

Somewhere Out There: An Experiential Learning Model for Teachers

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What is experiential learning and how does it connect to in-service professional development? John Dewey asserted that experiential learning provided a link between action and thought (Dewey, 1958). What does real civic engagement look like in secondary social studies classrooms? Could involving practicing teachers in finding answers to larger, ill-defined civic issues provide them with the desire and knowledge to encourage their students to engage in democratic citizenship? The American Democracy Project (ADP), sponsored by the American Association of Colleges and Universities, is a multi-campus initiative focused on higher education's role in preparing the next generation of informed, engaged citizens for our democracy. If these efforts at colleges and universities could be combined with similar efforts at the K-12 level, a new crop of truly active, engaged democratic citizens may be produced.

The social studies provide a safe environment for teaching students how to recognize and embrace the diversity of perspective. Westheimer and Kahne (2004) have analyzed various educational programs that promote democracy. These programs offered ways for teachers to ensure that their students recognize and embrace diversity. The authors stressed offering students the opportunity to examine current issues from various perspectives. They also called for students to provide a critical analysis and social critique of local issues. Finally, they implored teachers to give students the tools that they need to act on the issues and problems that they study. This included skills for navigating the institutions that they needed to use in order to bring about change (Westheimer and Kahne, 2004).

This paper describes Natural Resources and Public Choice: A Yellowstone Field Experience, a program that empowered teachers to develop an authentic learning atmosphere, encouraging them to engage their students in the democratic process by providing research-based solutions to ill-defined social issues. The program also provided teachers with an opportunity to explore the various perspectives often associated with public choice.

The context for this professional development training was that of conflict over public land usage in Yellowstone National Park. The localized conflict at Yellowstone allowed the teachers to experience firsthand the perspectives and actions by various constituencies. The experience also forced teachers to recognize differences and use those differences to better understand the complexity of the issue. Dewey (1963) claimed that the intensity of an experience was more important than even the experience itself. He claimed that experiences must have a quality with "...an immediate aspect of agreeable or disagreeableness, and there is its influence on later experience" (p. 27). Because of the intensity of the Yellowstone experience, teachers were able to develop a fuller sense of how citizens could more effectively participate in a democratic society.

A Learning Theory Perspective

According to Beard and Wilson (2006), experiential learning brings many learning theories together. These researchers claimed that learning should be personal and should connect with what students know and understand. Learning experiences in an authentic setting engages many senses, broadening and deepening the impact over space and time (Beard and Wilson, 2006). The social sciences provide students with the opportunity to explore concepts and abstract ideas. However, it is often difficult for students to

grasp abstract ideas if they do not have a concrete contextual foundation (Dale, 1969). Researchers have found that younger students are often unable to think at the cognitive level needed to understand many of the social issues embedded in social studies academic standards and dealt with in a social studies classroom (Johnston, Anderman, Milne, Klenk and Harris, 1993).

Given the research, it is clear that if secondary social studies students are to effectively grapple with complex social issues, they require tools to help them organize and structure these difficult problems or issues into levels that seem familiar. This form of instruction is called scaffolding. According to Wood, Bruner, and Ross (1976), the term scaffolding was developed to describe the type of assistance offered by a teacher (or peer) to support learning. In the process of scaffolding, the teacher provides just enough structure to allow a student to master a task or concept that the student is initially unable to grasp independently (Vanfossen and McGrew, in press). The premise is that if K-12 students and teachers partner with university faculty in developing research projects which tackle real issues, students would become more engaged. During the project, a strategy was modeled that provided the scaffolding created by collaboration between university content faculty and secondary teachers.

Various Perspectives from the Social and Natural Sciences

The National Science Foundation has been working for the past twenty-five years to bring ecological researchers together with social scientists (NSF, 2002). The Long-Term Ecological Research Network has been trying to find a way to model how social and ecological systems work together. Redman, Grove, and Kuby (2004) have worked to find ways to increase an understanding of how social and ecological systems work together and impact each other in order to inform more effective environmental public policy. Walker, Gunderson, Kinzig, Folke, Carpenter and Schultz (2006) created a framework that describes how social and ecological systems can work together to impact a region. The dynamic interaction of social and biological systems must be understood in order to create effective policies for dealing with environmental issues. Cheng, Kruger and Daniels (2003) described the importance of “place” in understanding these dynamics, and Endter-Wada, Blahna, Krannich and Brunson (1998) called for better integration of biophysical and social processes in ecosystem management. Natural Resources and Public Choice: A Yellowstone Field Experience brought together expertise in both biophysical and social science processes and then modeled the integration for secondary teachers. Using the natural and social science platforms for understanding these complex issues provided teachers with an experience that they will be able to replicate with their students.

Yellowstone – An Experiential Learning Activity

The American Association of Colleges and Universities (2008) offers a program that helps make these connections for university and secondary students and teachers. The Stewardship of Public Lands Project provides a platform where ill-defined public issues may be identified and explored. Environmental education provides topics that students find both interesting and relevant. Natural Resources and Public Choice: A Yellowstone Field Experience, developed at Indiana State University (ISU), brought teachers from three Indiana school districts together with ISU faculty and students in order for participants to discover how the natural and social sciences can work together to better understand conflict-inherent environmental issues.

