

Teaching Sustainability Through Interpretation: Ways to Engage Students and the Community

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Designing Interpretation for the Community

John Dewey's "Reflex Arc" paper argued that "human experience is not a disjointed sequence of fits and starts, but a developing circuit of activities" ("John Dewey," 2018). Therefore, learning should be a cumulative and progressive process in which the student develops, fine-tunes, and implements their newly acquired skills and knowledge throughout the set periods of time. Dewey also argued that students are not passive recipients of knowledge, but rather agents that drive the learning process and apply the new concepts and skills in the larger context of their individual environmental field ("John Dewey," 2018). Dewey's education theory led to the what is now more widely known as experiential education. Experiential education is the application of theory is the application of theory and academic content to real-world experiences. Experiential education is becoming widely used in outdoor education because it requires the students to not only engage in the experiences, but also requires them to reflect on their learning and how they can apply their skills and knowledge learned to areas beyond the classroom (McLeod, 2017).

Because Interpretation is primarily based on this idea of experiential learning, it is important that learning about and developing interpretation in the classroom is done in the same way. Following the principles outlined per the work of John Dewey, our nature interpretation class followed a progressive process to teach the historical development of the field, principles of exhibit design, interpretative program designs and techniques, common field techniques, and current trends used by outdoor leaders. In conjunction with learning the academic content, we as a class were able to apply what we learned through a series of project. With each of the projects, it was necessary to complete the following steps: (Youngentob & Hostetler, N.D.)

1. What ideas do you have for interpretation?
2. What are your goals and intended outcomes for the interpretative program?
3. Identify and assess your audience (age, education, cultural background, socioeconomic status, etc.).
4. Design your interpretation
5. Monitor results

Teaching LNT to Kindergarteners	Monarch Butterfly Project for Ogden Nature Center	Beaver Project for East Canyon State Park
This project required us to learn about how young children learn and how to engage them in the learning. We then simplified each of the Leave No Trace (LNT) principles into terms that they could understand, and developed fun activities, games, and even songs that taught them the principles of LNT in a way that was exciting and memorable.	Because this was a larger project with a larger audience, we began by visiting the Ogden Nature Center where we were given a tour and the opportunity to speak with the woman in charge of interpretation at the center. For this project, our target audience was children aged 2-12 and their parents. We designed this project to have three components: interpretive signage about the lifecycle, migration, and habitat of monarch butterflies; a milkweed seed planting activity, and a take-home activity book. Each component of the project was developed with each age segment in mind and was designed to be a progressive program with take-home elements.	After visiting East Canyon and meeting with the park manager, we developed an interpretive program designed to challenge visitor attitudes towards beavers and bring awareness to the value of the keystone species. For our project we designed a series of 'potty press' signs that addressed topics like: Ecosystem Engineers, Become a Beaver Believer, Beaver Profile, Beavers as a Keystone Species, Water Quality, and many others. We also designed aluminum interpretive signs with QR codes that could be spread out throughout the park, that way we could reach a broader audience and package more resources into a smaller source.

Beavers

(*Castor canadensis*)



The beaver is the largest rodent in North America. While they may waddle on land, they are extremely graceful in water using their large, webbed rear feet like swimming fins, and their paddle-shaped tails like rudders. They also have unique respiratory systems that allow them to stay underwater for 15 minutes without surfacing, and have a set of transparent eyelids that function like goggles.

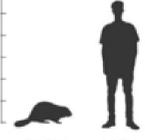
Diet
They are herbivores and prefer to eat leaves, bark, twigs, roots, and aquatic plants

Habitat
When sites are available, beavers burrow in the banks of rivers and lakes. But they also transform less suitable habitats by building dams and lodges out of branches and mud.

Size
Adult beavers typically weigh 45 to 60 pounds, but have been known to grow to 100 pounds.

For more information follow the link in our Instagram bio @weberstatepark or scan the QR code.





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DON'T SHOOT!

