

## **FNR 5072: Environmental Education Program Development**

### **University of Florida**

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Class Meets online

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Good environmental education (EE) programs are designed to meet environmental and educational goals for specific audiences. They use appropriate teaching strategies to engage learners and build capacity to resolve environmental issues. The development of a good program includes: a comprehensive needs assessment to understand the audience and available resources; a pretest of the materials prior to full-scale implementation; a training program for staff or volunteers; and an evaluation procedure to continue improving the program. This course will introduce students to these techniques of program development for adult and youth-based environmental education activities in the nonformal arena (such as nature centers, extension, residential facilities, environmental organizations, and resource agencies). Students will work together to develop and implement tools for a program evaluation.

### **Course Description:**

A comprehensive approach to program development, from needs assessment to evaluation, will be applied to nonformal environmental education.

### **Course Objectives:**

By the end of this course, students will be able to:

- Describe the goals and objectives of environmental education (EE) and education for sustainable development (ESD)
- Explain how a variety of educational programs achieve EE goals
- Critique EE and ESD materials
- Use a Logic Model for program planning
- Apply learning theory and teaching strategies to environmental education programs
- Develop and use evaluation tools, collect and analyze data for a client
- Explain how social and political change affects EE
- Write a fundable grant proposal for EE program development

### **Materials:**

- Readings on reserve –<https://ares.uflib.ufl.edu/>– Find this course.
- *Evaluating Your Environmental Education Programs* – Order from [naaee.net/publications](http://naaee.net/publications).
- *Guidelines for Excellence in EE: Materials (171B04003) and Nonformal Programs (171B04001)* – Order from USEPA <http://www.epa.gov/nscep/index.html>
- Other materials can be downloaded from Canvas, <http://lss.at.ufl.edu> – Find this course.

### **Course Policies:**

Students are expected to attend class, engage in discussion, submit assignments on time, and participate in group work. Absences will be excused if accompanied by appropriate paperwork. After three unexcused absences, 1% per day will be deducted from the final course grade. Assignments are to be turned in during class on the day they are due.

### Grading Scale:

A	93 – 100%	C	73 – 76%
A-	90 – 92%	C-	70 – 72%
B+	87 – 89%	D+	67 – 69%
B	83 – 86%	D	63 – 66%
B-	80 – 82%	D-	60 – 62%
C+	77 – 79%	E	below 59%

## University of Florida Policies

### Grades and Grade Points

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

### Absences and Make-Up Work

Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

### Academic Honesty

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: *“We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.”* You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *“On my honor, I have neither given nor received unauthorized aid in doing this assignment.”*

It is assumed that you will complete all work independently unless I have asked you to collaborate on course tasks (e.g. project). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/SCCR/honorcodes/honorcode.php>.

### Plagiarism

Plagiarism is using other’s words without appropriate citation in your writing. It is perfectly and importantly appropriate to reference other’s ideas, but you must do so with citations (to credit their ideas in your words) or quotations (to use their words). In this class, an author-date citation is fine, with a Literature Cited section listed alphabetically with enough information to find the source: author, date,

title of paper or book, title of journal or website, publisher, page or website. You can find more information about plagiarism here: <http://www.uflib.ufl.edu/msl/07b/studentplagiarism.html>. We will be using TurnItIn software to check for plagiarism. You can use their site to check your own work before you submit it.

### **Software Use:**

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

### **Campus Helping Resources**

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, [www.counseling.ufl.edu/cwc/](http://www.counseling.ufl.edu/cwc/)*
  - Counseling Services
  - Groups and Workshops
  - Outreach and Consultation
  - Self-Help Library
  - Training Programs
  - Community Provider Database
- *Career Resource Center, First Floor JWRU, 392-1601, [www.crc.ufl.edu/](http://www.crc.ufl.edu/)*

### **Services for Students with Disabilities**

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. 0001 Reid Hall, 352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)

## **Class Objectives**

By the end of the relevant class, students will be able to:

Describe the roots of environmental education in the U.S.

