



CREATING CHANGE SYMPOSIUM:

HOW EMPATHY CAN ADVANCE YOUR
MISSION

JAN 22-24, SEATTLE, WASHINGTON

BACKGROUND INFORMATION PACKET

CONTENTS

Symposium Schedule	pg. 2
Pre-symposium Activity	pg. 3
Measuring Empathy: Collaborative Assessment Project	pg. 6
Introduction to Animal Welfare	pg. 14
The Impact of Museums: Empathy	pg. 20
Advisory Panel Biographies	pg. 21
Project Highlights from Other AZA Organizations	pg. 24

Note: please complete the Pre-Symposium Activity before reading through the rest of the information.



SYMPOSIUM SCHEDULE

Event	Where	When	Comments
Symposium Reception	Zoomazium, Woodland Park Zoo	5:00 p.m. – 7:00 p.m.	<ul style="list-style-type: none"> • Drinks and appetizers will be provided • Shuttle bus available from/to Silver Cloud Hotel
Symposium Day 1: Foundation of Empathy <ul style="list-style-type: none"> • Introduction to empathy • Empathy in different settings • Perceptions of animal welfare • Empathy and caring action 	Center for Urban Horticulture, University of Washington	8:00 a.m. – 4:30 p.m.	<ul style="list-style-type: none"> • Breakfast and lunch will be provided
Symposium Group Dinner	TBD	6:30 p.m. – 8:30 p.m.	<ul style="list-style-type: none"> • Break off into small groups for discussions at restaurants near the Silver Cloud Hotel
Symposium Day 2: Application of Empathy <ul style="list-style-type: none"> • Morning: sessions covering implementation and evaluation of empathy practices • Afternoon: workshops for attendees from AZA organizations 	Graham Visitors Center (Wisteria Hall), Washington Park Arboretum	8:00 a.m. – 4:30 p.m.	<ul style="list-style-type: none"> • Breakfast and lunch will be provided • Shuttle bus available from/to Silver Cloud Hotel

More symposium schedule details to follow.



PRE-SYMPOSIUM ACTIVITY

We're looking forward to seeing you soon at the upcoming *Creating Change Symposium: How Empathy Can Advance Your Mission* in Seattle!

Please complete this activity before reading through the rest of the information.

Your responses to this activity will help us understand your thoughts on the topic of empathy towards animals prior to participating in the Symposium and see if participation in this gathering might impact your thoughts on the topic of empathy towards animals.

The instructions for completing the concept map are below. A sample concept map is included on the next page as an example of how to complete this activity. We'd appreciate it if you could send us your concept map by **Jan 16, 2019.** Thank you very much for your help, and we will share the cumulative results from this activity after the symposium.

Step One

- Take the page with "Empathy for animals" written in the middle, and grab a pack of small sticky notes. Jot down any thoughts that occur to you when you think about empathy for animals. Don't spend time thinking over your responses; we'd like to get your immediate reactions. Anything that comes to mind for you is exactly what we want to know; there are no right or wrong answers.
- As in the example, write one thought per note.
- Write words or phrases; no need for complete sentences.

Step Two

- Once you've spent a few minutes jotting down thoughts, and feel like you can't come up with any more ideas for now, look over your sticky notes and decide what themes or categories you notice in your responses.
- Your map doesn't need to look like the sample; this is just an example of what we mean by grouping your thoughts.
- Place your sticky notes on the page with "Empathy for animals" in the middle, grouping them by any themes or categories that make sense to you.
- Label each theme or category.

