

# America's Largest Classroom

What We Learn from Our  
National Parks

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# Identifying Outcomes for Environmental Education at National Parks

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## INTRODUCTION

The passage of the National Park Service Centennial Act (2016) reinforced that one of the core missions of the National Park Service (NPS) is to provide education to enhance public awareness, understanding, and appreciation of the resources of the park system through learner-centered, place-based materials, programs, and activities. In this chapter, we focus on environmental education (EE) for youth in national parks and nature centers, which includes programs focused on elements of the natural environment and humans' interactions with them. Recent reviews demonstrate that EE programs have the potential to produce a range of positive outcomes for participants, including increased knowledge, more positive attitudes and behavioral intentions toward the environment, enhanced self-confidence and social interactions, and improved academic motivation and performance, among others (Ardoin, Biedenweg, & O'Connor, 2015; Stern, Powell, & Hill, 2014). In considering the full potential of "America's largest classrooms," the possibilities for impacting youth appear nearly limitless.

Is there a consistent set of outcomes to which all EE programs for youth should aspire? At first blush, most experienced environmental educators would likely cringe at the question. Some programs, after all, are intended first and foremost to complement students' achievement of formal curriculum standards. Other programs may seek to develop an emotional connection between a national park and its local community

or to develop a sense of environmental stewardship in participants. Still others might be designed to enhance students' social interactions or to build their self-confidence. Moreover, researchers and practitioners alike stress the importance of learner autonomy to achieve their own goals (Fenichel & Schweingruber, 2010; National Research Council, 2009; National Science Foundation, 2008). How could one possibly try to usher all such programs toward a single set of intended outcomes for participants? And why would anyone want to?

Rather than considering the development of a single set of intended outcomes as an operation akin to shoehorning all programs into a one-size-fits-all magic slipper, we consider the effort one of pushing each program to reach its full potential. In our experience as researchers and EE program evaluators, we have seen the full spectrum. On one end we have seen drab lectures or worksheet exercises that might convey facts, but also drain any joy and motivation participants may have had about the subject matter. At the other, we have seen engaging programs that have brought participants the same set of facts accompanied with feelings of elation, awe, solemnity, commitment, curiosity, connection, and/or inspiration. However, if we can step away for a moment from the specific factual subject matter of any particular program, we can begin to see some common ground in what EE programs are actually capable of achieving.

This chapter is a description of our efforts to develop a set of outcomes that is relevant to any program that aspires to label itself as *high-quality environmental education*. We have undertaken this effort as part of a larger study, funded by the National Science Foundation Advancing Informal STEM Learning program and the Institute for Museum and Library Services, in which we are examining the relative influence of different pedagogical approaches to EE on outcomes for participants. This overarching research is intended to help the field to understand why some approaches might work better than others in different contexts. Our process to identify these crosscutting outcomes involved a wide range of experts and practitioners, including academics, program providers, evaluators, and leaders of the Association of Nature Center Administrators (ANCA), the North American Association for Environmental Education (NAAEE), the National Park Foundation (NPF), and the NPS.

## REVIEWING OUTCOMES FOR EE

Currently, the goals and outcomes of multiple organizations that provide EE programming reflect some consistency, but a concise and agreed

upon list does not currently exist. Where agreement does exist, consensus around how to define and measure shared ideas has yet to be established. We review the predominant outcomes associated with EE and the influential organizations and societal forces that are shaping outcomes for EE in national parks.

### *Environmental Literacy*

One of the primary goals of EE, whether explicit or implied, is to develop students' knowledge, skills, attitudes, and behaviors pertaining to the environment. Each of these should equip individuals to recognize, assess, and then address environmental issues facing their local communities and more broadly support a sustainable global future (Hollweg et al., 2011; Intergovernmental Conference on Environmental Education, 1977). This broad collection of knowledge, skills, attitudes, and behaviors is often collectively called *environmental literacy*. The concept of environmental literacy is largely based on the 1977 Tblisi Declaration, a global UNESCO and UNEP (United Nations Environment Programme) effort to define the goals of EE. According to the Tblisi Declaration, the outcomes of EE programs associated with environmental literacy are as follows:

**Awareness**-to help social groups and individuals acquire an awareness and sensitivity to the total environment and its allied problems

