Children, Youth and Environments 31(3), 2021

Forest Fridays: Leveraging Land Manager-Educator Partnerships to Overcome Barriers to Outdoor Environmental Education

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Citation: Burnett, J. & Edgeley, C. (2021). Forest Fridays: Leveraging land manager-educator partnerships to overcome barriers to outdoor environmental education. *Children, Youth and Environments, 31*(3), 148-157.
http://www.jstor.org/action/showPublication?journalCode=chilyoutenvi

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Abstract

Land manager-educator partnerships provide opportunities to overcome barriers associated with outdoor and environmental education within the United States' K-12 education system. This case study reviews the design and implementation of a novel outdoor environmental education program for kindergartners called Forest Fridays that involved half-day excursions to a local forest. Forest Fridays emerged from a unique partnership between three kindergarten teachers and a forest manager in Flagstaff, Arizona that removed resource and planning barriers in order to facilitate program establishment and operation. Immersive observation and informal program review with the program coordinators informed recommendations that may support the establishment of similar partnerships and programs elsewhere.

Keywords: outdoor education, environmental education, program development, manager-educator partnerships, K-12 education

Introduction

Outdoor education offers non-traditional avenues for introducing children to new environmental concepts and experiences. Learning outside is linked to a host of benefits associated with childhood health and development, social competencies, interpersonal skills, and social relations among children (Becker et al., 2017; Malone & Waite, 2016). Environmental literacy— "the elementary knowledge, skills, and motives to cope with environmental needs and contribute to sustainable development" (UNESCO, 1989, p. 1)— and positive childhood experiences in nature can foster an increased connection to nature later in life, documented by pro-environmental and conservation behaviors as adults (Cheng & Monroe, 2012). Despite these positive outcomes, outdoor environmental education remains an underutilized tool within public and compulsory education (MacQuarrie, 2018). Developing novel approaches to support environmental education in outdoor spaces is now increasingly critical to motivate life-long positive environmental attitudes and behaviors among students.

Educators face multiple barriers to implementing outdoor and environmental programs within traditional schooling, including lack of time, limited flexibility and support from administrators and school boards, and pressures from curriculum, education standards and testing to focus on scores and other objectives (Ernst, 2014; Waite, 2009). These challenges are compounded by a documented absence of resources to support the design and implementation of new environmental education programs, as well as a distinct lack of training or professional development opportunities (Marchant et al., 2019). Administrative perceptions of outdoor education as an additional or peripheral activity as opposed to a constructive education tool have allowed such barriers to become widespread (MacQuarrie, 2018; Waite, 2009). Many of these barriers highlight the incompatibility of outdoor education in the context of current education standards and teaching assessment metrics, which can disincentivize educators from experimenting with new teaching pedagogies.

Learning in an outdoor space produces opportunities for experiential knowledge development and problem solving in novel environments and situations, away from the pressures and expectations of the school environment and traditional academic practices, which are based on transmissive and didactic pedagogies (Harris, 2018). Outdoor education also can lead to improved conceptual understanding and test scores across multiple subjects when compared to traditional schooling (James & Williams, 2017). Learning outside also helps motivate apathetic students and aids students who struggle with traditional classroom learning (James & Williams, 2017). However, the logistical complexity of outdoor education—such as finding suitable locations, transportation need and cost, inclement weather, overall program costs and resources, and safety or liability concerns—make this approach to learning exceptionally challenging, particularly for underfunded or urban schools (Ernst, 2014; Marchant et al., 2019). Partnerships with organizations outside the K-12 education system offer one way to alleviate the resource shortages that educators face when exploring opportunities for, and overcoming barriers to, incorporating outdoor environmental education into teaching.

Documenting and advancing understandings of how new outdoor environmental education programs are designed and implemented through emergent partnerships can provide structure and guidance for educators considering this approach. Here, we outline the development and trial of a partnership between kindergarten teachers at Kinsey Elementary School and Northern Arizona University's (NAU) Centennial Forest called "Forest Fridays," based in Flagstaff, Arizona. The Centennial Forest is comprised of 47,500 acres of Arizona State Trust land that is managed by the NAU School of Forestry and utilized for education and research purposes. It is dominated by ponderosa pine forest on mildly varied terrain at an elevation of approximately 7,000 feet, with an established field camp that served as a home base for Forest Fridays activities. Forest Fridays is an exemplary case of how a partnership between K-12 educators and land managers can support the development of novel outdoor education programs from the ground up. Immersive observation of Forest Fridays development and implementation coupled with informal program review with program coordinators provide insights that can contribute to a framework for other educators and land managers to replicate, modify, and learn from when developing their own programs.