Explain how social and political influences continue to shape EE in the U.S.

Explain how people learn information, concepts, and skills.

Use the learning cycle to develop and critique educational activities and program plans.

Explain current movements in science education and the impacts they are/may have on EE (No Child Left Behind/No Child Left Inside, service learning, EIC, etc.)

Understand the role of state standards and testing in education reform.

Describe the strategies and guidelines for EE materials and program development that should lead to excellence in EE.

Explain the component of a logic model.

Develop a logic model that describes an EE program.

Use the learning cycle and research on education to develop logic models and programs.

Describe the steps of program development and the purpose of three types of evaluation.

Develop program and behavioral objectives.

Describe the advantages, disadvantages, and purposes of five evaluation tools.

Create items for evaluation tools for each of the three types of evaluation.

Explain the qualities of a good survey or interview question.

Create a program that meets a need and the funding guidelines described in a proposal request.

Develop logic model, objectives, program description, evaluation plan, letters of support, budget for your program.

Explain how misconceptions, selective perception, and political agendas can affect environmental education.

Describe bias and explain why environmental and industry groups may be accused of it.

Develop strategies for detecting bias in materials and for creating materials that rise above it.

Describe education for sustainable development and compare it to EE.

Explain the criteria or objectives of programs that meets the goals of both and of either EE or ESD.

Justify the role of EE or ESD in schools, communities, parks, and agencies.

Explain how environmental educators can build capacity for problem solving by using social learning strategies.

<b>Each week begins on Monday</b> <b>Discussions occur between Wednesday and Saturday, with the first post at least by Thursday AM and second by Saturday noon, to which you'll respond the next week</b> <b>Assignments are due by Sunday evening</b>						
Week Beginning	Purpose	Watch	Read	Do	Discuss	Assignment Due
1 Aug 24	Course Intro and welcome History and Future of EE	NP. History of EE NP. Course Welcome NP – ESD and EE	Just Say YES Biedenweg Monroe Hungerford	Introduce yourself Order materials Get oriented	EE programs you've experienced EE programs you are interested in	
2 Aug 31	Learning and Teaching	NP. Experiential Learning NP. Constructivism and Misconceptions and Framework	CEOT Chapter 2 Monroe/Andrews/ Biedenweg	Critique 2 activities	Demo variety of venues and purposes in EE Discuss selected activities with regard to learning theory, EE objectives, evidence leading to guidelines (use SFCC and other online teacher guides)	Sept 6: 1 paragraph describing the program you wish to use for the course evaluation project
3 Sept 7 Monday holiday	Guidelines for Excellence Program Development Logic Models	NP. Guidelines NP. Logic models NP - Objectives NP. Program development	Nonformal Guidelines Materials Guidelines EYEOP 1, 2 Simmons	Observe an EE program Interview EE provider	Reasons for having guidelines for excellence Evidence of excellence in the programs you observed Diversity of EE programs	
4 Sept 14	Con't	Con't	Con't	Con't	Questions you have about what you are finding What makes program models logical? What can be evaluated?	Sept 20: Submit logic model and Eval Plan for selected program based on obs & interview
5 Sept 21	Evaluation Tools	NP. Survey NP. Interview NP. Focus Group	EYEOP 3	Draft questions for at least 2 tools	Quality survey items Workbook questions	Sept 27: Submit draft tools for peer review
6 Sept 28	Con't	Con't	Con't	Conduct two critiques of other's tools	Quality interview items Workbook questions	Oct 4: Send comments on tools back to authors
7 Oct 5	Data Collection and Analysis	NP data collection NP data analysis Quant	EYEOP 4, 5	Revise tools	Data analysis and workbook exercises Creative ways to assess	Oct 11: Submit revised tools for a grade