**Knowledge**-to help social groups and individuals gain a variety of experiences in, and acquire a basic understanding of, the environment and its associated problems

**Attitudes**-to help social groups and individuals acquire a set of values and feelings of concern for the environment and the motivation for actively participating in environmental improvement and protection

**Skills**-to help social groups and individuals acquire the skills for identifying and solving environmental problems

**Participation**-to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems

### *Twenty-First Century Skills*

Several prominent organizations, including the NPS, the Institute of Museum and Library Services (IMLS), and the Smithsonian Institute,

recognize the opportunity of informal settings such as national parks to develop “skills that are critical for addressing 21st century challenges,” (National Park System Advisory Board Education Committee [NPS-ABEC], 2014, p. 10) such as social justice, climate change, health care, and effective governance (Fenichel & Schweingruber, 2010; Hollweg et al., 2011; Institute for Learning Innovation, 2007; IMLS, 2009; NPS, 2014; National Parks Second Century Commission, 2009; National Research Council, 2009; National Science Foundation, 2008; Smithsonian Institution, 2010). These twenty-first century skills pertain to a hierarchy of associated knowledge, dispositions, skills, and behaviors related to environmental, science, cultural, health, historical, and civic literacy. For example, scientific literacy includes knowledge/understanding of scientific processes; attitudes toward the importance and validity of science; skills to assess the quality of research findings based on source and approach; and the ability to interpret and apply research findings to solve problems, inform policy, and drive economic development (e.g., IMLS, 2009). Inherently, parks’ nationally and globally significant cultural, environmental, and historical resources provide an opportunity for educational programs to support this dynamic skills development.

### *Positive Youth Development*

Based on developmental psychology, educational theory, and stages of moral development (see Dewey, 1899; Kohlberg, 1979; Krathwohl, Bloom, & Masia, 1956; Piaget, 1953) education has the potential to transform the future of today’s youth in positive ways. Consequently, today many youth EE programs focus on enhancing a range of positive youth development outcomes (e.g., Carr, 2004; Stern, Powell, & Ardoin, 2011) because these skills and attributes are thought necessary for fostering youth who will excel academically and later in life (e.g., Bowers et al., 2010; Lerner, 2008; Lerner et al., 2005; Seligman, Ernst, Gillham, Reivich, & Linkins, 2009). These positive youth development outcomes include developing social and emotional competence, self-efficacy, self-determination, grit, positive identity, prosocial behaviors and norms, and resiliency, among others (e.g., Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2004), and have been associated with many “best practices” in EE such as inquiry, experiential, and place-based approaches (NAAEE, 2012; Stern et al., 2014).

### *Educational Standards*

Since 2001, the US federal government has required publically supported schools to annually assess student achievement in grades three to eight. Consequently, most EE programs for youth in national parks provide experiences and curriculum that align with state and/or national education standards and support classroom learning through hands-on and direct experiences with nationally and globally significant cultural, environmental, and historical resources. These experiences are thought to assist students in improving academic performance.

Most commonly, the STEM (science, technology, engineering, and mathematics) standards most relevant for EE field trips for youth include *ecological processes*, the *interdependence of organisms*, the *interconnectivity of social and ecological systems*, how *humans may impact the environment*, and how *changes in the environment influence ecosystem function and human systems* (e.g., Next Generation Science Standards Lead States, 2013). However, other standards are often addressed as well, including math, social studies, or other science standards. The main point here is that EE, regardless of student grade level, can assist students in the achievement of educational standards.

### *National Park Service Education*

Recognizing the important role that experiences in parks can play, the NPS's *Service-wide Interdisciplinary Strategic Plan for Interpretation, Education and Volunteers* (2014) and the *Vision Paper: 21st Century National Park Service Interpretive Skills* (NPS-ABEC, 2014) prioritize enhancing environmental stewardship (literacy), twenty-first-century skills, and positive youth development, and meeting educational standards in all educational programs for youth. These NPS goals appear particularly relevant for identifying crosscutting outcomes for EE.

