

Enhancing Learning through Interpretive Signage in Educational Demonstration Gardens: Part 1 — Planning, Content Development, and Evaluation¹

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This is the first publication of a two-part series that provides Extension faculty and other educators who are interested in developing interpretive signage with an overview of how to plan and create effective content. This publication discusses interpretive signage as used in demonstration gardens and details best practices in pre-design considerations, content development, enhancing engagement, and evaluating effectiveness.

Appendix A of this publication also provides an overview of the Enhancing Learning through Interpretive Signage in Educational Demonstration Gardens series.

The second publication in this series is Ask IFAS publication AEC834, Enhancing Learning through Interpretive Signage in Educational Demonstration Gardens: Part 2 — Graphic Design and Materials.

What Is Interpretive Signage?

Interpretive signage is an educational tool that conveys meaning and informative content to engage visitors. It can encourage visitors to reflect on and connect with the subject matter personally, leading to behavior modification or adoption of practices.

In 1957, author and philosopher Freeman Tilden defined interpretation as a way to reveal meaning and insight through experiences. Later, Ham (1996) expanded the definition to include the role of interpretation in influencing behaviors and perceptions, specifically about environmental issues. Many institutions and sites such as botanical gardens, zoos, nature centers, parks, and waysides utilize this form of learning to educate visitors (Carter, n.d.).

Demonstration gardens are educational spaces set in high-traffic areas, designed with thoughtfully chosen plants, hardscapes, signage, and other features to showcase gardening practices and communicate key messages to the public. Demonstration gardens can serve multiple purposes, including educating about sustainability, food

production, biodiversity, and landscape best management practices such as "Right Plant, Right Place" (Bechtold et al., 2022). Within Extension, demonstration gardens are widely used to showcase best management practices. These gardens provide opportunities for passive education to visitors and provide experiential learning opportunities to volunteers and program attendees (Glen et al., 2014). When interpretive signage (Figure 1 and Figure 2) and activities are incorporated, they maximize the educational value and impact of the garden (Honig et al., 2000). By highlighting important messages, demonstration gardens can educate and inspire visitors to make positive changes and support broader community and sustainability goals.



Figure 1. Demonstration garden signage for the South Florida Native Plant Demonstration Garden, UF/IFAS Everglades Research and Education Center. Credit: Frank Dowdle, UF/IFAS



Figure 2. Plant labels, UF/IFAS Everglades Research and Education Center.

Credit: Emily Marois, UF/IFAS

There are two main types of passive interpretation messaging (Ham, 1996):

- **Behavior change/Problem-targeted messages:** This type of signage encourages reducing harmful practices and/or increasing beneficial practices (e.g., reducing the use of fertilizer and pesticides that impair our waterbodies).
- **Salient belief-targeted messages:** This type of signage emphasizes the benefits of the garden and its contributions to the environment, fostering a deeper appreciation and understanding of the space (e.g., planting wildflower gardens to support pollinators).

Pre-Design Considerations

Identify Your Target Audience

Before beginning an interpretive signage project, it is essential to understand your audience. Will teachers use the space for self-guided tours, or will your audience primarily be the general public passing by? Understanding your audience allows you to tailor your signage, making it more personal and impactful.

Define Your Goals

Clearly defining your goals for the interpretive signage project will outline your path to success. What do you want to achieve? What behaviors would you like people to modify? What practices would you like them to adopt?

What Messages Are You Trying to Convey?

To capture and maintain interest, interpretive signage should possess the four following critical qualities (Ham, 1992).

- **Content is enjoyable:** Make your visitors eager to learn by engaging them and inspiring their curiosity.
- **Information is relevant:** Information will resonate with visitors when they can relate to the content. Examples include age appropriateness, urban topics in urban areas, etc.
- **Theme runs throughout:** A central idea gives visitors a reason to engage and helps ensure the information is cohesive and meaningful.
- **Content is well organized:** Interpretive signage should be simple and well structured, making it easy for visitors to enjoy and understand the intended message.

Best Practices When Creating Content

To engage your audience, it is important to follow best practices while creating your signage (Honig et al., 2000).

- Know your audience and keep their preferences in mind. Signage for children will look much different from signage for adults. Relevant material will hold a visitor's attention.
- Write in a friendly tone with basic and easy-to-understand language, avoiding complicated and technical terms.
- Organize your content with a clear text hierarchy that has headings and subheadings so it is easy to follow. Limit paragraphs to 60–100 words.

Most importantly, make sure the information on the signs is correct. Enlist several proofreaders, including an expert in the field, and have the information reviewed by members of the target audience. Having a layperson or someone from the target audience review the signs helps ensure the signs are clear, easy to understand, and approachable.

Inviting Visitor Engagement

To create interpretive signage that invites visitor engagement and fosters curiosity, the key is to combine information with interactive elements that encourage participation and further exploration. Below is a guide to make your signage more engaging (Honig et al., 2000).

1. Ask Open-Ended Questions

Begin your signage with questions that stimulate curiosity and invite visitors to observe the world around them.