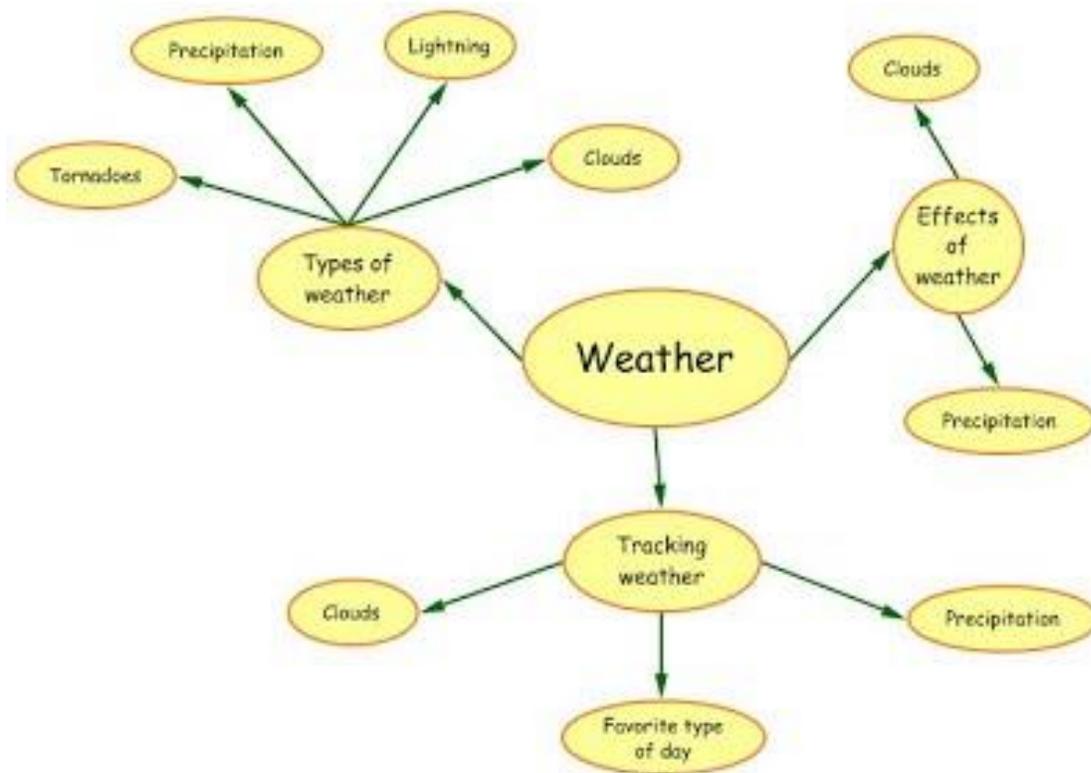
Step Three

- Take a cell phone photo of your concept map OR – if you think it'd be hard for someone else to read - please copy your notes onto a paper and scan. Please do not modify or elaborate on what you initially wrote, if you do copy your notes.
- Email your concept map to Laurel Abbotts (laurel.abbotts@zoo.org) by **Jan 16, 2019**.
- Please bring the concept map with you to the symposium.

Thank you!



SAMPLE CONCEPT MAP USING "WEATHER"





CONCEPT MAP PROMPT

Empathy for animals



MEASURING EMPATHY: COLLABORATIVE ASSESMENT PROJECT



WHY DOES EMPATHY MATTER TO OUR INSTITUTIONS?

Empathy is a social and emotional skill that many psychologists say is foundational to who we are as human beings. Empathy helps us understand and value others' experiences or struggles and it can motivate us to act or respond to these situations. The ability to empathize with others has been identified as a core skill for what is termed "pro-social behavior"-the actions that are involved in building close relationships and developing strong communities (Thompson, 2003).

Concurrently there's a growing awareness that attitudes and emotions are key variables in people's decisions to take positive action for animals and nature. A number of studies have found that empathy can mediate people's motivation to promote animal welfare and to take pro-environmental action (Pfattheicher, 2015; Tam, 2013; Schultz, 2000). The collaboration between Point Defiance Zoo and Aquarium, the Seattle Aquarium and Woodland Park Zoo to both incorporate best practices and assess our success at fostering empathy for animals will contribute to the overall mission supported by the AZA that *all people respect, value and conserve wildlife and wild places*.

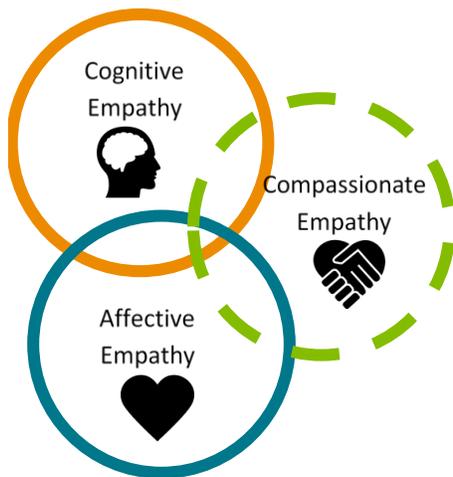


WHAT IS EMPATHY?