## **OUR APPROACH AND FINDINGS**

In light of these existing understandings, we chose to build on this list to create a comprehensive set of target outcomes relevant to a wide range of EE programs. To identify the crosscutting outcomes that EE programming *should* influence, we began by reviewing the scientific literature, including two systematic literature reviews (Ardoin et al., 2015;

Stern et al., 2014) and an unpublished Dephi study that also sought to identify crosscutting outcomes for EE (Clark, Heimlich, Ardoin, & Braus, 2015). Using this list as a starting point, we implemented a systematic approach to directly involve EE experts and practitioners in further identifying and refining appropriate crosscutting outcomes for EE programs for youth.

First, we facilitated a workshop with the NPS-ABEC, ANCA, and NAAEE in late November 2016 in Yosemite National Park. In attendance were leading academics, practitioners, evaluators, and leaders of ANCA, NAAEE, and the NPS. Through a collaborative process following procedures outlined by Fenichel and Schweingruber (2010) and Powell, Stern, and Ardoin (2006), incorporating both the existing literature and input from these subject matter experts (SMEs), we reached preliminary consensus on crosscutting outcomes for youth EE programs provided by the NPS and nature centers.

Following this consensus, we further engaged attendees of the initial workshop, as well as an NAAEE Academic Advisory Group of twelve leading academics and leadership from the National Park Foundation Learning Alliance by iteratively presenting, then receiving feedback, and subsequently refining the list and definitions of these crosscutting EE outcomes. Refining of the list and definitions was completed once general consensus was reached.

Next, we introduce the nine aspirational crosscutting outcomes that resulted from our efforts, with broad definitions for each.

### *Enjoyment/Satisfaction*

Enjoyment, or a general feeling of positive emotions toward an experience, is closely associated with satisfaction, which is perhaps the most basic measure of the success of an EE program. Satisfaction may include the meeting or exceeding of expectations, or a generally favorable assessment of the quality of a program or its instructor(s). We caution that satisfaction should not necessarily be equated with “happiness.” An effective program might actually provoke less comfortable emotions that cause deeper learning or reflection (Stern et al., 2013).

### *Interest/Motivation to Learn*

Successful EE programs for youth should inspire an interest in learning. This can be in a general sense, through enhanced curiosity, or in a more



specific sense, such as increased interest in learning about science, the environment, or civic engagement. In its strongest sense, an interest in learning can be reflected in whether a participant begins to define themselves as a lifelong learner. Self-identification or self-labeling tends to be more reflective of future behaviors than simple expressions of interest alone (Rise, Sheeran, & Hukkelberg, 2010).

### *Learning*

Learning can be thought of and assessed in multiple ways. While students can be quizzed on specific facts to test their declarative knowledge, many believe that procedural knowledge (knowledge about how things work, how to do things, or how to learn new things) and contextual knowledge (understanding why and under what conditions) are more important (Anderson, 1983). While facts will vary from program to program, we argue that one element should be consistent across any high-quality EE program—that participants should develop an awareness of the interconnectedness and interdependence between human and environmental systems. Programs that fail to provide this knowledge might better be described as natural history or some more narrow disciplinary science than as EE.

Additionally, programs may aspire to develop higher levels of understanding, or contextual knowledge, regarding how and why the relationship between human and ecological systems influence a range of things, including human health, particular wildlife populations, or the climate. Regarding procedural knowledge, programs might target various specific forms—for example, use of a traditional scientific method, some other form of inquiry, or civic engagement skills to influence an environmental issue. Our efforts suggest that participants across all programs, however, should feel empowered to investigate and act upon environmental issues they care about, whatever those issues (or specific actions) might be.

### *Connection*

While learning may be the ultimate outcome for many educators, research suggests that personal, emotional, and affective relationships with place and people are more lasting and powerful in shaping an individual's future attitudes and behaviors (e.g., Chawla & Cushing, 2007; Kals, Schumacher, & Montada, 1999). Quality EE seeks to provide both cognitive and affective connections by providing direct experiences.

These experiences in turn foster appreciation, develop personal relationships, and create meaning (Ardoin, 2006). For many youth, these national park experiences may be the first opportunity to develop a long-lasting connection with park resources or a healthy, natural environment in general. At the most positive end of this spectrum, EE programs have the opportunity to inspire awe in students, leaving them forever changed.

