

# Design Challenge Resource Collection

## Module 8: Participatory Co-development of a Bilingual Exhibit

This module is part of a Design Challenge Resource Collection, developed by a cross-functional team at the Oregon Museum of Science and Industry (OMSI) with decades of experience conceptualizing, developing and building museum exhibits. The collection is intended to support exhibit developers and designers as they work to create interactive design challenges.

These modules are designed for someone to read individually or facilitate with a team. There are great benefits derived from collaborating on the exhibit development process. Throughout the modules, activities for groups of individuals are called out in blue boxes.

### Team Activity

Discussion prompts and other activities for groups are in blue boxes like this one.

Each module stands alone; there is no specific order to explore the modules, nor is there a need to read them all. However, in some cases, references are made between modules for opportunities to learn more. Finally, these resources are not meant to be prescriptive, but rather examples, tools and approaches the OMSI team has found valuable in the development of non-facilitated engineering design challenge exhibits for the museum floor that are accessible, relevant and engaging for visitors.

The entire set of resources can be found on the [Design Challenge Resource page](#).

1. Introduction to Design Challenges
2. Exploring Design Challenges
3. Approaches to Exhibit Accessibility
4. Testing a Design: Measures of Success.
5. Exhibit Design Sprints
6. Graphic Development for Design Challenges
7. Prototyping Design Challenge Exhibits
8. Participatory Co-development of a Bilingual Exhibit
9. Documenting Exhibits: The Exhibit Record Tool



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# Participatory Co-development of a Bilingual Exhibit

*Creatividad silvestre | Wild Creativity* is a bilingual, Spanish first exhibition (Spanish copy is presented to the left of, or above, English copy). Creating an exhibition that appeals to a broad audience in a respectful and inclusive manner involved much more than simply translating text panels into a second language. This project was designed with intentional culturally responsive strategies drawn from promising practices in the field such as recognizing that culture plays a role in all learning and education, honoring that participants bring assets and funds of knowledge to the project, and cultivating trusting relationships that are essential to collaborative work (Shagott et al, 2022; Bevan et al., 2018).

Participatory co-development is an approach to exhibit development that incorporates a wide variety of perspectives and voices in various roles throughout the process. For this brief module, we provide examples from *Creatividad silvestre | Wild Creativity* related to the project's relationships and structures, and then share examples about the influence of the relationships in the participatory co-development of images and copy that appeared in exhibit panels.

## Participatory co-development and relationships

True co-development of a bilingual exhibit requires a multicultural/multilingual team from the very beginning. *The Creatividad silvestre | Wild Creativity* project is designed to privilege voices from growing Latine communities through co-development and partnering with an organization that is led by and serves Latinas and their families, staffing project leadership and advisor positions with members of Latine communities, engaging members of Latine communities throughout project development, and working with the public in Spanish and English.

A great deal of time and thought can go into deciding what an exhibit will be about, how information will be communicated, and establishing the learning goals for the experience. In larger exhibitions, the big idea, main messages, the activities, and the look and feel of the space can benefit from diverse perspectives. Working with project partners, advisors, and members of the target audience through a participatory co-development approach can help guide thinking on the exhibit and its anticipated outcomes early in the process, and help ensure that the experience will be relevant, engaging and understandable by a broad audience.

The goal with *The Creatividad silvestre | Wild Creativity* was to create an exhibit that was not only bilingual, but one that was inclusive and respectful of people from diverse cultures and identities. Throughout the project, exhibit co-developers worked with teammates, partners, advisors, and community members with vastly different backgrounds and expertise in an effort to include a variety of perspectives on exhibit content. The process was guided by a pair of exhibit co-developers who were responsible for, among other things, leading the researching of exhibit content, conceiving of experience ideas, and drafting exhibit copy.

This team of two co-developers, with different backgrounds and expertise, helped ensure that at every step of the process at least two perspectives were involved. In the case of *The Creatividad silvestre | Wild Creativity*, one co-developer was a multilingual (Spanish, Japanese, German, and English) woman from Costa Rica who identified as Latina and who had studied graphic design, conservation studies, and international heritage policy. The other was a white man raised on the West coast of the United States who studied physics and STEM education.