		NP data analysis Qual			quality	
8 Oct 12	Schools and EE	NP. Standards and Tests NP. Project-based EBE/EIC/Issue investigation	TIME article Ernst Volk Uzzell	Midterm	Tests and Standards Do teachers have time for the important stuff? What could improve education?	Oct 18: submit takehome midterm
9 Oct 19	Current and Future Trends	NP. Nature and Children NP. Action Competence NP. Citizen Science NP. CAM and Social Learning NP. Systems thinking NP. Place-based Ed NP. Behavior Change NP. EJ and diversity	Jensen/Schnack Schusler/Krasny Ernst Chawla Muro/Jeffrey Wals Johnson Ardoin/Clark Louv, Weilbacher Smith/Sobel Agyeman Ernst Volk			Option B: Select one area for additional research and write an issue paper. It may relate to your proposal. Paper and presentation due Nov 8.
10 Oct 26	Writing a Proposal	NP. Identifying concept, meeting needs, partners NP. Details: letters objectives, budget,	Archie Israel Solicitation Notice	Contemplate ideas for proposal	Exercise on matching proposal purpose and activities	Nov 1: Submit proposal idea (brief)
11 Nov 2 Friday holiday	Backlash	NP. Behavior change and Advocacy	Poore, Salmon, Holsman Facts Not Fear		Place examples on continuum Exercise on issue scenarios	Nov 8: Submit paper and presentation on your issue
12 Nov 9 Wed. holiday	More Current and Future Trends	Con't from week 9 Con't	Con't	Listen to presentations	Listen to presentations and discuss future trends	
13 Nov 16	More on Writing Proposals	Con't from Week 10	Con't		Questions about proposal writing	Nov 22 or 29 if needed, submit proposal
14 Nov 23- holiday						
15 Nov 30	Recommendations and writing up a project Evaluation	NP. Remember the Evaluation Questions!	EYEOP 6		Questions about wrapping up evaluation report	
16 Dec 7	Evaluation Experience and Lessons Learned			Report on Evaluation		Option A: Dec 6: Submit Evaluation Report and

Classes end Dec 9				Experience and Lessons Learned		presentations discuss
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## Assignments and Points

- 1. Evaluate EE Program.** This assignment will have several parts. Because you will be getting feedback from classmates, it will be important to stay on track. Your teaching staff are available to answer questions. Everyone will complete parts 1, 2, and 3. If you intend to do program evaluation and development, we strongly suggest you continue with parts 4, 5, 6 in Option A. If you do not intend to use these skills in your career you may wish to take Option B.

Part 1: Program Selection. Provide a brief description of the program you wish to evaluate, using the Tbilisi objectives of EE. Due Sept 6 2 points

Part 2: Logic Model and Evaluation Plan. After observing a program and talking to the staff, complete a logic model chart to describe this program. By determining and specifying the intended outcomes, you should be able to convert these goals to an evaluation plan. The plan will be a work in progress as you proceed through the semester, but it is important to start with clarity on the evaluation questions. Due Sept 20. 10 Points

Part 3: Draft evaluation tools. Using your evaluation plan and logic model, design a set of interview questions and survey items (paper or online) that can be used to help determine the value and worth of your program. Consider which group of people can provide you with useful information and specify the audience on your draft. Participants, parents, chaperones, & teachers, are reasonable audiences. Share your draft tools with two other students in the class by Sept 27, and provide enough information about the program (perhaps your observation and logic model) so they can provide useful feedback. Revise your tools and submit them by Oct 11. 10 points

Option A (for those who intend to use program development and evaluation skills):

Part 4: Results and Findings. You may submit draft results and findings to teaching staff for feedback anytime before November 22 if you choose..

Part 5: Evaluation Report. Using all the pieces you have developed, write a report of your evaluation for the program staff. Begin with a description of the program and your logic model, then describe the goals of your evaluation and plan. Report on who provided information and how the information was obtained (methods and tools). Summarize the results of your data collection and synthesize these data into findings. Finally, use your insights about the program to develop three recommendations that are supported by your data, and recommendations about how they might evaluate future programs. Due December 6. 15 Points

Part 6: Presentation. Develop a brief powerpoint and load it into Canvas to describe your program and recommendations to the rest of your classmates. Please also describe what you learned about program evaluation, including what you might do differently the next time! Due Dec 6 3 Points

- 2. Midterm Quiz and Take Home Essay.** This two-part assessment will enable you to review and make sense of the material covered in the first half of the course. The take home essays will allow you to spend a bit more time thinking about their application, and will be due October 18.