Throughout the United States, but especially in the West, the questions of public land usage are controversial. The ADP Stewardship of Public Lands Project asks students to critically consider the answers to some of the following questions: Who holds the effective property rights to these lands? How are decisions about the usage of these lands made? Timber, mining, oil and gas producers, developers, farmers, ranchers, hunters, business owners, recreational users, environmentalists - all of these groups assert claims to influence and use. In our democratic and market-based society, what is the role of individual citizens in the formulation and execution of public policy (American Association of Colleges and Universities, 2008)? Natural Resources and Public Choice: A Yellowstone Field Experience demonstrated how concepts from economics, science and politics are necessary for understanding the issues involved in the debate. Field work in and around the park allowed participants to observe the disputed public resources, explore the alternatives, study the primary and secondary effects of policies, and speak directly with the individuals involved. This helped participants gain insight into how public

choice decisions influence real people's lives. This level of understanding would not have been possible without experiencing these public choice processes first-hand. This experience will help these teachers demonstrate the importance of knowledgeable participation in the democratic process. Participants used these concepts to build the scaffolding needed to more effectively address these issues for their own classrooms.

Professional Development Relationships between Higher Education and Secondary Faculty

Natural Resources and Public Choice: A Yellowstone Field Experience was held during late June – early July 2008 at Indiana State University and Yellowstone National Park. The project developed a model of professional interaction between higher education faculty and secondary teachers in order to bring together the unique expertise of each group. Specifically, the Indiana State University Center for Economic Education (hereafter referred to as Center) brought together:

- faculty in the natural and social sciences
- specialists in education methods
- state government officials
- national park service experts
- professional and grassroots advocacy groups
- secondary natural and social science teachers.

By bringing together representatives from higher education, the public sector, and pertinent constituency groups, the Center modeled what teachers would need to do with their own classrooms. The hope is that this will facilitate the replication of this kind of field experience for middle- and high-school students. Students involved in this kind of activity could investigate the complexity of some modern social issues in a manner that is both interesting and meaningful.

Integrating Natural and Social Sciences

Natural Resources and Public Choice: A Yellowstone Field Experience integrated concepts from national resource management and values related to managing national resources as ecological units. This meant that concepts from both the biological and social sciences were needed to fully understand the issues involved. The issues covered included the free roaming of Yellowstone National Park (YNP) bison, many of which carry the disease brucellosis, off park lands during the winter. This free roaming puts private cattle and sheep herds at risk. Livestock herds exposed to brucellosis must be destroyed. Since 2007, both Montana and Wyoming have lost their "brucellosis free" status which has harmed the cattle industry significantly. The reintroduction of wolves to the park-along with their endangered species classification (a federal judge just overturned a lower court decision to remove the wolf from the endangered species list)-also puts private livestock herds at risk, as wolves prey on sheep and calves, especially during the winter months. Another issue that was examined was the restrictions placed on different kinds of recreation in the park, with special emphasis on winter use by recreational snowmobiles and other tourists utilizing snowcoaches, which require winter road grooming and help bison and elk leave the boundaries of the park.

In addition to discussing the economic, political, and scientific concepts, participants discussed how to teach these concepts in the secondary social studies classroom. As the secondary teachers developed strategies for introducing these concepts (see Appendix A) into their classrooms, they also cemented a relationship to the faculty at Indiana State University. The Indiana State University faculty also issued an invitation for continued interaction as teachers implemented the natural and social science activities in their classroom. The long-term goal is that the teachers, in consultation with higher education faculty, will create their own "field experiences" for their own students, most often using local issues.

The program was designed to provide a conceptual foundation of the natural and social sciences required to fully understand the conflict issues at Yellowstone National Park. The secondary-school participants were also provided with a number of methods and instructional strategies for covering these concepts with their students. The initial classroom portion of the workshop was held at Indiana State University and followed by a ten-day field experience at Yellowstone National Park. After the field experience, participants developed lesson plans and materials for the presentation of environmental and

public economics lessons using Yellowstone National Park issues. These lessons were delivered in the participants' classrooms during the 2008-09 academic-year. The project classroom agenda and field experience agendas are included in Appendix B. Exemplars of the teaching activities created by the participants and a list of media resources may be found on the project Web site (<http://www.indstate.edu/publiclanduse/index.htm>).