The co-developers were supported by a project team that included designers, fabricators, educators, and project leaders. In addition, regular meetings were held with project partners and advisors with diverse experiences related to culture, language, content, and exhibit development. Many people among the partners and advisors were native Spanish speakers with diverse cultural and geographic backgrounds. Furthermore, the team reached out to the public to help inform decisions around topics of interest and exhibit look and feel, get feedback on exhibit prototypes, and consult on representation within the exhibit.



Relationships among these project participants were built over time (some decades, some years, some people were newer to the field or region) and also continually cultivated throughout the project through multiple channels of communication and activities. Capacity-building for this type of work also required time for needed professional and process development (again, years and ongoing). Participation by such a broad group resulted in an exhibition that was scientifically accurate, culturally sensitive, and accessible and appealing to a diverse audience.

## Participatory co-development of images

Through colors, fonts, illustration style, etc., visitors can feel attracted (or not) to an exhibit. While something that is effective for one person may not work for another, there are some general guidelines, described below, that seem to work for many people.

One aspect of cultural sensitivity and inclusion deals with making an effort to help participants, no matter their racial, religious or ethnic background, or their gender feel valued, respected, and welcomed in the experience. Based on participatory co-development input, decisions were made to include images of real and fictional characters in *The Creatividad silvestre | Wild Creativity*. In order to be inclusive of a wide variety of audiences, challenge stereotypes, counter bias in STEM, and appeal to the target audience of girls aged 9 to 14 and their families, the project team was mindful of the diversity of cultural and social identities visible in exhibit images and the processes used to select and develop the images.

Since the target audience for *The Creatividad silvestre | Wild Creativity* was girls ages 9 to 14 and their families, a concerted effort was made to ensure that this audience in particular felt welcomed and represented. The evaluation team conducted four focus groups with primarily Latina girls around the topics of how girls and their families relate to and care about sustainability issues, the natural world, and how they envision a present and future where the natural world and human-made designs merge and build a reciprocal and sustainable relationship. The project also utilized a Youth Advisory Board (YAB) made up of about a dozen Latina youth to help the team interpret biomimicry materials to make them fun and interesting for girls with different backgrounds. The YAB helped inform what topic areas were selected (food, energy and transportation), how content was presented, and the general look and feel of the space. They wanted to see people, connections to their community, and lots of nature and color. Throughout exhibit co-development, the team also consulted the [Exhibit Designs for Girls' Engagement](#)<sup>1</sup> guide to make the design challenges they were creating more inclusive for young girls.

When selecting images to use in the exhibit, the team prioritized those with fem-identifying people of color. Likewise, the engineers and biomimicry practitioners featured in the exhibit had a range of race, gender, ethnicity, age and nationality identities.

## Cultural review

To address the YAB recommendation of including people and communities and the need for diversity, *The Creatividad silvestre | Wild Creativity* included fictional narrative characters intended to create a welcoming environment and help visitors understand that biomimicry is a process that is happening the world over. These characters presented challenges and posed questions for visitors to consider. An effort was made to include characters from a diversity of locations, race, ethnicity, and gender.

<sup>1</sup>[https://www.exploratorium.edu/sites/default/files/pdfs/EDGE\\_GuideToDesignAttributes\\_v16.pdf](https://www.exploratorium.edu/sites/default/files/pdfs/EDGE_GuideToDesignAttributes_v16.pdf)



The image above shows the seven fictional characters and where they live.

In order to minimize risks of stereotypes and misrepresentation of cultures, individuals who had some lived experiences similar to those of the characters were asked to review the images and content and report any concerns and suggestions. Recognizing that the images contained intersectional identities, advisors were asked to answer the following questions:

- In what ways, if at all, could the character or text you see be perceived as inaccurate, offensive, or otherwise inappropriate? Please be as specific as possible.
- Is there any addition that you think would make the image or the text better, or more accurate? If so, please tell us what we should do and why.
- Is there anything else you want to share with us?

Once feedback was received and discussed, changes were made to address any issues. For example, reviewers from Indonesia suggested changing the clothing of a fictional character living on the island of Sumba to something more like traditional outfits worn in Sumba.

Original



Revised (but not final)



As another example, a reviewer who identified as non-binary expressed that the team should be more intentional in portraying a fictional character as non-binary. They suggested adding “a pin with their pronouns, or nonconformist aesthetic choices in their clothes or hair or makeup.”

