Hard Questions and Biofact Collections:

Educator's Guide to Addressing Sensitive Topics that Arise with Biofact Education Programming

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Background

This interpretation guide provides tools for zoo docents to support engaging conversations with young learners. The guide is informed by multiple inquiry-based learning strategies and frameworks, with the objective of developing empathy for animals through biofact education. In zoos and aquariums, biofacts are materials derived from extant plants and animals, which includes bones, teeth, tusks, pelts, feathers, and shells.

Purpose

Biofact education programs often address sensitive topics, including death, religion, ethical qualms, etc. These interactions can be one of the earliest exposures to death and dying for young learners, and frequently asked questions include "How did the animal die?" and "Why did you kill the animal?" asked in innocent curiosity. These difficult questions can also refer to the ethical standards of the harvesting and preparation practices. Questions may also come up that reflect diverse ways of knowing, namely the ways different cultures understand and approach death as a subject. Biofact-mediated interactions can benefit from techniques used in inquiry-based learning in informal science education settings, where the objectives prioritize emotionally and socially positive and productive interactions rather than merely coming to a correct answer or purely factual conclusion. The tools described in this guide incorporate these techniques and can be used to frame conversations emerging from these interactions.

Process

Several Woodland Park Zoo docents were identified for their potential interest in this project. A total of seven docents volunteered to participate in a series of three discussions sessions: a focus group-style front-end evaluation of existing materials and areas that are lacking; an interactive workshop that introduced IBL tools and techniques as they apply to biofact learning; and a

feedback session to evaluate the effectiveness and quality of the guide after using it during regular docent shifts.

Application

This guide is most effective when applied to small group or one-on-one interactions between facilitators and learners, or in a more structured classroom-like setting when working with a larger group. At Woodland Park Zoo, docents applied these tools while interacting with small groups at biofact carts stationed around the zoo at various outdoor exhibits. These tools are less effective when working with unstructured group settings, like large groups of school children on a field trip. In the zoo setting, respect and safety of the biofacts is a main priority for biofact education programs and their mission of evoking empathy for the living counterparts. Users of this guide are encouraged to take from this guide what works for them and resonates with their intentions and objectives. The point is not to get every learner to find the scientifically correct answer, but rather build confidence and empathy through powerful positive

interactions that encourage curiosity and compassion for the program's mission. By prioritizing interaction over dissemination, we build longer lasting relationships between the learners and the animals, their species' natural history, and the respective educational organizations.

Learning and Framing Tools

Tool	Definition
Inquiry-Based Learning (IBL)	An approach to learning that begins with questions or scenarios posed by a facilitator, rather than the simple dissemination of information. The approach implores learners to find evidence to support their theories or answers, and encourages problem solving and critical thinking. Utilizing strategies that fall under this approach will create memorable interactions and develop learner's thinking skills and confidence. This is a blanket term that is informed by constructivism and encompasses VTSS.
Constructivist Learning Theory	This theory proposes learning as an active process where learners build knowledge through social interaction and interpersonal conversation onto their preexisting knowledge and experiences. Constructivism honors the learners' backgrounds, as opposed to merely disseminating information, and implores learners to interact with each other, discuss their thought processes and share their unique reasonings. This theory creates inviting learning opportunities that inspire self confidence and explore multiple ways of knowing, thinking, and being.

Social-Emotional Learning (SEL)	This practice develops interpersonal skills like compassion and empathy, as well as self-awareness and emotional intelligence in coherence with academic learning. SEL sponsors social and emotional literacy by supporting open communication and self assessment throughout interpersonal experiences. When applied in this project, we will create a safe space for open thought and equip learners with the confidence and language to discuss typically sensitive or emotional topics.
Lifelong, Life-wide, Life-deep Learning	This learning framework pushes for learning opportunities to be developed with three things in mind: application over time (lifelong), effectiveness across environments (life-wide), and relevance throughout social and personal development (life-deep). This guide reflects the multiplicity of applications and outcomes possible throughout these interactions. In other words, an interaction involving biofacts can inherently benefit communication skills, confidence, empathy for others, and even developmental milestones—all skills that support the learner's future education, prepare them for other learning environments like school, and enhance their personal growth and interpersonal development.
Woodland Park Zoo Empathy Wheel for Audience Engagement	WPZ's Empathy Wheel is a tool that supports the development of zoo guests' sense of empathy for zoo animals and their wild counterparts whom they represent. It offers five tactics that work toward the goal of connecting to conservation action: assure animal welfare and wellbeing; introduce the animal as an individual with autonomy and

