions of higher education effectively prepared students to be good citizens, and only 40 percent felt that students were given adequate opportunities to explore their values. Universities can encourage faculty to incorporate values and ethics into their courses in ways that do not compromise professional “objectivity.”

University faculty may be inexperienced or unfamiliar with or resistant to teaching methods that capitalize on multiple intelligences. Nevertheless, traditional lecture-style teaching methods seem to be giving way to a wider range of methodologies appropriate for specific contents and contexts. Boshier (1998) points out that rapid changes currently happening in the university system “present opportunities to practice a more engaged, participatory pedagogy.” And, despite significant barriers, American universities continue to demonstrate their creative capacity by developing innovative, interdisciplinary, and environmentally-focused programs.

**Desired Learning Outcomes**

One of the ways that American universities are working to increase their effectiveness is through identification and assessment of student learning outcomes. Outcomes-based education is an increasing priority and emphasis in higher education. Accreditation now depends partially on a university’s ability to demonstrate that tangible learning outcomes are being achieved. Distilling key learning outcomes can assist wilderness studies programs in defining and assessing their achievements.

Because students of wilderness need to become aware of and understand a varied set of facts, concepts, and contexts, a wilderness curriculum is necessarily interdisciplinary, drawing on social and biophysical sciences as well as humanities. A well-rounded student of wilderness should understand:

- Wilderness legislative history and process.
- Institutional structure and the role of agencies.
- Wilderness philosophies and values, and social history of the wilderness movement.
- Diverse strategies to effectively make change and deal with conflict.
- Basic ecology.
- Cultural and social perspectives on wilderness as expressed in literature, art, economics, anthropology, history, and sociology.

Students of wilderness also need to develop a specific set of skills and abilities. They need to be able to move from having the information or knowledge to the ability to apply this knowledge within numerous cultural and economic contexts—and on multiple spatial scales. This challenge requires the ability to synthesize practical and conceptual information and apply it to constantly changing ecological issues, management dilemmas, and decision-making processes. Since wilderness is relational, involving relationships between management and science, culture and economics, and individuals and the communities they are members of, students of wilderness need to be holistic thinkers. They must have the ability to see wilderness issues through multiple lenses and to integrate and synthesize between these lenses. Some combination of the following skills and abilities will assist students of wilderness in tackling wilderness challenges:

- Ability to see ecological issues from varied perspectives.
- Ability to respond in a clear, critical, sophisticated, and factual way to an environmental issue.
- Ability to communicate expressively and effectively thoughts, positions, concepts, and values.
- Observation skills.
- Development of basic backcountry skills and physical and psychological comfort in wilderness.
- Ability to make innovative conceptual and practical connections across fields and disciplines.

Because students of wilderness need to understand relationships that cross disciplines, the intersection of each of these, shown as the center in figure 1, becomes particularly important. For example, managers in the Northern Rockies are currently struggling with whether to ignite prescribed fire to restore stands of whitebark pine. Ecology, landscape architecture, recreation, fire science, or philosophy alone would provide a narrow answer to this question. Even an

![Figure 1—A subset of the connections between wilderness learning outcomes.](image-url)
aggregation of these fields would provide a useful, but limited, response. Creative solutions will come rather from the dynamic integration of a diversity of disciplines and perspectives, skills, and abilities (fig. 1).

Wilderness challenges also present difficult ethical and moral dilemmas. Wilderness education programs need to offer students avenues through which to clarify and explore their personal values and ethics. Students of wilderness also need to nurture an understanding of one's values in contrast to dissimilar perspectives. Leopold (1949) aptly described a land ethic as that which:

...enlarges the boundaries of the community to include soils, water, plants, and animals, or collectively: the land. In short the land ethic changes the role of homo sapiens from conqueror of the land community to plain member and citizen of it. It implies respect for fellow-members, and also respect for the community as such.

Building on Bloom's (1956) conceptualization of levels of knowledge, progression through these outcomes might begin with awareness of the issues, move into knowledge and understanding, then to recognition of connections and integration of values, and finally to problem solving and effective expression (fig. 2).

Methods for Wilderness Education

Given the opportunities the university offers, the learning outcomes we desire, and our current understanding of learners, what are the appropriate methods for wilderness studies?