Original



Revised (but not final)



## Participatory co-development of bilingual copy

Collectively, the *Creatividad silvestre* | *Wild Creativity* team had decades of experience creating bilingual copy for exhibit labels, including leaders in the informal STEM field from both inside and outside OMSI. This project was intended and structured to be bilingual (Spanish/English) from the outset. The team understood from research and lessons learned the advantages of bilingual labels.

For example, bilingual labels can:

- Help some visitors feel more welcome, comfortable and valued
- Positively influence individual and social identities, even helping some people consider the diversity of the learners in the community
- Provide access to content in a preferred language
- Be used by some visitors to teach or practice a language other than English
- Support some adults to facilitate exhibit experiences with their children

Many resources are available in the field about developing bilingual exhibit copy. A list of translation and bilingual resources and tools are shared in a summary of the [GENIAL conference](#) (*Generating Engagement and New Initiatives for All Latinos / Generando Entusiasmo y Nuevas Iniciativas para Audiencias Latinas*<sup>2</sup>).

## Team Activity

In pairs, discuss what languages you want your exhibits to include and why. How are relationships involved in this decision? What relationships do your group members have? What relationships are you working to build? Share with the whole group.

As a group, discuss:

- What might language order convey? Which language would you put first and why? What are your thoughts on who is included in this decision and how?
- Why are native language speakers integral when working in multiple languages? What are your thoughts on how to involve multiple native language speakers in your participatory co-development process

## Drafting exhibit labels

Co-developing an experience in two languages means working on all elements in both languages throughout the process. Exhibit content is not simply translated into Spanish, but is co-developed in cooperation with a bilingual team member who has a personal understanding of the lived experiences in Latine cultures, and for whom Spanish is their native language. With *Creatividad silvestre | Wild Creativity*, this meant two exhibit co-developers: one a bilingual (Spanish/English) native Spanish-speaker and one a native English speaker. The two worked together to write and review label copy so that information would be clear and understandable in both languages, and would be free of cultural references that might not be accessible to everyone.

<sup>2</sup> Genial\_2017\_Resources.pdf (informal.science.org)

Drafting of initial content typically began with a meeting of the two co-developers where they discussed (in English) the message and information that would be conveyed on a particular panel. When they had agreed on the general idea of what the panel should say, they would divvy up sections of the material. One would draft their sections in English and the other in Spanish. The copy was then translated so that all of the text was in both Spanish and English, and the two would review and edit the copy together. All text went through the review and proofing process described below.

In cases where there were questions about how a specific word should be translated, the co-developers convened a multicultural group of native Spanish speakers from a variety of countries to get feedback on certain terms, concepts, and exhibit elements to make sure they would be accessible to broad audiences of Spanish speakers.

## Exhibit label style guide

Establishing a style guide for a bilingual exhibit can help ensure that there is consistency across exhibit labels— voice, reading level, and presentation of technical information. Many museums have label style guides or templates that provide instruction for label sections and hierarchy, grammar usage guidelines and graphics standards. When writing in more than one language, a label style guide is essential to provide specific guidance on how a non-English language will be used. Spanish, for example, has both formal and informal forms which are dependent on context; there are also considerations around gendered occupations. In addition, there are cultural differences even when using the same language. While Spanish is spoken in many countries, some of the Spanish words and forms can vary between countries and geographic regions. And languages like Spanish can have different conventions within different regions of the US—for example how Spanish and English might be combined or how capitalizations and punctuations are represented in mass communication campaigns.

For *Creatividad silvestre* | *Wild Creativity*, a label style guide was created with guidance for English and Spanish languages. Below are some of the Spanish-language guidelines:

- Use informal Spanish to create open and friendly content while remaining respectful of visitors.
- Use “neutral” Spanish to avoid misinterpretation or confusion for Spanish-speakers. This means that the Spanish will not contain references, words or phrases that are culturally-specific unless required.
- Do not use literal translations. English and Spanish wording can be slightly different as long as the translation preserves the concepts as accurately as possible.
- When referring to gendered people in plural, use both genders leading with the female plural (e.g. engineers → las ingenieras y los ingenieros; chemists → las químicas y los químicos). When referring to gender neutral plurals, use female and male articles leading with the female article (e.g. students → las y los estudiantes; presidentes → las y los presidentes).