You are welcome to use any written resources from class or the library, but please do your own work, individually. 20 points

3. **EE Proposal.** Writing project proposals is essential to obtain funding to support EE programs. Develop an idea for a project that meets the RFP criteria and write a proposal following EPA's former Small Grants for EE Request for Proposals. This exercise will incorporate much of what we have discussed about program development, logic models, objectives, evaluation, training, learning, etc. You can dream up the organization or use a real one. You will write the budget, letters of support, and justification for the program. If your ideal program is better addressed with a different funder or RFP, you can propose one to the teaching team. Submit a 1 page summary of your plans (single spaced) and draft logic model on November 1. Submit your final proposal on Nov 22 if you want a real holiday or Nov 29 if you need the time. 25 points
4. **Option B: Issue Paper** – Select a current issue in EE that is of interest to you (you can use one of the Current Trends in Week 9, or a topic relevant to your work or research and write a 4-6 page literature review using at least 4 current (post 2000) research papers. You may write the paper as if you are communicating with EE practitioners, summarizing what they need to know about this topic. See the book, [Across the Spectrum](http://naaee.net/publications/acrossthespectrum) (naaee.net/publications/acrossthespectrum) for models, or you may write this as a literature review for a thesis.. The paper and a presentation describing your ideas are due Nov 15. 18 points
5. **Class participation** – Timely and thoughtful posts on the discussion board will earn you a whopping 15 points toward participation. We will endeavor to make these discussion questions integral to your assignments so that everything will flow quite smoothly!

## Assigned Readings

### **Week 1                    Introducing EE: History and Goals**

Monroe, M. 2001. Just Say Yes to Youth Environmental Stewardship. EDIS Fact Sheet. University of Florida. <http://edis.ifas.ufl.edu/FR120>

Hungerford, Harold R., 2010. Environmental Education for the 21<sup>st</sup> Century: Where have we been? Where are we now? Where are we headed? *Journal of Environmental Education*. 41(1): 1-6.

Monroe, M.C. 2012. The co-evolution of ESD and EE. *Journal of Education for Sustainable Development*. 6(1): 43-47.

Biedenweg K., Monroe, M.C. and Wojcik, D.J. 2013. Foundations of Environmental Education, in Monroe and Krasny, Across the Spectrum: Resources for Environmental Educators. Washington DC: NAAEE. Pages 9-28. <http://naaee.net/publications/acrossthespectrum>

### **Week 2                    Learning Theory**

Jacobson, S., M. McDuff, and M. C. Monroe. 2015. Chapter 2 Learning and Teaching with Adults and Youth. *Conservation Education and Outreach Techniques*. Oxford University Press. pp 35-62.

Monroe, M.C., E. Andrews, K. Biedenweg. 2007. A Framework for Environmental Education Strategies. *Applied Environmental Education and Communication*. 6(3): 205-216

### **Week 3                    Guidelines for Excellence and Program Development**

Ernst, J. A., M. C. Monroe, and B. Simmons. 2009. Evaluating Your Environmental Education Program: A Workbook for Practitioners. North American Association for Environmental Education. Chapters 1 and 2.

NAAEE, Guidelines for Excellence: EE Materials and NonFormal Programs. Order or download your own from the National Service Center for Environmental Publications (NSCEP) at <http://www.epa.gov/nscep/>

- 171B04001 - Nonformal Environmental Education Programs: Guidelines For Excellence
- 171B04003 - Environmental Education Materials Guidelines For Excellence

Simmons, B. 2012. Guidelines for Excellence in EE, Across the Spectrum, Washington DC: NAAEE

### **Week 4                    Program Development**

Monroe, M., J. Washburn, T. Goodale, and B. Wright. 1997. *National Park Education Programs Making a Difference: Evaluating PARTNERS, A Parks as Classrooms Program*. Washington DC: National Park Foundation.