Evaluation

The *Test of Economic Literacy* (Walstad & Rebeck, 2001) was administered to the secondary educator participants as a pre-post-test measurement of economic knowledge gained during the project. The secondary educator participants showed an 18.2% (25.5 to 30.6) increase in the norm reference test score after the program. In addition, an attitudinal survey was administered to determine changes in the secondary educators' views in teaching the social science concepts. Participant responses indicated that the ability to meet stakeholders and see the issues play out in the setting of the conflicts helped them understand how to teach controversial topics. One high school government teacher noted that, "The experience of being there and having the passion of the stakeholder" was a useful part of the program. He continued that "the ranchers especially helped me see a personal point of view, not just a larger viewpoint of a group of people, but rather personal incomes at stake." Other participants indicated that the program "introduced them to issues that were relevant" and that the social sciences could help inform students about how to participate in a democratic society. A mid-career middle-school social studies teacher said:

The instructors brought to my attention how we humans use Yellowstone for economic gains. Their economic gains are not always "green" or conducive to the ecosystem. I already knew that there had to be a balance between human survival and the survival of the ecosystem; however, they made me think more about the policies and institutions that govern the use of land and resources. These classes helped a great deal in understanding the controversial issues surrounding this wonderful national park. . . . By interviewing the stakeholders personally, I was able to read their body language, facial expressions, and hear their voices. By feeling the emotions that are driving each side to make a stand, I will be able to relay those emotions to my students and make the stakeholders become real to them.

Future Work in Experiential Educational Activities

The goal of the program is for the participants in the 2008 program to form a foundation of Indiana secondary social studies teachers dedicated to working with Indiana State University in a more permanent partnership. This partnership between ISU and Indiana middle and high schools will be designed to replicate this kind of field learning experiences for middle and high school students. Data collected in future projects will help determine if this kind of partnership is more effective than the more typical, short term professional development experience.

Resources

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Appendix A

Academic Concepts Addressed in the Workshop

Science concepts

- The nature and impact of science and technology
- Critical scientific thinking and the role of evidence-based decision making
- Ecosystems integration and management
- Influence of people and social systems on the environment
- Natural selection and adaptation in plants and animals
- Systems homeostasis and equilibrium
- Global warming and climate change
- Integrative natural resource management
- Natural and unnatural resource recycling; water, energy, air, minerals, waste
- The role of short- and long-term Earth hazards, disasters and consequences
- Animal and plant population dynamics
- Diseases in animal and plant populations
- Renewable and nonrenewable energy resources and consequences
- The influence of politics and political decisions on natural resources management
- The influence of agricultural technology and its practices on natural resources
- Historical perspectives on ecosystems management
- Earth history, plate tectonics, continental drift, volcanism, geothermal processes

Government and economic concepts

- Civic and political life
- Meaning of citizenship and roles of citizens in the United States
- Justice and equality
- Principles and values of American democracy
- Relationship between limited government and a market economy
- The role and workings of special interest groups
- Influence of the media on public opinion and public policy

- Civil and constitutional rights
- Cost/benefit analysis
- Market and government failures
- External costs and benefits
- Property rights and the tragedy of the commons
- Economic role of government
- Public goods
- Regulation
- Public choice analysis, special interests, and logrolling

Appendix B

Agenda for Pre-trip Workshop:

Day 1

AM – Registration – Trip Information, Pre-Test, General Overview

PM – Economic Way of Thinking

Day 2

AM – The Greater Yellowstone Ecosystem

PM – Virtual Economics and on-line Teacher Resources

Day 3

AM – The Economic Role of Government

PM – Bison in the Yellowstone Ecosystem

Day 4

AM – Environmental Economics

PM – Wolves in the Yellowstone Ecosystem

Day 5

AM – Science of Yellowstone’s Geothermal Features

PM – Economics of Geothermal Technologies and the Role of Government

Day 6

AM – Lesson Demonstrations from *Energy, Economics and the Environment* (NCEE), and *Economics and the Environment: EcoDetectives* (NCEE)

PM – Fauna in the Greater Yellowstone Ecosystem

Day 7

AM – Public Choice Economics-Economics, Politics and Advocacy

PM – Flora and Fire in Yellowstone National Park

Day 8

AM – Lesson Demonstrations and Simulations from *Focus: Civics & Government* (NCEE) and *Virtual Economics* (NCEE)

PM – Final Pre-trip Briefing, Post-test, and Classroom Assessment

Agenda for Field Work in Yellowstone National Park:

Day 1 - Bison and Brucellosis, Winter Use (Conflicts 1, 2)

Introduction to the Greater Yellowstone Ecosystem and the issues that will be addressed, including field trip to Hayden Valley to view and learn about bison. Ecology and the winter use controversy. Field based lectures regarding history of bison management in Yellowstone, brucellosis controversy, intersection with the winter use/bison use of groomed roadways, and the role of the public, science, and politicians.

Day 2 - Yellowstone’s Wolves (Conflicts 1, 2, 4)

Sunrise wildlife watching on Yellowstone's Northern Range. Meet with wolf watchers. Field based lectures on wolf management history, wolf ecology, values and meanings of wolves/controversial species, controversy over their reintroduction, current controversy over delisting them and hunting, meanings of wolves to different stakeholders, and science, politics, the public's involvement. Short hike to significant wolf site. Visit to historic Lamar Valley Buffalo Ranch. Meetings with advocacy groups.

Day 3 - Geothermal (Conflict 3)

Field trip to selected geothermal areas in the park. Field based lectures on bio-prospecting. Meetings with advocacy groups.

Days 4 & 5 - Stakeholder Meetings (Conflicts 1-4)

Travel around the Greater Yellowstone Ecosystem to interview stakeholders concerning bison, wolf, recreation and business.