### *Self-Efficacy*

Self-efficacy refers to an individual's beliefs about their ability to learn, organize, and perform specific behaviors to accomplish tasks and goals (Bandura, 1997). In high-quality EE, self-efficacy refers to an individual's belief of personal ability to use critical thinking to solve problems, make a difference in their community, address environmental issues, and influence their environment. In general, positive self-efficacy beliefs are associated with higher degrees of motivation, effort, and persistence, as well as academic performance (Bandura, 1997; Schunk & Pajeres, 2005, 2009). High-quality EE for youth uses experiential and place-based techniques to enhance self-efficacy beliefs (Chawla & Cushing, 2007; Meinhold & Malkus, 2005).

### *Twenty-First-Century Skills*

The partnership for twenty-first-century skills is a relatively new educational framework that seeks to develop content knowledge, specific skills, expertise, and literacies designed to support students' mastery of the four Cs: critical thinking and problem solving, communication, collaboration, and creativity and innovation (IMLS, 2009; Partnership for 21st Century Learning, 2015). EE programs that focus on these skills, especially those that do so in multicultural settings, may enhance students' abilities to address environmental, civic, educational, and cultural challenges today and in the future (e.g., Fadel & Trilling, 2012; Fraser, Gupta, Flinner, Rank, & Ardalan, 2013; Kay, 2010).

### *Environmental Attitudes*

Environmental attitudes, which include an individual's sensitivity, concern, and dispositions toward the environment, are considered to be a key component of environmental literacy (Hollweg et al., 2011; National Environmental Education Foundation, 2015). EE programs

focus on fostering positive attitudes toward the environment because, ultimately, individuals' attitudes toward nature influence the way they choose to behave toward the environment (Ardoin, Heimlich, Braus, & Merrick, 2013; Hollweg et al., 2011; Littledyke, 2008; Stern, 2000).

### *Action Orientation*

High-quality EE develops knowledge, attitudes, and skills that enable an individual to make informed decisions regarding future behavioral choices. In particular, EE focuses on developing participants' *intentions* to solve environmental and social problems in their communities or beyond. It is worth noting that while intentions are easier to measure than actual behaviors, they are not always directly correlated with action (Armitage & Conner, 2001).

### *Action*

Because intentions do not always predict future behavior, EE also seeks to provide participants with opportunities to actually employ relevant behaviors. Targeted behaviors may include (a) addressing environmental issues, (b) civic/community involvement, (c) volunteering, (d) recreational choices, and (e) educational/life choices. Broadly, we might categorize these actions as various types of stewardship. Positive environmental stewardship behaviors include recycling, picking up trash left by others, participating in environmental restoration work, volunteering in a range of activities to improve communities, choosing positive recreational activities, and making positive life choices back home. Given the broad diversity of these actions, identifying a single crosscutting behavior is unrealistic for all EE programs. However, our efforts do suggest that participants should feel inspired to *perform* new positive actions geared toward improving their health, their achievement, their communities, or their environments.

## **CONCLUSION**

In this chapter, we raised a provocative question: is there a consistent set of outcomes to which all EE programs for youth should aspire? After reviewing the scientific literature and involving leaders in the field in exploring this question, we think the answer is yes. The crosscutting outcomes identified in this chapter reflect both the roots of our field and future

directions. (For more information, see Powell, Stern, Frensley, & Moore, 2019.) If examined holistically, these outcomes are truly achievable by *all* EE programs, irrespective of context and location. Will this require reexamining how EE is done in particular locations? Certainly. Program providers may currently be focused on influencing narrower pieces of knowledge or specific attitudes or behaviors, yet in light of these broader outcomes, program providers should consider how their programs may achieve more. If the EE conducted in “America’s largest classrooms” is to reach its full potential, positively and dramatically influencing youth, then critically examining the field’s assumptions about how to deliver programming is essential and healthy. With so many pressing issues facing humanity, it is essential that EE continually reassess its goals to meet the educational, societal, and service needs of the twenty-first century.