#### **Optional:**

On Logic Models: W.K. Kellogg Foundation 2004. Logic Model Development Guide. Battle Creek MI: Kellogg Foundation. Item #1209 when ordered from 1-800-819-9997. Or download from [www.wkcf.org](http://www.wkcf.org), search for logic model, and click on the pdf symbol

Website from Univ of Wisconsin, Program Development and Evaluation program on Logic Model <http://www.uwex.edu/ces/pdande/evaluation/evallogicmodel.html> -- and <http://www.uwex.edu/ces/lmcourse>

### **Week 5                    Program Evaluation – Tool Development**

Ernst, J. A., M. C. Monroe, and B. Simmons. 2009. Evaluating Your Environmental Education Program: A Workbook for Practitioners. North American Association for Environmental Education. Chapter 3.

## **Week 7 Program Evaluation**

Ernst, J. A., M. C. Monroe, and B. Simmons. 2009. Evaluating Your Environmental Education Program: A Workbook for Practitioners. North American Association for Environmental Education. Chapters 4 and 5.

## **Week 8 Schools and EE (see Week 7 in course reserves)**

Edwards, H. S. 2015. Leaving tests behind. TIME Magazine, 185(5): 28-31. February 16, 2015.

Ernst, J. A. and M. C. Monroe. 2004. The effects of environment-based education on students' critical thinking skills and disposition toward critical thinking. *Environmental Education Research* 10:4, 507-522.

Tilbury, D. 2011. What are commonly accepted learning processes aligned with ESD? Education for Sustainable Development: An expert review of processes and learning. Paris: UNESCO. Pages 19-39. <http://www.iucn.org/?uNewsID=7368>

Volk, T. and Cheak, M.J. 2003. Effects of environmental education on students, parents, and communities. *Journal of Environmental Education*. 34(4) 12-25.

Uzzell, D. 1999. Education for environmental action in the community: New roles and relationships. *Cambridge Journal of Education* 29, no. 3: 397-413.

Optional:

Stevenson, R. B. 2007. Editorial: Overview. *Environmental Education Research* 13(2): 129-138.

Lieberman, Gerald A. and Linda L. Hoody. 1998. *Closing the Achievement Gap: Using the environment as an integrating context for learning. Executive Summary.* State Education and Environment Roundtable. More information at [www.seer.org](http://www.seer.org)

## **Week 9 Current Trends**

### **Nature and Children:**

Weilbacher, M. 2009-2010. Last child in the woods, first book in the field. *Green Teacher*. 87:3-8.

Gill, T. (2014). "The Benefits of Children's Engagement with Nature: A Systematic Literature Review." *Children, Youth and Environments* 24(2): 10-34.

<http://www.jstor.org/action/showPublication?journalCode=chilyoutenvi>. **Place-based Education**

Sobel, D. 2012. Place-based education: Connecting classroom and community. <http://www.antiochne.edu/wp-content/uploads/2012/08/pbexcerpt.pdf>

Smith, G. A. 2013. Place-based education: Practice and Impacts. In Stevenson, R. B., M. Brody, J. Dillon, and A. Wals (Eds) *International Handbook of Research on Environmental Education*, 213-220.

### **Action Competence**

Jensen, B.B. and K. Schnack. 1997. The action competence approach in environmental education. *Environmental Education Research*, 3(2): 163-178.

Schusler, T.M. and M.E. Krasny. 2010. Environmental action as context for youth development. *Journal of Environmental Education*, 41(4): 208-223.

### **Behavior Change**

Chawla, L. and D. Cushing. 2007. Education for strategic environmental behavior. *Environmental Education Research* 13(4): 437-452

### **Social Learning**

Schusler, T. M., D. J. Decker, & M. J. Pfeffer. 2003. Social learning for collaborative natural resource management. *Society and natural resources*. 16:4, 309-326.

Muro, M. and P. Jeffrey. 2008. A critical review of the theory and application of social learning in participatory natural resource management processes. *Journal of environmental planning and management*. 51(3): 325-344.