The body of literature contains countless inconsistencies in the definition of the term as well as discrepancies in its use. Within both psychology and mainstream culture, the word *empathy* has been generalized to encompass a number of related positive emotions, often intertwining its meaning with affects like thoughtfulness, sympathy, enjoyment or kindness. Despite this inability to agree on a concise definition the general consensus is that the human empathic experience integrates two forms of empathy, cognitive and affective (Cuff, 2014). In addition, while there is overall agreement that compassion is linked to empathy some argue that compassionate empathy, where one responds to the feelings of others with a desire to help, is a

third construct integrated into human empathy. With all three of our institutions aiming to encourage positive action for animals and the environment, this project will incorporate all three constructs as the human empathic experience.

THE THREE CONSTRUCTS THAT TOGETHER COMPRISE THE HUMAN EMPATHIC EXPERIENCE



Cognitive Empathy is the ability to identify or understand another's emotions. In other words, it's the mental process where one is able to see things from another's perspective, but not necessarily experience that same emotion.

Affective Empathy is described as the vicarious feelings or emotions that arise in response to observing the emotions or experience of another. In this construct one can physically feel the emotions or experience of another, sometimes as if they are contagious. (example: crying response when a movie's character has a sad experience.)

Compassionate Empathy, driven by cognitive and affective empathy, is the ability to feel and show appropriate concern in response to another's needs and be moved to help in some way. This construct can be a motivational basis for taking action to help others.

EMPATHY DEVELOPMENT IN CHILDREN:

Empathy, like other capacities, is developed over time and reinforced through our interactions with the world. Empathy is related to **theory of mind** in which we learn to predict our own actions and the actions of others.

If you imagine the individual connections in your brain as a trickle of water, each time you experience something that supports an idea you add another trickle, and another, until over time it becomes a river.

As educators, when we aim to change a person's understanding it is easier to redirect the flow of a trickle of water than a rushing river. The younger the brain the easier it is.

Cognitive Learning:

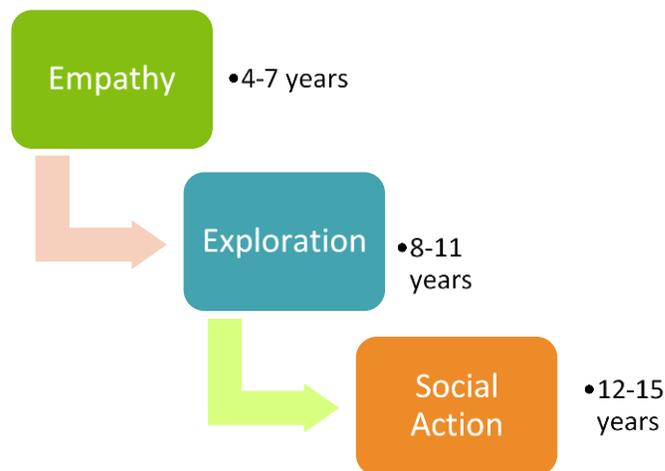
- Our brains are constantly rearranging to accommodate our understanding of the world. The capacity for a brain to change is called **brain plasticity**. During the first few years of life we see twice as many connections than in adulthood.
- These connections are developed and reinforced through learning. Certain connections are reinforced and others are pruned away. As we age, the reinforced beliefs and understandings become more established but are not impossible to change.

As we observe someone experiencing an emotion our brain responds as if we are experiencing the same stimulus. This process is the biological representation of what we call empathy and is made possible by **mirror neurons**.

- There is potential for empathy in most people’s brains but mirror neurons’ strength and effectiveness must still be developed through learning and some biological conditions affect how well mirror neurons function and grow (Gerdes, 2013; Goldman, 2014).
- There is limited research discussing whether mirror neutrons respond to vitality affects displayed in animals the same way as humans but it is promising (Franklin et al., 2014; Sims et al. cited in Myers, 2007).