	choice; inform the audience about the animal's unique story and traits; and invite the audience to observe the animal and explore taking the animal's perspective.
Visual Thinking Strategies [in Science] (VTSS)	A set of teaching strategies that posit thoughtful and intentional questions and encourages learners to explore new ideas without concern for correctness or judgment. Traditionally used in the study of art history, this tool can be used to turn interactions into inquiry-based learning opportunities. After framing the learning opportunity by allowing users to explore the learning object, facilitators can ask some version of the following questions: *What is going on here?* *What do you see that makes you say that?* *What more can we find?* With VTSS, we ask guiding questions to frame the interaction and encourage confidence by offering praise and honoring each attempt and thought process, rather than correcting wrong guesses or simply disseminating information. The application of VTSS in informal science learning is a practice still in its infancy, and it adapts well to biofact education as it helps learners to engage fully, gather evidence and posit theories through the guidance of a facilitator.

Inquiry-Based Learning and Biofact Education

Tips and Tricks

The strongest interactions begin with thoughtful scaffolding, including the set-up of learning objects and confident and informed facilitators that facilitate with intention and connection to the mission. In art, we truly do not have any singular correct answers, as it is all about personal connection and interpretation. In science, especially when discussing biofacts, there are a lot of correct and incorrect answers; for example, if the facilitator is presenting a lion skull and a child points to it and exclaims "*That's a bear!*" This statement may be factually incorrect, but the key to IBL is *how* these ideas are acknowledged and addressed. Rather than correcting the statement with an "*actually*" or other form of correction, we will instead *guide* the learner to a more scientifically accurate conclusion. Instead, we will ask "*what do you see that makes you say this is a bear?"* The learner—who has already made the connections between the skull size or shape of the teeth—is now being prompted to walk through their own

thought processes. Inquiry-based learning honors the learner's past experiences and innate knowledge, so by asking this kind of question we are helping the learner to build connections, enhance their inherent ability to think critically and logically, and engage in a memorable and enjoyable interaction - all while still arriving at a scientifically factual conclusion. Similarly, docents can strengthen their connection with learners by paraphrasing the learner's response to show that they are listening and engaged in the interaction. Praise is also a simple tactic that helps us honor different ways of knowing and being as well as the learner's effort and their previous and intrinsic knowledge. Instead of saying "well done" or "good job", we will offer specific reinforcements, for example "I really like how you…!" or "wow, you know so much about…!" These strategies encourage independent thought and build the confidence necessary to make guesses and posit theories, while also creating a positive and safe learning environment and developing a positive social-emotional relationship with the organization represented through the facilitator.

Sample Exercises

Independently or with a partner, read through the following scenarios and take note of which strategies or techniques stand out to you. Refer to the following guiding questions, then take a look at the discussion section and see if you noticed some of the same things.

1. What did you like about how the docent guided these conversations?
2. How do you think the child felt in each scenario? The docent?
3. What specific tools or choices did you notice the docent using in these scenarios?
4. What tools (if any) have you already used or seen being used at the zoo?
5. What (if anything) would you do differently in these scenarios? What are you unsure about? What hesitations do you have?

6. What tools (if any) would apply in your work as an educator? How do you think they may work as interpretation tools in your organization?

Scenario 1 - Inviting Inquiry
Conversation between a 4-year-old guest and a zoo docent exploring a wolf skull:

CHILD: What is this?

DOCENT: Well, what do you think it might be?

CHILD: Uhh… is it a dinosaur?

DOCENT: What do you see here that makes you say this might be a dinosaur?

CHILD: Well, it's bones and it has pointy teeth.

DOCENT: You are right that this is made of bone! It is the part of the body that we call a skull, and humans have skulls too. Do you remember where our skulls are on our body?

CHILD: Our heads!

DOCENT: You are so smart! And I remember that you also noticed that this skull has sharp teeth. *(pointing)* Why would an animal have sharp teeth like these?

CHILD: Um, maybe to help it eat?