Wals, A.E.J., N. van der Hoeven, H. Blanken. 2009. The acoustics of social learning. Wageningen: Wageningen Academic Publishers. Pages 5-28. <http://www.ecs.wur.nl/NR/rdonlyres/E635711D-7B4D-43B6-8FE2-249B95D2349E/92733/acousticsdigital.pdf>

### **Environmental Justice**

Agyeman, J. 2005. Where justice and sustainability meet. *Environment*, 47(6): 10-23.

### **Systems Thinking**

Sweeney, L. B. (2010). Systems thinking: A means to understanding our complex world. *Pegasus Communications*. Available online at <https://www.leveragenetworks.com/>

Forrester, J. W. 2009. Learning through systems dynamics as preparation for the 21st century. Online document available at [http://static.clexchange.org/ftp/documents/whyk12sd/Y\\_2009-02LearningThroughSD.pdf](http://static.clexchange.org/ftp/documents/whyk12sd/Y_2009-02LearningThroughSD.pdf)

### **Citizen Science**

Dickinson, J. L., J. Shirk, D. Bonter, R. Bonney, R. L. Crain, J. Martin, T. Phillips, K. Purcell. 2012. The current state of citizen science as a tool for ecological research and public engagement. *Frontiers in Ecology and the Environment*, 10 (6): 291-297.

Jordan, R. C., H. L. Ballard, T. B Phillips. 2012. Key issues and new approaches for evaluating citizen-science learning outcomes. *Frontiers in ecology*, 10(6): 307-309.

### **An excellent resource:**

Ardoin, N. et al. 2013. EE Research Bulletin Issue 4: Winter 2013. The series is online:

<http://eelinked.naaee.net/n/eeresearch/posts/Research-Bulletins-Help-Bridge-Research-to-Practice-Gap>

## **Week 10 Writing Project Proposals**

Archie, Michele. 1993. *Grant funding for your environmental education programs: Strategies and Options*. Troy, OH: NAAEE. Focus on pages 13-22.

Israel, G. 2001. Using Logic Models for Program Development. IFAS Fact Sheet. University of Florida. AEC 360. <http://edis.ifas.ufl.edu/wc041>

USEPA Office of Environmental Education Solicitation Notice for 2008. Environmental Education Grants. EPA-EE-08-02

Remember to use your Guidelines for Excellence!

## **Week 11                    Advocacy, Bias & EE Backlash**

Poore, Patricia. 1993. EnviroEducation: Is it Science, Civics--or Propaganda? *Garbage*. April-May 1993, 26-31. (in course reserves under Week 9)

Salmon, J. 2000. Are we building environmental literacy? *Journal of Environmental Education*. 31:4 (4-10). (in course reserves under Online Week 11)

Are they building environmental literacy? *ZPG Fact Sheet*. (in course reserves under Online Week 11)

Holsman, R. H. 2001. Viewpoint: The politics of environmental education. *Journal of Environmental Education*. 32:2. 4-7. (in course reserves under Online Week 11)

## **Week 15                    Reporting Evaluation Findings**

Ernst, J. A., M. C. Monroe, and B. Simmons. In Press. Evaluating Your Environmental Education Program: A Workbook for Practitioners. North American Association for Environmental Education. Chapter 6.