Figure 1. Forest Friday students being led on a nature hike

Forest Fridays as an Outdoor Education Tool

Forest Fridays represents a departure from traditional teaching in the U.S. education system. Below, we describe the process of establishing the program and designing its structure, so that other educators and land managers can replicate or modify this effort to their own context.

Program Establishment

Efforts to establish the structure of Forest Fridays drew heavily on existing programs and efforts tied to outdoor and environmental education. The forest kindergarten movement began in the mid-20th century in northern Europe and is now popular internationally (Hughes et al., 2021; Knight, 2013). This concept has since been transferred to North American contexts, most notably through the success of similar outdoor education programs in the state of Vermont (Walker, 2016) that influenced the development of Flagstaff's Forest Fridays. The Forest Fridays program emerged organically between the NAU forest manager and a local kindergarten teacher who worked at Kinsey Elementary. This relationship, and the forest manager's existing experience with forest-based environmental education, were central to the establishment of Forest Fridays. Starting the Forest Fridays program was a risk for both Kinsey Elementary and the teachers involved; the program required financial investment due to transportation needs and necessitated additional parent chaperones to ensure student safety. The program also took away classroom and planning time from the teachers due to travel and the less-structured format of activities. The pre-existing relationship between the land manager and one of the teachers afforded the trust and responsiveness that was critical to the approval and success of Forest Fridays.

Project Learning Tree (PLT), a well-recognized nationwide environmental education program, offers core competencies that teachers need in order to establish and effectively engage with programs like Forest Fridays. PLT began in 1976 as a collaboration between the American Forest Institute and the Western Regional Environmental Education Council (PLT, n.d.). The NAU forest manager was the PLT coordinator for the state of Arizona and offered annual trainings, which became the core source of staff education among Kinsey Elementary teachers at the outset of planning for Forest Fridays. The PLT training introduced teachers to philosophies associated with environmental education and invited hands-on experience executing some of the activities. Critically, this training provided resources and examples to better facilitate environmental education programs that were subsequently translated to Forest Fridays.

Establishing a local, accessible area for Forest Fridays was key to both program design and building a sense of familiarity and continuity for students. NAU's Centennial Forest offers an ideal setting for K-12 outdoor education; the field camp has basic infrastructure, including pit toilets and running water, as well as a ramada that provided shelter and a centralized meeting space for students. Forest Fridays used the established field camp facilities, like the ramada and walking paths, as much as possible. Other activities were dispersed and rotated to different areas of the surrounding forest to minimize the potential for negative environmental impacts. The Centennial Forest field camp is accessed via a short 20-minute drive

from Kinsey Elementary which minimized costs and time lost to travel. Forest Friday coordinators (i.e., the three kindergarten teachers, the NAU forest manager, and the lead author, who is a doctoral student at NAU) tested the structure and resources for this program through two pilot excursions undertaken in the spring of 2019 to ensure that the location and programming were appropriate. These successful pilots finalized the program's set-up, becoming the permanent framework for excursions during the 2020 school year.

Program Structure

Forest kindergartens are primarily child-led, play-based, and held exclusively or predominantly outdoors. While Forest Fridays is based on the principles of forest kindergartens, the structure of the Forest Fridays program was developed to meet the local teachers' needs and their curriculum standards. The coordinators developed the program structure to find a balance between incorporating forest kindergarten principles and ensuring the program met the more structured requirements of the U.S. public school system. For example, while some activities were dedicated to unstructured playtime, others were organized lessons that ensured science curriculum topics were fully addressed.

Forest Fridays were somewhat constrained by the school schedule, which included early dismissal on Fridays, meaning that participating children must return to school by 12:30pm. A total timeframe of three hours was well suited for the program given this context and allowed for focused activities without leading to exhaustion or disinterest among the students, as kindergarten students in the U.S. are generally between 5 and 6 years old. There was an average of two Forest Fridays excursions a month—every other Friday—to allow teachers to balance Forest Fridays with other demands on their classroom time. On alternating Fridays when teaching was school-based, teaching still followed the Forest Fridays program structure but would focus on science and environmental education in and around the school grounds. Additionally, NAU's Centennial Forest is accessed via unpaved roads, meaning that buses are unable to make the trip during the snowy winter months. All Forest Fridays in December, January, and February were held on site at Kinsey Elementary to account for these conditions. Local guests, including an entomologist, a firefighter, and a wildlife biologist, visited the school during these months to replicate the diversity of activities and information that students had benefitted from in the forest.