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### References

- Anderson, J.R. (1983). *The architecture of cognition*. Cambridge, MA: Harvard University Press.
- Ardoin, N.M. (2006). Toward an interdisciplinary understanding of place: Lessons for environmental education. *Canadian Journal of Environmental Education (CJEE)*, 11(1), 112–126.
- Ardoin, N.M., Biedenweg, K., & O’Connor, K. (2015). Evaluation in residential environmental education: An applied literature review of intermediary outcomes. *Applied Environmental Education & Communication*, 14(1), 43–56.
- Ardoin, N., Heimlich, J., Braus, J., & Merrick, C. (2013). *Influencing conservation action: What research says about environmental literacy, behavior, and conservation results*. Washington, DC: National Audubon Society.
- Armitage, C.J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology*, 40(4), 471–499.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W.H. Freeman.
- Bowers, E.P., Li, Y., Kiely, M.K., Brittan, A., Lerner, J.V., & Lerner, R.M. (2010). The five Cs model of positive youth development: A longitudinal

- analysis of confirmatory factor structure and measurement invariance. *Journal of Youth and Adolescence*, 39(7), 720–735.
- Carr, D. (2004). Moral values and the arts in environmental education: Towards an ethics of aesthetic appreciation. *Journal of Philosophy of Education*, 38(2), 221–239.
- Catalano, R. F., Berglund, M. L., Ryan, J. A., Lonczak, H. S., & Hawkins, J. D. (2004). Positive youth development in the United States: Research findings on evaluations of positive youth development programs. *The Annals of the American Academy of Political and Social Science*, 591(1), 98–124.
- Chawla, L., & Cushing, D. F. (2007). Education for strategic environmental behavior. *Environmental Education Research*, 13(4), 437–452.
- Clark, C., Heimlich, J., Ardoin, N. M., & Braus, J. (2015, October). *Describing the landscape of the field of environmental education*. Paper presented at the North American Association for Environmental Education Annual Conference, San Diego, CA.
- Dewey, J. (1899). *The school and society*. Chicago, IL: University of Chicago Press.
- Fadel, C., & Trilling, B. (2012). Twenty-first century skills and competencies. In N. M. Seel (Ed.), *Encyclopedia of the sciences of learning* (pp. 3353–3356). New York, NY: Springer.
- Fenichel, M., & Schweingruber, H. A. (2010). *Surrounded by science: Learning science in informal environments*. Washington, DC: National Academies Press.
- Fraser, J., Gupta, R., Flinner, K., Rank, S., & Ardalan, N. (2013). *Engaging young people in 21st century community challenges: Linking environmental education with science, technology, engineering and mathematics* (New Knowledge Report No. PRCO.106110.06). New York, NY: New Knowledge Organization.
- Hollweg, K. S., Taylor, J. R., Bybee, R. W., Marcinkowski, T. J., McBeth, W. C., & Zoido, P. (2011). *Developing a framework for assessing environmental literacy*. Washington, DC: North American Association for Environmental Education.
- Institute for Learning Innovation. (2007). Evaluation of learning in informal learning environments. Paper prepared for the Committee on Science Education for Learning Science in Informal Environments. Retrieved from [https://www.informalscience.org/sites/default/files/Institute\\_for\\_Learning\\_Innovation\\_Commissioned\\_Paper.pdf](https://www.informalscience.org/sites/default/files/Institute_for_Learning_Innovation_Commissioned_Paper.pdf)
- Institute of Museum and Library Services. (2009). *Museums, libraries, and 21st century skills*. Washington, DC: Library of Congress. doi:10.1037/e483242006-005
- Kals, E., Schumacher, D., & Montada, L. (1999). Emotional affinity toward nature as a motivational basis to protect nature. *Environment and Behavior*, 31(2), 178–202.
- Kay, K. (2010). 21st century skills: Why they matter, what they are, and how we get there. In J. Bellanca & R. Brandt (Eds.), *21st century skills: Rethinking how students learn* (pp. xiii–xxxi). Bloomington, IN: Solution Tree Press.
- Kohlberg, L. (1979). *The meaning and measurement of moral development*. Worcester, MA: Clark University Press.