- Example: "What kinds of pollinators can you spot here today?"
- Example: "Have you seen this bird before? Where might it be going?"
- Example: "Can you identify the different plant species growing in this area?"

These questions encourage visitors to stop, observe, and think about their surroundings, creating a more meaningful connection with the environment.

2. Encourage Participation

Incorporate opportunities for visitors to actively engage with their surroundings through citizen science initiatives.

- **Wildlife Sightings Logbook:** Create a section of the sign that invites visitors to record sightings of local wildlife. Include prompts like:
 - Example: "Have you spotted a bird, butterfly, or other animals today? Record your observation!"
 - Example: "Help us track the wildlife! Note down the species you see, along with the date and time."
- **Pollinator Activity Tracker:** Use another section to encourage visitors to monitor pollinators.
 - Example: "Join our effort to study pollinators! Write down what type of insect you see, what plants they visit, and the time of day."
 - Example: "Which pollinators are most active here? Your observations could help us answer this question!"

These elements make visitors feel good about contributing to a larger cause, which increases their engagement and enhances their experience.

3. Provide Prompts for Further Discussion

Encourage visitors to reflect on their observations and discuss them with others.

- Example: "What changes do you notice in the wildlife during different seasons?"
- Example: "Why do you think some pollinators prefer certain plants?"
- Example: "How might your observations help scientists learn more about this ecosystem?"

Prompts like these can lead to deeper discussions and encourage repeat visits as people track changes over time.

4. Incorporate Storytelling

Tell a brief, captivating story about the species or habitat featured on the sign. Storytelling can draw visitors in emotionally and create a connection.

- Example: "Did you know that the monarch butterfly travels thousands of miles during its migration? Keep an eye out — you might spot one on its incredible journey!"
- Example: "This oak tree has been standing here for over a century. Imagine the changes it has witnessed. What stories would it tell?"

These narrative elements can turn an ordinary visit into a memorable experience.

5. Make Engagement Simple and Fun

Provide clear instructions and make the process enjoyable.

- **Logbook placement:** Install weatherproof logbooks, such as Rite in the Rain notebooks, in secure, visible locations. Keep them in weatherproof containers to ensure they remain usable in all conditions.
- **Signage design:** Ensure the signage is bright, engaging, and easy to read. Simplify signage by using icons or illustrations.
- You could also include digital engagement options, such as a QR (Quick Response) code leading to a website where visitors can submit observations or learn more about the species they saw (Carter, n.d.). This interactive feature allows visitors to engage with the material at their own pace, allowing them to dig deeper if desired. QR codes can also be used to assist with evaluation, giving visitors access to surveys to assess their experience with interpretive signage. While QR codes can be an effective tool, websites associated with the QR codes must be kept up to date. Expired QR codes may cause frustration and detract from a visitor's experience (Carter, n.d.).

6. Show the Impact of Their Participation

Acknowledge the value of visitor participation by including examples of how their observations can contribute to broader conservation efforts and connect them to the community.

- Example: "Your observations help us monitor the health of local ecosystems. Thank you for contributing to citizen science!"
- Example: "The data you collect today could help protect these species for future generations. Let's work together to ensure a thriving habitat for years to come."

By positioning visitors as active participants in the scientific process, you can increase their engagement and create a sense of ownership and responsibility for the environment.

7. Include Seasonal and Thematic Variations

Change signage seasonally or thematically to keep it fresh and relevant.

- Example: "Spring is here! What new life can you find?"
- Example: "In autumn, look for migrating birds. How many different species can you identify?"

This keeps the experience engaging year-round and encourages repeat visits.

By blending curiosity-driven questions, interactive elements, and storytelling, your interpretive signage will draw visitors in, encouraging them to engage with the environment and contribute to meaningful scientific discovery.

Evaluation

Interpretive signage can be an effective tool to deliver key messages to visitors on important issues such as reducing household water and fertilizer usage, supporting wildlife, and reducing pesticide usage (Bechtold et al., 2022). To maximize impact, it is essential to develop an evaluation plan that measures effectiveness in relation to planned outcomes (Bechtold et al., 2022).

To determine the effectiveness of an interpretive sign and visitor experience, four key metrics can be used: attracting power, holding power, collateral behavior, and communication power (Bitgood, 2000). Each metric provides valuable insights into how well the sign engages visitors and conveys information.

- **Attracting power** measures how many visitors stop to view the sign, making it a crucial indicator of the sign's visibility and initial impact. A sign with strong attracting power draws attention and encourages visitors to engage with its content.

- **Holding power** refers to the amount of time visitors spend reading or interacting with the signage. A higher duration suggests that the sign effectively maintains interest, keeping visitors engaged for a longer period.
- **Collateral behavior** tracks how visitors interact with the sign beyond reading. This includes behaviors such as pointing out features to others, discussing the content, or participating in interactive elements. Collateral behavior signals deeper engagement and suggests the sign is prompting further exploration and conversation.
- **Communication power** measures how much information visitors retain from the signage. This is a key metric because it assesses the effectiveness of the sign in conveying knowledge. Strong communication power means the sign successfully educates and leaves a lasting impression on visitors.