While some argue that "traditional methods can and do still work" (Ringe and Pelkki 1998), the "sage on the stage" lecturing method, as Boshier (1998) calls it, is waning in importance. Because lecturing is an efficient way to convey information, traditional teaching will surely retain a role in higher education. However, its dominance will likely be reduced. In the context of wilderness education, a wide variety of experiential, participatory, learner-centered methods may be indicated.

Orr (1994) proposes that because "we experience nature mostly as sights, sounds, smells, touch, and tastes—as a medley of sensations that play upon us in complex ways," education about the natural world should be similarly structured and incorporate experiential learning. Keeton and Tate (1978) define experiential education as:

Experiential learning refers to learning in which the learner is directly in touch with the realities being studied. It is contrasted with learning in which the learner only reads about, hears about, talks about, or writes about these realities, but never comes into contact with them as part of the learning process.

Earlier this century, Dewey (1929) proposed that education based on experience might also combat the dualisms perpetuated by Western society. Dewey focused specifically on the dualism between humans and nature. Because the American conception of wilderness is inherently dualistic, experiential education is a particularly useful tool in the critical analysis of the wilderness idea. Building on nearly a century of work on the benefits of experiential education, advances in learning theory continue to support the notion that concepts must be applied or experienced to be best understood and retained. With regard to wilderness education, fieldwork provides an effective avenue for involving students directly with the subject matter. Field trips ground learning, moving abstract concepts into the realm of the concrete.

Extended, week-long wilderness experiences also have well-documented psychological benefits that effect learning. After a decade of research, Kaplan and Talbot (1983) concluded that wilderness experiences increased individuals' awareness of their relationship with the natural world, increased self-confidence, and provided beneficial opportunities for reflection and contemplation, all of which enhance overall student learning. Reflection, through journaling or other activities, is a key to backcountry learning.

Experiential learning can also be facilitated in a classroom context. Cooperative learning requires students to work together on projects or tasks involving "joint intellectual effort" (Smith and MacGregor 1992). Cooperative learning techniques are indicated for complex and conceptual tasks, problem solving, and to nurture creative thinking and critical thinking. Wilderness issues fit each of these criteria. Documented learning outcomes include higher level reasoning and more frequent generation of new ideas and solutions when compared with traditional education (Johnson and Johnson 1991). Because wilderness issues call for interdisciplinary groups of professionals and citizens, the ability to work effectively in a group is essential (Ferrari and others 1998; Freimund and Brown 1995). Case-based approaches can facilitate application of concepts to a specific issue, enhance problem-solving skills, and provide cooperative learning.

Internships are an important way to facilitate experiential learning. Moore's (1992) research indicates that "whereas most academic knowledge is presented by the teacher as fixed and immutable, experiential knowledge is often derived through the analytical and synthesizing efforts of the learner." Service projects also provide an avenue for application of concepts to real world issues.

Learning communities, where students are immersed in the study of a topic as a cohort, may also be an appropriate tool for wilderness education. A learning community is a purposeful restructuring of the curriculum to link courses together so that students find greater coherence in what they are learning and increased interaction with fellow students and faculty" (Gabelnick and others 1990). Learning communities increase intellectual interaction and result in an understanding of complex issues (Smith 1991).
A mix of experiential methods combined with traditional university teaching may be appropriate for the complex nature of wilderness and the learners themselves. A combination of teaching methods is suggested:

- Experiential learning in field and classroom.
- Traditional university teaching (lecture-style).
- Internships.
- Case-based problem solving.
- Hands-on service learning.
- Cooperative and community learning.
- Journaling and reflection.

Wilderness and Civilization: a Case Study

Wilderness and Civilization, established over 25 years ago, provides an opportunity to assess the effectiveness of a university-level wilderness studies program. This year-long wilderness program is part of the Wilderness Institute of the School of Forestry at the University of Montana. Wilderness and Civilization combines an interdisciplinary curriculum with a variety of teaching methods, and leads to an undergraduate academic minor. The program curriculum approaches wilderness from cultural, historic, management, scientific, literary, philosophical, artistic, and political perspectives. The goal is an educational program that functions as a whole, rather than a separate set of courses required to complete a traditional academic minor.

Wilderness and Civilization has a long-standing commitment to experiential teaching methodology. Students spend 45 days throughout the year on extended backcountry trips and shorter field trips where they study specific management and land use issues, ecological concepts, and natural history. A learning community is created because students take the program in a cohort of 25. Students also do internships with local organizations or agencies focusing on wildlands issues.