- Krathwohl, D. R., Bloom, B. S., & Masia, B. B. (1956). *Taxonomy of educational objectives: The classification of educational goals-Handbook II: Affective domain*. New York, NY: David McKay.
- Lerner, R. M. (2008). *The good teen: Rescuing adolescence from the myths of the storm and stress years*. New York, NY: Three Rivers Press.
- Lerner, R. M., Lerner, J. V., Almerigi, J. B., Theokas, C., Phelps, E., Gestsdottir, S., . . . Smith, L. M. (2005). Positive youth development, participation in community youth development programs, and community contributions of fifth-grade adolescents: Findings from the first wave of the 4-H study of positive youth development. *Journal of Early Adolescence*, 25(1), 17-71.
- Littledyke, M. (2008). Science education for environmental awareness: Approaches to integrating cognitive and affective domains. *Environmental Education Research*, 14(1), 1-17.
- Meinhold, J. L., & Malkus, A. J. (2005). Adolescent environmental behaviors: Can knowledge, attitudes, and self-efficacy make a difference? *Environment and Behavior*, 37(4), 511-532.
- National Environmental Education Foundation. (2015). *Environmental literacy in the United States: An agenda for leadership in the 21st century*. Washington, DC: Author.
- National Park Service. (2014). *Achieving relevance in our second century*. Washington, DC: Author.
- National Park Service Centennial Act, HR4680 (2016).
- National Park System Advisory Board Education Committee. (2014). *Vision paper: 21st century National Park Service interpretive skills*. Washington, DC: National Park Service.
- National Parks Second Century Commission. (2009). *Education and learning committee report*. Washington, DC: National Parks Conservation Association.
- National Research Council. (2009). *Learning science in informal environments: People, places, and pursuits*. Washington, DC: National Academies Press.
- National Science Foundation. (2008). Framework for evaluating impacts of informal science education projects. Retrieved from [http://www.informalscience.org/documents/Eval\\_Framework.pdf](http://www.informalscience.org/documents/Eval_Framework.pdf)
- Next Generation Science Standards Lead States. (2013). *Next generation science standards: For states, by states*. Washington, DC: National Academies Press.
- North American Association for Environmental Education. (2012). *Guidelines for excellence*. Washington, DC: Author.
- Partnership for 21st Century Learning. (2015). Framework for 21st century learning. Retrieved from <http://www.p21.org/about-us/p21-framework>
- Piaget, J. (1953). *The origin of intelligence in the child*. Routledge & Kegan Paul.
- Powell, R. B., Stern, M. J., & Ardoin, N. (2006). A sustainable evaluation framework and its application. *Applied Environmental Education and Communication*, 5, 231-241.
- Powell, R. B., Stern, M. J., Frensley, B. T., & Moore, D. (2019) Identifying and developing crosscutting environmental education outcomes for adolescents in the 21st century (EE21). *Environmental Education Research*. doi:10.1080/13504622.2019.1607259

- Rise, J., Sheeran, P., & Hukkelberg, S. (2010). The role of self-identity in the theory of planned behavior: A meta-analysis. *Journal of Applied Psychology, 40*(5), 1085-1105.
- Schunk, D.H., & Pajeres, F. (2005). Competence perceptions and academic functioning. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 85-104). New York, NY: Guilford.
- . (2009). Self-efficacy theory. In K.R. Wenzel & A. Wigfield (Eds.), *Handbook of motivation at school* (pp. 35-53). New York, NY: Routledge/Taylor Francis.
- Seligman, M.E., Ernst, R.M., Gillham, J., Reivich, K., & Linkins, M. (2009). Positive education: Positive psychology and classroom interventions. *Oxford Review of Education, 35*(3), 293-311.
- Smithsonian Institution. (2010). *Strategic plan: Inspiring generations through knowledge and discovery: Fiscal years 2010-2015*. Washington, DC: Author.
- Stern, P.C. (2000). Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues, 56*(3), 407-424.
- Stern, M.J., Powell, R. B., & Ardoin, N.M. (2011). Evaluating a constructivist and culturally responsive approach to environmental education for diverse audiences. *Journal of Environmental Education, 42*(2), 109-122.
- Stern, M.J., Powell, R.B., & Hill, D. (2014). Environmental education program evaluation in the new millennium: What do we measure and what have we learned? *Environmental Education Research, 20*(5), 581-611.
- Stern, M.J., Powell, R.B., McLean, K.D., Martin, E., Thomsen, J.M., & Mutchler, B.A. (2013). The difference between good enough and great: Bringing interpretive best practices to life. *Journal of Interpretation Research, 18*(2), 79-100.
- Tbilisi Declaration. (1977, October). Intergovernmental Conference on Environmental Education, Tbilisi, Georgia.