Beavers are a keystone species that build habitats that benefit the lives of fish, birds, amphibians, and humans. For more information scan the QR code below.

Beaver Behaviors



Family systems
Beavers live in colonies of up to 8 beavers. They are monogamous and mate for life. Beavers leave their colonies around their second year of life, right before a new litter is born and move away to make a new colony of their own. Beavers rarely overpopulate because they breed only once a year.

Social Behavior
Beavers are docile, gentle animals that are rarely aggressive. They have a highly organized social and family structure. Young beavers will play and wrestle with their sibling and will learn to build dams and lodges by watching their parents and older siblings.

Communication
Adult beavers may occasionally grunt or hiss but are generally silent and instead rely on non-verbal forms of communication like scent marking, tail slapping, or gesturing with sticks.

Did You Know?

Removal of beavers by trapping stimulates larger litters from survivors in the area as well as the migration of new beavers into the area of loss.

For more information, follow the link in our Instagram bio @weberstatepark or scan the QR code.



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What is Interpretation

Tilden defined interpretation as an educational activity which aims to reveal meanings and relationships through the use of original objects, by firsthand experience, and by illustrative media, rather than simply to communicate factual information. Interpretation differs from information in that it goes deeper than just providing instruction but rather provocation. Effective interpretation fills visitors with a greater sense of wonder and curiosity, and inspires a sense of respect and newfound responsibility to protect the natural resources.

Sustainability through Interpretation

Interpretation is a form of environmental education. However, they are not the same thing. One of the biggest differences between education and interpretation is how the programs are designed around the audience and the goals of the program. Whereas environmental education is more formal, interpretation is designed to "enhance a recreational experience" by providing deeper meaning and a greater appreciation for the resources and environment that they are recreating in (Berrin, 2007).

Sustainability is the idea of meeting the needs of the present without compromising the future (Grant, 2019). Environmental sustainability is becoming more important due to humans producing harmful changes to the environment. Since environmental issues are largely thought to be caused by human behavior, the solutions to these problems must be tackled through human behavior (Oskamp, 1995).

If done properly, interpretation can promote environmental sustainability because it simplifies complicated ideas and shares them with a more general audience. Effective interpretation also establishes a connection between the audience and the subject or object it is interpreting (Youngentob and Hostetler, N.D.). Through researching an audience, interpretive planners can design programs that best fit the learning styles, education level, attitudes, and needs of that audience. It is only by knowing your audience, that you can help them relate to a resource and inspire them to protect those resources.



Community Engagement and Environmental Sustainability

While most of the research done on the environment tends to be based off of physical and biological sciences, new approaches to sustainability examine the role of human relationships as critical factors. Understanding the concepts of human relationships and how individuals are influenced to act in the environment are becoming effective tools for examining issues of resource allocation, poverty, social justice, and globalization (Schmitz, Stinson, James, 2010). Individual decisions to act in the environment are influenced by the surrounding community. Because individuals receive most of their information from cultural, social, political, and economic influences prominent in their community, it is important for the researcher to know what these influences are and how to fill in any gaps or address any misinformation (Schmitz et. Al., 2010).

This idea of individuals being influenced by their community is further strengthened by the Theory of Planned Behavior which suggests that intentions predict behaviors. While it is complicated and nearly impossible to change an individual's behavior, it is possible to influence their intentions to do a certain behavior by addressing the attitudes, perceived behavioral control, and social norms (Ajzen, 2012).

For our final project, we talked with the manager of East Canyon State Park to determine possibilities for addressing some of their problems. One of which included the killing of beavers in and around the park by locals and visitors to the park. This behavior continued to be an issue primarily because beavers were seen as a nuisance or pest, rather than a keystone species that supported the health of the ecosystem. In order to address this problem, we had to design our interpretation in a way that would challenge the social norm and convince the community that beavers played an essential role in the other activities that they valued, such as fishing, boating, and hunting.

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