Wilderness and Civilization deliberately focuses on students' personal values. Students explore a diversity of ethical perspectives through readings, discussions, and meetings with guest speakers, and work to nurture their own personal land ethic (Yung and others 1998).

Previous Program Assessment

Course evaluations, journal entries, alumni surveys and interviews, and program materials have been examined throughout the years in an effort to ascertain learning outcomes. Data from these sources are consistently positive. For example, Dick Fichtler, Bureau of Land Management Recreation Planner and former Wilderness and Civilization student, claims that the program’s emphasis on ethics carries over into his work as a land manager. Fichtler says:

Wilderness and Civilization gave me the ability to articulate my land ethic. The program helped me to focus and define a land ethic, and to develop the skills needed to make it work in the real world. I now use these skills on a day-to-day basis in my work with a land management agency (Yetter 1997).

According to Former Wilderness and Civilization student and outdoor instructor Tracy Sawyer, the program’s “interdisciplinary and interconnected learning set the tone for thinking in a holistic manner regarding wilderness, wilderness, and society” (Yetter 1997). On a scale of 1 to 10, students consistently give the program 9 to 9.5 when compared with other educational experiences. Although student surveys are consistently positive and report that Wilderness and Civilization is a unique and enriching learning experience, there has not been a comprehensive, systematic assessment of learning outcomes.

The Need for Learning Outcome Assessment

Actual learning outcomes connect subject matter, students, institutions, methods, and desired outcomes in a series of potential assessment avenues. Assessment of actual learning outcomes informs the selection of teaching methods, the identification of learning outcomes, institutional capacity and creativity, student admissions, and the wilderness debate, as shown by arrows in figure 3. Each of these can be critiqued and improved upon through the assessment of actual learning outcomes.

In response to the need for assessment, the Wilderness Institute recently began a program of assessment to determine the effectiveness of Wilderness and Civilization in facilitating the specific outcomes previously outlined. Because some of the desired learning outcomes are already being assessed within individual courses, program-wide outcomes are the target of the larger assessment project. The challenge is to find ways to make learning outcomes tangible and to evaluate them. Because of the array of student learning outcomes outlined, multiple assessment tools are necessary to encompass the breadth, depth, and variety of students’ knowledge and skills. This assessment needs to be authentic and to go beyond rote recall to demonstration of understanding, knowledge, and abilities (Wiggins 1989).

Certain content objectives can be measured through a quantitative instrument. A before and after administration of a problem-solving exercise will allow for the charting of

Figure 3—The relationship between subject matter, desired outcomes, students, methods, the university, and actual learning.
student progress during the program. This exercise will also allow us to differentiate between knowledge and skills students came to Wilderness and Civilization with, and those gained during the course of the program.

To assess program-wide outcomes such as the ability to respond in a clear, critical, sophisticated, and factual way to an environmental issue or to make innovative conceptual and practical connections across fields and disciplines, portfolios of student work may be an effective tool. Portfolios can assist educators in evaluating a wide variety of outcomes. Portfolios are not without pitfalls, however, and careful attention needs to be paid to student selection of materials, explicit purposes of the portfolios, and criteria for judging merit (Arter and Spandel 1992).

This assessment process will establish a feedback mechanism (fig. 3) to indicate the effectiveness of Wilderness and Civilization at achieving specific educational goals. The assessment process will be a valuable tool for the Wilderness Institute in directing changes of program curricula and teaching methods. It will also provide a case study to illustrate the effectiveness of this specific combination of assessment tools. Hopefully this will be of use to faculty at other universities in evaluating their own interdisciplinary programs.

Learning Outcomes Beyond the Wilderness Professional

Wilderness studies can be a vehicle through which students develop a personal relationship with nature, learn to make connections between art and science, nurture creative problem solving and critical thinking skills, and embrace multiple perspectives while simultaneously living by a personal ethic. If students of wilderness studies can begin to think on multiple scales, global, national, and local, from a multidisciplinary perspective, keeping in mind differing cultural priorities, they will be successful problem solvers and leaders in a variety of arenas.

For wilderness higher education to succeed, institutions must support interdisciplinary curriculums, embrace alternative pedagogy, and develop effective assessment tools. International dialogue will help facilitate the creative synergy needed to move in this direction.

References


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