DOCENT: Yeah, sharp teeth are really helpful for eating tough foods like meat. What are some animals that eat lots of meat?

CHILD: Well, dinosaurs eat meat, and lions and wolves and sharks eat meat, too!

DOCENT: Wow, you know about so many animals! And you even mentioned the animal that this skull belongs to. When we look at the shape of this skull, we see

those pointy teeth you noticed, and we see this long part here - what part of the skull is this long part here? *(pointing)*

CHILD: Maybe the nose?

DOCENT: You got it, that is a really long nose. Of the animals you listed it could be—a lion, a wolf, or a shark—which one has the longest nose?

CHILD: Umm…a wolf?

DOCENT: That's it! You figured out that this is a wolf skull! I really liked how you looked so closely and noticed so many things about this skull. Thank you so much for exploring this wolf skull with me!

Scenario 2 - Discussing Death

Conversation between a 9-year-old and a zoo docent while interacting with an otter pelt.

DOCENT: Hi there, did you want to feel this otter pelt?

CHILD: Um, is it real?

DOCENT: Yeah, this belonged to a real otter that used to live here at the zoo named Oliver.

CHILD: Wait, did you kill him to get this fur?

DOCENT: No, Oliver passed away a few years ago of old age. He was twenty-four years old, which is super old for an otter. Otters in zoos usually live to be around twenty, but he was getting really good care here at the zoo. His favorite snack was fish and he loved to swim and take naps snuggled up in his den.

CHILD: Why do you keep all the parts when the animal dies?

DOCENT: We can keep things like bones and pelts so that we can use them to teach people about the animals, just like this otter pelt here.

CHILD: Did all of these animals die at the zoo?

DOCENT: Some of our biofacts are from animals that used to live at the zoo, but some of them were found in nature, and some were given to the zoo.

CHILD: The fur is really soft. Otters are so cute, I wish this otter wasn't dead. I bet his friends really miss him. I really miss my dog, Brinkley. He died when I was little.

DOCENT: I'm so sorry to hear about your story, I bet he was the best dog. It is really sad when one of our animals at the zoo passes away, just like when a pet dies too. Did you and Brinkley play together a lot?

CHILD: Yeah, we liked to play with the ball in the backyard, and he loved to go swimming.

DOCENT: That sounds like a lot of fun, I bet you made him so happy, and you gave him an awesome life. Oliver really liked to play with his toys and swim with his friends, too.

CHILD: Maybe Brinkley and Oliver are playing together in heaven…

DOCENT: That is a really beautiful idea! I think it is so wonderful to picture Oliver and Brinkley doing their favorite things together! I bet they would have so much fun and be great friends.

CHILD: Yeah. me too. Well, I have to go now. We're going to look at more animals

DOCENT: Well thank you for chatting with me today, and thanks for telling me about your dog, I really enjoyed hearing about him. Have fun at the zoo, and make sure to say hi to the otters!

Discussion

Note that these are specific, scripted discussions designed to highlight specific tactics, and are generalized examples of how to address hard questions and "incorrect" answers. Throughout each discussion, the docent guided the learner through each child's unique thought process and reaction to the content. The docent in these scenarios acknowledges the child's discomfort or inexperience with the object and allows them to feel those emotions and talk through them, encouraging them to try to guess or to touch the object at their own pace. When a child dives into a topic of discussion and demonstrates the desire to explore a specific interest or a need to process an emotion through interpersonal connection, the docent is prepared and confident because their mission and philosophy involve more than simply zoological dissemination. The docent paraphrases the child's stories and praises them for taking guesses or sharing their perspectives, and always concludes with gratitude towards the child for speaking with them, engaging with the objects, and sharing their insight.

Implications

This guide is designed to support the zoo's mission of encouraging empathy for animals and furthermore inspiring conservation actions that can help threatened species and support biodiversity around the world. Biofacts exist as a tool to teach zoo audiences about living animals and the struggles that many species face. By strengthening learner's relationships with animals through these objects, and promoting their emotional relationships with animals in their capacity as ambassadors for their wild counterparts, zoo educators serve in a special and important role in ecological conservation. This guide serves these individuals and their mission to support, improve, and enhance the zoo's ability to connect with their communities and advocate for the natural environment.