Establishing a consistent structure for implementation of Forest Fridays was critical for creating a welcoming learning environment. In the first semester of the inaugural year, the coordinators mostly focused on the students being comfortable in the forest by developing familiarity with both the location and the coordinators. The scope of the program was broadened through partnerships to offer more varied learning experiences for the children in the second semester. The forest manager leveraged their existing connections to university faculty, natural resource managers, and other scientists to recruit local guests during the winter months and this allowed for a richer diversity of experience as the children learned from experts across an array of topics.

The program designers decided that the daily set-up of the Forest Fridays excursions should be simple yet flexible to allow for adaption to changes or unplanned disruptions. A key tenet of place-based education is to incorporate local, natural phenomena as a "foundation for curriculum development" (Knapp, 2005). The flexibility to incorporate environmental changes and context, such as precipitation or the appearance of wildlife, allowed Forest Fridays educators to capitalize on opportunities to provide impromptu lessons that connected classroom-based education to students' direct experiences and observations in the forest.

A typical timeline for a Forest Fridays excursion was as follows:

- 9:30am: Students and teachers arrive at the Centennial Forest via bus. Everyone meets under the ramada to review the morning's activities
- 9:45-10:15am: First activity (e.g., nature hike/scavenger hunt)
- 10:15-10:45am: Second activity (e.g., story with activity)
- 10:45-11:15am: Third activity (e.g., unstructured time in nature-play area)
- 11:15-11:45am: Lunch
- 12:00pm: Students and teachers load back onto buses to return to school

Three kindergarten classes, each with 15 to 20 students, attended each Forest Friday simultaneously, so producing three rotating activities allowed each class to participate fully. Although Forest Fridays followed a general schedule, the timing was fluid to support emergent learning opportunities. The three activities followed a consistent framework: one station of unstructured time at the natural play area, one that was active but structured around a core lesson or activity, and one that was less active, such as a story, craft, or other stationary activity. This allowed for opportunities to engage in different types of learning and play during each excursion. After activities concluded, all three classes ate lunch together under the ramada. This unstructured time invited students to reflect on what they had learned and participated in that day, occasionally leading to exciting and spontaneous learning opportunities.

Integration with Curriculum

The teachers placed a high priority on ensuring that Forest Fridays developed into an outdoor, environmental education effort that could become a long-term, permanent component of the Kinsey kindergarten experience. In order to achieve this, it was critical that the topics, activities, and practices used at Forest Fridays integrated well with the established curriculum and standards that the teachers and school must follow. Specifically, integrating topics such as *five senses*, *animals*, *weather*, and *living versus non-living* helped ensure that what was being learned in the forest could be built upon with classroom-based lessons. Kinsey teachers provided the science and social studies standards that are set by the school district to frame this strategic curriculum integration. Each of these requirements could also be linked to the varying topics covered in the forest, and the teachers created a document to show where these Forest Friday topics aligned with their standards. Additionally, non-academic considerations such as gross motor skills and social and emotional development were incorporated into program design to ensure Forest Fridays contributed to holistic student learning and development. The teachers

wanted to ensure that Forest Fridays could capitalize on opportunities to promote non-academic growth because the forest provided many novel situations and environments that could not be found in the classroom or playground.

Findings and Recommendations

Fostering a partnership between educators and the forest manager was integral to the structure and success of this program. Proactive efforts to anticipate student needs in the planning process, such as a consistent location, ensured a productive learning environment that coordinators unanimously agreed fostered student success. Coordinators felt that the program's inaugural implementation was highly successful, and identified key successes and learning opportunities from which others can benefit to inform their own outdoor education partnerships:

- **Leverage partnerships to access new resources and expertise:** Assess the resources, expertise, and skills of staff involved to best leverage differing abilities. Forest Fridays could not have been implemented without a trusting educator-land manager partnership. Working with NAU's forest manager and lead author, who were both program coordinators and involved in the design and implementation of Forest Fridays, introduced access to the excursion location, use of existing outdoor education materials and the PLT training, scientific expertise on the local environment, and increased capacity to seek extramural funding. Identifying a local land manager who has the capacity to support a program like Forest Fridays allows for more comprehensive and successful outdoor education.