- Business and any other institutional names remain in their original English form unless a translated name is provided by the organization. For example: National Science Foundation would be presented as written, not translated to Fundación Nacional de Ciencia.
- Internally identify and discuss terms that may not have a direct translation into Spanish or that may produce unfamiliar Spanish terms to determine if it would be acceptable to keep the English term, Latin terms, or find an alternative solution. As much as possible we want to ensure that we maintain similar standards in both languages regarding reading level and the use of scientific terms.
- Involve translation staff from a diversity of native Spanish speakers and that have science content expertise as well.

The content for a design challenge exhibit can also include technical and scientific information and explanations. A glossary of technical terms that might be used in the exhibit, and words with multiple potential translations was created as a reference for the translation and review process.

## Review and proofing

Once the label copy was drafted, it went through a research-based review and proofing process that is represented in the [NISE Network Translation Process Guide for Educational Experiences in Museums](https://www.nisenet.org/catalog/translation-process-guide)<sup>3</sup>. In this process, after the Spanish language copy was written, it was reviewed by a second native Spanish speaker who made comments and suggestions. Those suggestions were addressed by the original writer then sent to a third individual for another round of review and comments. The copy was then sent to Spanish speaking partners and advisors on the project for review, and finally to an interpretation and translation firm for proofing. The proofer's recommendations were considered by the original author who was most familiar with the intent and addressed as appropriate.

## Tips and Advice

**Seek out diversity in the images and examples you provide:** When creating or choosing images to use with an exhibit, choose sets of images with diverse people and cultures.

**Work with members of the communities you are targeting and/or representing:** the best way to ensure that the exhibit you are creating is relevant, interesting and welcoming for an audience is to talk with members of those communities. Connect with local organizations, clubs and groups to find people to provide feedback on your work.

<sup>3</sup><https://www.nisenet.org/catalog/translation-process-guide>

**Build and maintain relationships with community organizations:** Don't reach out only when you need something from a community. Establishing ongoing relationships with people and organizations will build trust and make it easier to include diverse voices in your project.

**Beware of idioms and puns:** Exhibit titles and taglines that incorporate a pun can be clever, but rarely work in a bilingual setting. Likewise, idioms are very culturally rooted and rarely make sense across multiple languages.

**Be consistent with the spirit, not the word of the content/message:** Doing a direct, literal translation of copy is not always the best approach. Instead of translating word for word, consider the message being communicated and make sure that it is consistent across languages.

**Take advantage of existing resources for inclusive language:**

[Progressive's Style Guide](#)<sup>4</sup>

[Family-Inclusive Language](#)<sup>5</sup>

[Gender-Inclusive Translations](#)<sup>6</sup>

## Citations

Bevan, Calabrese Barton & Garibay. (2018). Broadening Perspectives on Broadening Participation in STEM. Washington, DC: Center for Advancement of Informal Science Education.

Shagott, T., Benne, M., Herrán, C., Randol, S., Ramos-Montañez, S., & Surbaugh, N. (2022). The study of collaborative practices at interactive engineering challenge exhibits—background and methods (The C-PIECE Study). Oregon Museum of Science and Industry. <https://engineerourtomorrow.com/wp-content/uploads/2021/06/Anchor-paper.pdf>

<sup>4</sup>[https://s3.amazonaws.com/s3.sumofus.org/images/SUMOFUS\\_PROGRESSIVE-STYLEGUIDE.pdf](https://s3.amazonaws.com/s3.sumofus.org/images/SUMOFUS_PROGRESSIVE-STYLEGUIDE.pdf)

<sup>5</sup><https://www.margaretmiddleton.com/resources>

<sup>6</sup>[https://eriksen.com/language/gender-inclusive-translation/?cm\\_mmc=Act-On+Software\\_-\\_email\\_-\\_Gender-Inclusive+Translation+-\\_Strategies+for+gender-inclusive+translation](https://eriksen.com/language/gender-inclusive-translation/?cm_mmc=Act-On+Software_-_email_-_Gender-Inclusive+Translation+-_Strategies+for+gender-inclusive+translation)