## For More Information

- Ardoin, N.M., M. DiGiano, J. Bundy, S. Chang, N. Holthuis, K. O'Connor. 2013. Using digital photography and journaling in evaluation of field-based environmental education programs. *Studies in Educational Evaluation* 41: 68-76.
- Ardoin, N.M., C. Clark, E. Kelsey. 2013. An exploration of future trends in environmental education research. *Environmental Education Research* 19(4): 499-520.
- Bennett, Dean B. 1988-89. Four steps to evaluating environmental education learning experiences. *Journal of Environmental Education*. 20:2,14-21.
- Bitgood, Stephen. 1993. What do we know about school field trips? *What research says about learning in science museums, # 2*. Wash. DC: Assoc Science-Tech Cntrs, 12-16.
- Blanchard, Kathleen A. Seabird conservation on the North Shore of the Gulf of St. Lawrence, Canada: The effects of education on attitudes and behaviour towards a marine resource. In Palmer, J. W. Goldstein, and A. Curnow (eds.) *Planning education to care for the earth*. Gland, Switzerland: IUCN CEC. 39-50.
- Cooper, C. B., Dickinson, J., Phillips, T., and Bonney, R. 2007. Citizen science as a tool for conservation in residential ecosystems. *Ecology and Society*. 12:11.
- Disinger, John. 1993. Environment in the K-12 Curriculum: An Overview. In Wilke, R.J. (ed) *Environmental Education: Teacher Resource Handbook*. Arlington VA: NSTA and Kraus International Publications.
- Duvall, J. and M. Zint. 2007. A review of research on the effectiveness of environmental education in promoting intergenerational learning. *Journal of Environmental Education* 38(4): 14-24.
- Ernst, J. 2009. Influences on US middle school teachers' use of environment-based education. *Environmental Education Research*, 15(1): 71-92.
- Fien, John, William Scott, and Daniella Tilbury. 2002. Exploring Principles of Good Practice: Learning from a meta-analysis of case studies on education within conservation across the WWF network. *AEEC*, 1(3): 153-162.
- Gough, A. 2002. Mutualism: a different agenda for environmental and science education. *International Journal of Science Education*. 24(11): 1210-1215.
- Heimlich, J.E. and N. M. Ardoin. 2008. Understanding behavior to understand behavior change: a literature review. *Environmental Education Research* 14(3): 215-237.
- Hino, Jeffery C. and Edward C. Jensen. 1996. Science-Based TV Spots: Educating the public about forestry. *Journal of Applied Communications*. 80:1, 5-19.
- Hungerford, Harold R., R. Ben Peyton, Richard J. Wilke. 1980. Goals for Curriculum Development in Environmental Education, *Journal of Environmental Education*. 11:3, 42-47.
- Jacobson, Susan K. 1991. Evaluation model for developing, implementing, and assessing conservation education programs: Examples from Belize and Costa Rica. *Environmental Management*. 15:2, 143-150.
- Jickling, B. 1992. Why I don't want my children to be educated for sustainable development, *Journal of Environmental Education*, 23(4): 5-8.
- Jickling, B. and H. Spork. 1998. Education for the environment: a critique, *Environmental Education Research* 4(3): 309-328.
- Keen, M., V. A. Brown, and R. Dyball. 2005. Social learning: a new approach to environmental management. *Social Learning in environmental management: Towards a sustainable future*. London: Earthscan, 3-21.

- Lane, Jennie, Richard Wilke, Randy Champeau, and Dan Sivek. 1995. Strengths and weaknesses of teacher environmental education preparation in Wisconsin. *Journal of Environmental Education*. 27:1, 36-45.
- McDuff, Mallory. 2002. Needs Assessment for Participatory Evaluation of Environmental Education Programs. *AEEC*. 1(1): 25-36.
- McKenzie-Mohr, D. 2000. Fostering sustainable behavior through community based social marketing. *American Psychologist* 55:5, 531-537.
- Munson, Bruce H. 1994. Ecological Misconceptions. *Journal of Environmental Education*. 25(4) 30-34.
- Parsons, Chris. 1993. Front-end Evaluation: How do you choose the right questions? In *Visitor Studies: Theory, Research and Practice* Volume 6. Jacksonville AL: Visitor Studies Association, pp 66-71.
- Shepardson, D. P., S. Choi, D. Niyogi, and U. Charusombat. 2011. Seventh graders' mental models of the greenhouse effect. *Environmental Education Research*. 17(1): 1-18.
- Environmental Education Research Special Issue on Resilience in Socio-Ecological Systems: 16(5-6), Oct-Dec 2010.
- Environmental Education Research Special Issue on Schooling and EE. 13(2), April 2007