To assess these metrics, **field observations** can be used to monitor visitor behavior, such as the number of people who stop at the sign (attracting power), the time they spend engaging with it (holding power), and ways they interact with the sign (collateral behavior) (Bechtold et al., 2022; Honig et al., 2000). A sample field observation checklist to monitor visitor engagement is provided in Figure 3.

Field Observation Checklist: Visitor Engagement with Interpretive Signage

Date: _____

Observer Name: _____

Name or Title of Signage: _____

Time of Observation: _____ to _____

Visitor Demographics

- | | |
|---|---|
| ☐ Solo visitor | ☐ Age group(s) observed: |
| ☐ Couple/pair | ☐ Child (under 12) |
| ☐ Family with children | ☐ Teen |
| ☐ Group (3–5 people) | ☐ Adult |
| ☐ Large group (6+) | ☐ Older Adult (65+) |

Visitor Behavior

- | | |
|--|---|
| ☐ Notices the sign | ☐ Uses a QR code, audio guide, or AR/interactive feature (if applicable) |
| ☐ Stops and reads | ☐ Touches the sign (if tactile elements are present) |
| ☐ Points to or discusses the sign with others | |
| ☐ Takes a photo of/with the sign | |

Duration of Engagement

- ☐ Less than 10 seconds
- ☐ 10–30 seconds
- ☐ 30 seconds to 1 minute
- ☐ More than 1 minute

Barriers

- ☐ Signage too high/low or hard to access
- ☐ Poor lighting or glare
- ☐ Too much text
- ☐ Weathered/damaged
- ☐ Visitor distracted or rushed
- ☐ Language barrier

Notes:

Figure 3. A sample observation checklist to determine signage usage and interactions.

Credit: Emily Marois, UF/IFAS

Surveys of visitors can provide direct feedback on how well visitors understood and retained the provided information (communication power). These surveys can be delivered in person on-site or digitally.

Digital surveys can be accessible via QR codes embedded into the signs. QR codes are popular because of their low cost and ease of use. Additionally, they are accessible to anyone with a cellular device (Ashford, 2010; Pérez-Sanagustín et al., 2016). Follow-up surveys measuring behavior change or practice adoptions can be employed for those who provided contact information upon their visit to the demonstration garden (Bechtold et al., 2022). Sample bias may occur for online surveys, if only those who seek out surveys participate. For example, an in-person survey may result in less sample bias than a QR code.

In-person interviews or informal discussions with visitors at the demonstration garden can provide valuable insight into the effectiveness of the signage and space (Honig et al., 2000). Evaluations help to identify any necessary modifications to the signage or the site, improving the overall interpretive experience (Bitgood, 2000). They can shed light on the overall effectiveness of the interpretive signage (Fetterman, 1998).

Example Survey Questions

- “Did you learn something new about gardening, sustainability, or plant care during your visit?”
 - Yes/No
 - If yes, please describe briefly.
- “As a result of visiting this demonstration garden, do you intend to make any changes to your gardening practices based on what you learned from the signage or displays?”
 - If yes, what practices do you intend to adopt?
 - Using the right plant in the right place
 - Planting pollinator plants to attract bees and other beneficial insects
 - Water reduction in the landscape
 - Implementing integrated pest management practices

Evaluating interpretive signage provides essential insights into effectiveness of efforts. By measuring how well a sign captures attention, maintains visitor interest, encourages interaction, and facilitates knowledge gain, you create an opportunity to improve the educational experience. Ultimately, this evaluation process is vital for creating impactful learning spaces that resonate with visitors and create meaningful connections with the subject matter.

Conclusion

Interpretive signage can play a key role in enhancing garden spaces by fostering visitor engagement, promoting environmental stewardship, and encouraging positive behavior change. When combined with interactive

elements, interpretive signage can transform outdoor learning spaces into quality educational experiences. By creating signage that is well designed, relevant, and enjoyable to visitors, organizations can inspire positive actions that support their mission and goals.

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Appendix A: Enhancing Learning through Interpretive Signage in Educational Demonstration Gardens Series Overview

Enhancing Learning through Interpretive Signage in Educational Demonstration Gardens: Part 1 — Planning, Content Development, and Evaluation

Enhancing Learning through Interpretive Signage in Educational Demonstration Gardens: Part 1 — Planning, Content Development, and Evaluation

This publication discusses the role of interpretive signage as an educational tool that engages visitors in outdoor

spaces and promotes understanding, behavior change, and environmental stewardship. The publication outlines best practices of creating educational content and impactful signage and gives an overview of how to assess the effectiveness and impact of educational and interpretive signage.

Enhancing Learning through Interpretive Signage in Educational Demonstration Gardens: Part 2 — Graphic Design and Materials

This publication provides an overview of creating interpretive signage, including key considerations for graphic design and material selection.

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