Journal of Extension
www.joe.org

October 2019
Volume 57
Number 5
Article # 5IAW2
Ideas at Work

Land-Based Learning: A Learning Paradigm for Building Community and Sustainable Farms

Abstract

Mitigating complex problems is increasingly essential to sustaining life on Earth. Empowering current and future generations to address these problems requires rethinking traditional education approaches. This article serves as a primer for land-based learning—defined as a pedagogical approach in which learners collaborate with community members to implement place-based interventions within agricultural systems to increase the sustainability of their community. As an introduction to land-based learning, the article (a) describes critical checkpoints within land-based learning, (b) illuminates the role of Extension educators in facilitating land-based learning, and (c) introduces a case study of land-based learning in Michigan's Upper Peninsula.

Keywords: land-based learning, community engagement, experiential learning, pedagogy

Aaron J. McKim
Assistant Professor
Michigan State University
East Lansing, Michigan
amckim@msu.edu
@AaronMcKim3

Matt R. Raven
Professor
Michigan State University
East Lansing, Michigan
mraven@msu.edu
@matt_raven

Abbey Palmer
Education Specialist
Michigan State University Extension
Chatham, Michigan
palmerab@msu.edu

Ashley McFarland
Coordinator
Michigan State University Extension
Chatham, Michigan
ashleymc@d.umn.edu

James Isleib
Extension Educator
Michigan State University Extension
Chatham, Michigan
isleibj@msu.edu

Introduction

Land-based learning is a new approach to agriculture, food, and natural resources (AFNR) education that connects learners with community-based professionals in AFNR to increase the ecological, environmental, or economic sustainability of their community through place-based interventions. An important alternative to standardized approaches to education, land-based learning is designed to increase systems thinking, problem-solving skills, collaboration abilities, and learner interest in AFNR. Developing these skills and interests is essential to preparing the next generation of problem solvers, equipped with the knowledge, skills, and experiences to address complex socioecological challenges, such as climate change and environmental degradation (Andenoro, Baker, Stedman, & Weeks, 2016; Hinkey, Ellenberg, & Kessler, 2005; Webber, 2017). For example, developing systems thinking prepares individuals to understand the increasing complexity of socioecological challenges as well as the short- and long-term impacts of interventions to

address these challenges (Forrester, 1994; Senge & Sterman, 1992). In the absence of developing critical skills, such as systems thinking, the catastrophic impacts of complex socioecological challenges will only increase (Meadows, Meadows, & Randers, 1992).

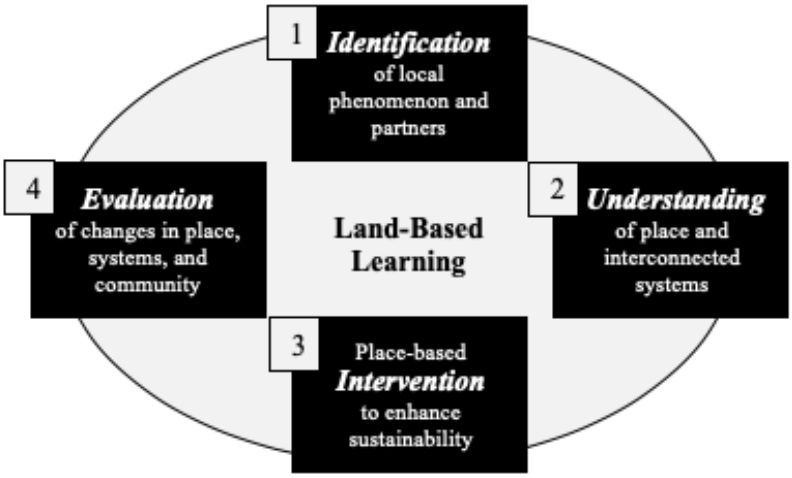
As facilitators of land-based learning, or supporters of a land-based learning experience facilitated by another AFNR educator (e.g., a school-based science or AFNR educator), Extension educators play an essential role in successful implementation of such experiences. In this article, the process of land-based learning is described, the role of Extension educators in land-based learning is highlighted, and an example land-based learning experience in the Upper Peninsula (UP) of Michigan is introduced.

The Land-Based Learning Model

A principle of land-based learning is that learning experiences are more valuable when they are driven by local knowledge as opposed to standardized, global curricula (Smith, 2002; Sobel, 2004). Therefore, we seek not to prescribe a formula for the application of land-based learning. Instead, we propose four "checkpoints" (see Figure 1) common among land-based learning experiences.

Figure 1.

Four Critical Checkpoints of Land-Based Learning



In the first checkpoint, learners and facilitators *identify* a local AFNR phenomenon (e.g., farm, ranch, business, park, wetland) on which to focus as well as community members with access to knowledge, resources, or skills relevant to the phenomenon (Powers, 2004). Extension educators involved in the identification phase should encourage identification of community locations with clear opportunities to increase the sustainability of the phenomenon and locations where community members are eager to engage as cofacilitators of the learning process.