- **Develop a robust framework that fosters consistency and flexibility:** Once the framework of three rotating activities was established, coordinators could easily switch topics and activities without creating additional work. The framework also allowed teachers to link activities and lessons from the forest with those they provide in the classroom to build an iterative learning process. An established framework helped promote more efficient use of planning time and provided structure and consistency to help excursions run smoothly. Furthermore, using one consistent outdoor location helps build familiarity and comfort for both the teachers and students. That structure can also provide smoother transitions if new coordinators become involved. However, some flexibility within excursions is needed to help manage disruptions and capitalize on environmental opportunities when they occur. Adaptability within the framework allowed for incremental improvements to be made as the program progressed.

- **Build in time for immediate reflection among program coordinators:** Reflecting briefly after each excursion, particularly in the early days of the program, helped Forest Friday coordinators rapidly identify pivotal moments and areas for improvement to support reflexive adaptation of the Forest Fridays format. Moving forward, the coordinators plan to use the lunch time to build in formal opportunities for reflection to potentially hone the program's format and content to facilitate improved outdoor education experiences.

- **Prioritize effective communication:** Finding ways to improve virtual communication and clearly address everyone's roles, responsibilities, and expectations is crucial when coordinators are both educators and land managers. It became increasingly difficult to set aside time for coordinators to meet, discuss, and plan together as they became busier with other professional demands and responsibilities. As a result, formal face-to-face communication through regular planning meetings gave way to emails and impromptu conversations. Being able to dedicate time each month to in-person meetings can provide structure to the planning process and an opportunity for further discussion.

- **Find a balance between the new program and existing efforts:** Coordinators felt that two excursions per month into the forest was an appropriate balance between Forest Fridays and other demands on classroom time for Kinsey students. The alternating weekly format allowed time for planning the activities for each forthcoming trip to support smoother integration of classroom and Forest Friday topics. However, this structure is not required for other programs; discussions with prospective coordinators at the onset of program design is essential to find the right balance for each context.

- **Improve integration with curricular demands:** The topics and activities covered in Forest Fridays were largely based on the school district's science and social studies standards. However, coordinators expressed a desire to expand into other subjects in the future. The teachers noted that much of the pressure of assessment and student progress lies in mathematics and reading. Establishing clear, common threads between classroom learning and Forest Fridays can foster continuity while reducing the workload of educators and removes perceptions of outdoor education as a stand-alone or peripheral program (MacQuarrie, 2018; Waite, 2009).

Conclusion

Forest Fridays demonstrates how the capacity and cohesion of outdoor environmental education programs can be rapidly expanded by educator-land manager partnerships. This case study provides real-world contextualization for institutions, organizations, and agencies interested in developing similar programs. Most existing research around these programs is conducted from the viewpoint of education and overlooks the role that natural resource management agencies can provide. Natural resource managers are uniquely positioned to provide resources and opportunities to educators to support environmental education programs. Along with expertise, land managers can provide access to natural areas that may not normally be available; this is important as not all schools are situated near outdoor environments like those around Flagstaff. Leveraging the resources and knowledge land managers can offer presents an underutilized pathway to overcoming many of the barriers educators face in implementing and integrating outdoor education into K-12 curricula. Clarity regarding how environmental education can integrate with existing curricula and compulsory education standards will enable outdoor learning to play a greater role in the U.S. education system.

Land managers and educators with an interest or passion for environmental education should proactively seek opportunities to initiate partnerships for outdoor education programs. Initial partnerships need not be large, but it is critical that those interested take advantage when an opportunity presents itself. The first year of the Kinsey Forest Fridays program demonstrated that opportunistic collaboration and consistent communication are key to fostering a productive working relationship using the recommendations provided above. However, it is important to acknowledge that land managers often have limited resources and time to contribute to these partnerships, which may not necessarily align with their position responsibilities. Increased funding to support local educator-agency partnerships can expand collaborative opportunities to benefit children and provide more equitable opportunities for outdoor education. Such partnerships also provide an excellent opportunity to strengthen public-land manager relationships by interacting with new groups of people and diversifying how agencies integrate with, and support, their local communities. Such investments can help children from diverse backgrounds experience the outdoors, help educate the next generation of environmental stewards by nurturing a public that is more knowledgeable about local ecosystems, and build life-long connections to nature through positive land ethics.

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