After identification, learners and facilitators engage in *understanding*. In this checkpoint, experiential engagement increases learner understanding of the complexity of AFNR systems and the decision-making processes undertaken by AFNR professionals. In addition to learning about the phenomenon, learners and facilitators explore potential interventions to increase the social, ecological, or economic sustainability of the phenomenon. Extension educators play a critical role in highlighting potential avenues for increasing

sustainability.

Next, learners and facilitators engage in *intervention*. In this checkpoint, learners are immersed in selecting, planning, and enacting an intervention within the selected AFNR phenomenon to increase the sustainability of the identified phenomenon. Importantly, this endeavor shifts the learning experience from obtaining information to being active agents in knowledge construction and action research. Extension educators support learners as they engage in this process, redirecting the effort when the work no longer adds value to the community.

The final checkpoint of land-based learning is *evaluation*. In this checkpoint, learners and facilitators evaluate the impacts of the intervention on the selected phenomenon, emphasizing the community-wide impacts on social, ecological, and economic sustainability. In this way, learners experience the interconnections between AFNR systems and myriad systems that exist throughout the community. Extension educators are essential in illuminating these interconnected systems and evaluating the impact of the intervention on interconnected systems.

Case Study of Land-Based Learning

Land-based learning is currently being used as part of a U.S. Department of Agriculture North Central Sustainable Agriculture Research and Education project in the UP of Michigan. There are seven intermediate school districts in the UP, each with a land-based learning project currently in progress. In each project, a high school teacher, his or her students, a producer, and a Michigan State University (MSU) Extension educator are working together to make a local farm more sustainable. For example, a local high school biology teacher and his environmental science class are working with a local sheep producer to improve the soils of hay fields in a regenerative way that is both good for the environment and economically viable. The local MSU Extension educator facilitates communications and interactivity among the teacher, the students, and the producer. In the identification stage, the producer presented the challenge of improving soil health on land inaccessible for grazing. Subsequently, students met with the producer to understand the land; they took soil samples, interpreted results, and learned about agriculture in their community. Students are now working collaboratively with the farmer and the Extension agent to test multiple interventions (i.e., urea, composted manure, cover crop, mulching with cut hay) for increasing soil health on the land. To complete the land-based learning process, the teacher and students will return to the fields to longitudinally evaluate soil health as well as the environmental and economic impacts of their interventions.

Conclusion

The complexity of challenges facing current and future generations requires rethinking traditional approaches to education. Land-based learning offers a new way of teaching and learning within the context of AFNR, one that emphasizes problem solving, systems thinking, and sustainability. Existing research on similar educational experiences suggests that results have included increased engagement and academic learning; improved leadership skills; improved environmental awareness, values, and sustainability; and improved communities (Jennings, Swidler, & Koliba, 2005; Webber, 2017). Land-based learning has the potential to pragmatically equip communities to empower learners with the knowledge, skills, and commitment to address both local and global challenges.

Acknowledgments

This material is based on work that is supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under award number 2017-38640-26916 through the North Central Region Sustainable Agriculture Research and Education program under project number LNC17-394. The U.S. Department of Agriculture is an equal opportunity employer and service provider. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the authors and do not necessarily reflect the view of the U.S. Department of Agriculture.

References

Andenoro, A. C., Baker, M., Stedman, N. L. P., & Weeks, P. P. (2016). Addressing complex problems. In T. G. Roberts, A. Harder, & M. T. Brashears (Eds.), *American Association for Agricultural Education national research agenda: 2016–2020*. Gainesville, FL: Department of Agricultural Education and Communication.

Forrester, J. W. (1994). Systems dynamics, systems thinking, and soft OR. *Systems Dynamics Review*, *10*(2–3), 245–256.

Hinkey, L. M., Ellenberg, K. T., & Kessler, B. (2005). Strategies for engaging scientists in collaborative processes. *Journal of Extension*, *43*(1), Article 1FEA3. Available at: https://www.joe.org/joe/2005february/a3.php

Jennings, N., Swidler, S., & Koliba, C. (2005). Place-based education in the standards-based reform era—Conflict or complement? *American Journal of Education*, *112,* 44–65.

Meadows, D. H., Meadows, D. L., & Randers, J. (1992). *Beyond the limits: Global collapse or a sustainable future?* London, UK: Earthscan.

Powers, A. L. (2004). An evaluation of four place-based education programs. *The Journal of Environmental Education*, *35*(4), 17–32.

Senge, P. M., & Sterman, J. D. (1992). Systems thinking and organizational learning: Acting locally and thinking globally in the organization of the future. *European Journal of Operational Research*, *59*(1992), 137–150.

Smith, G. A., (2002). Place-based education: Learning to be where we are. *Phi Delta Kappan*, 584–594.

Sobel, D. (2004). *Place-based education: Connecting classrooms and communities*. Great Barrington, MA: Orion Press.

Webber, G. (2017). *Intricate waters: A critical literature review of place-based education* (Master's thesis). Retrieved from https://ecommons.usask.ca/handle/10388/7803