Stage Theory

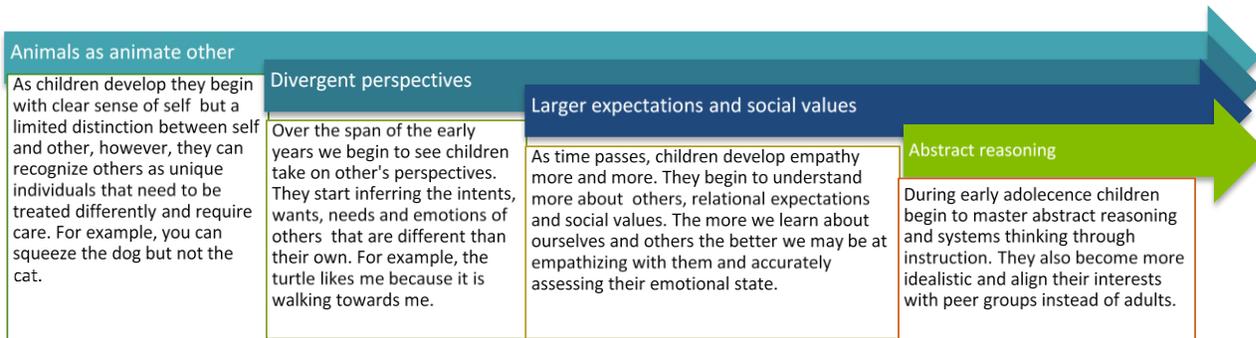
Learning theorists break development into stages dependent on age. This can be helpful for educators too as we develop programming. When referring to stages, it is important to remember these categories are ideal types based on general trends in development. Depending on life experiences individual students may move through these stages at different speeds.



Patterns of Engagement with the Natural World (Sobel, 1996)

David Sobel (2008) presents a view of nature engagement that is closely tied to the natural affinities, psychological state and cognitive needs of the child. He breaks this development into three stages based on larger developmental theory. From age 4-7 children lack a strong differentiation between self and other that allows for strong bonds to form between children and animals (Kohlberg & Piaget in Crain, 2000). When children reach the ages of 8-11 they become focused on the landscapes they can explore nearby through activities like caring for animals, gardening, fort building, and gathering. The last stage, social action, is also based off of Piaget’s learning theory. As children enter early adolescence, they are more capable of reasoning in abstract terms with instruction. This helps them to better grasp complex, multidimensional problems. It is at this stage they can better understand instruction of ecological systems thinking, and empathize with complex or very different perspectives (like that of a cockroach or barnacle).

Though empathy can grow and develop further at any age, the critical years in its development are early. During this time, empathetic behaviors are emerging and patterns of relating to one another are forming



Developmental stages of moral development: (Myers, 2007; Myers 2008; Myers & Saunders, 2002; Kohlberg and Piaget in Crain, 2000)

EMPATHY TOWARDS ANIMALS:

Empathy towards animals is developed through the same processes as with humans and one does not need to be developed before the other.

There are certain unchanging properties of animate creatures, people included, that encourage our connection with others.

1. **Agency:** the animal shows similar behaviors of moving, eating, playing, social roles, grooming, etc.
2. **Affectivity:** Emotion is sometimes hard to observe in animals so we most often attribute emotions to vitality affect, or the animal's patterns and qualities of arousal over time.
3. **Coherence:** The animal is easily understood as a whole animal. One impactful characteristic that designates subjectivity is the face, especially the eyes.
4. **Continuity:** More time spent with the animal increases a person's understanding of and empathy towards the animal.

All animals fall roughly along a "potential to elicit empathy" spectrum between primates and well-trained dogs to invertebrates and microorganisms. Some animals inherently call to our emotional responses and others are more of a challenge. There are also other barriers to empathy like cultural stigmas, lack of species-specific knowledge, over emotionalizing, moral disengagement, conflicting messaging, narrative framing and environmental factors.

We have constructed a definition of *empathy for wildlife* from research on empathy toward animals and empathy toward people:

"Empathy is a stimulated emotional state that relies on the ability to perceive, understand, and care about the experiences or perspectives of another person or animal."

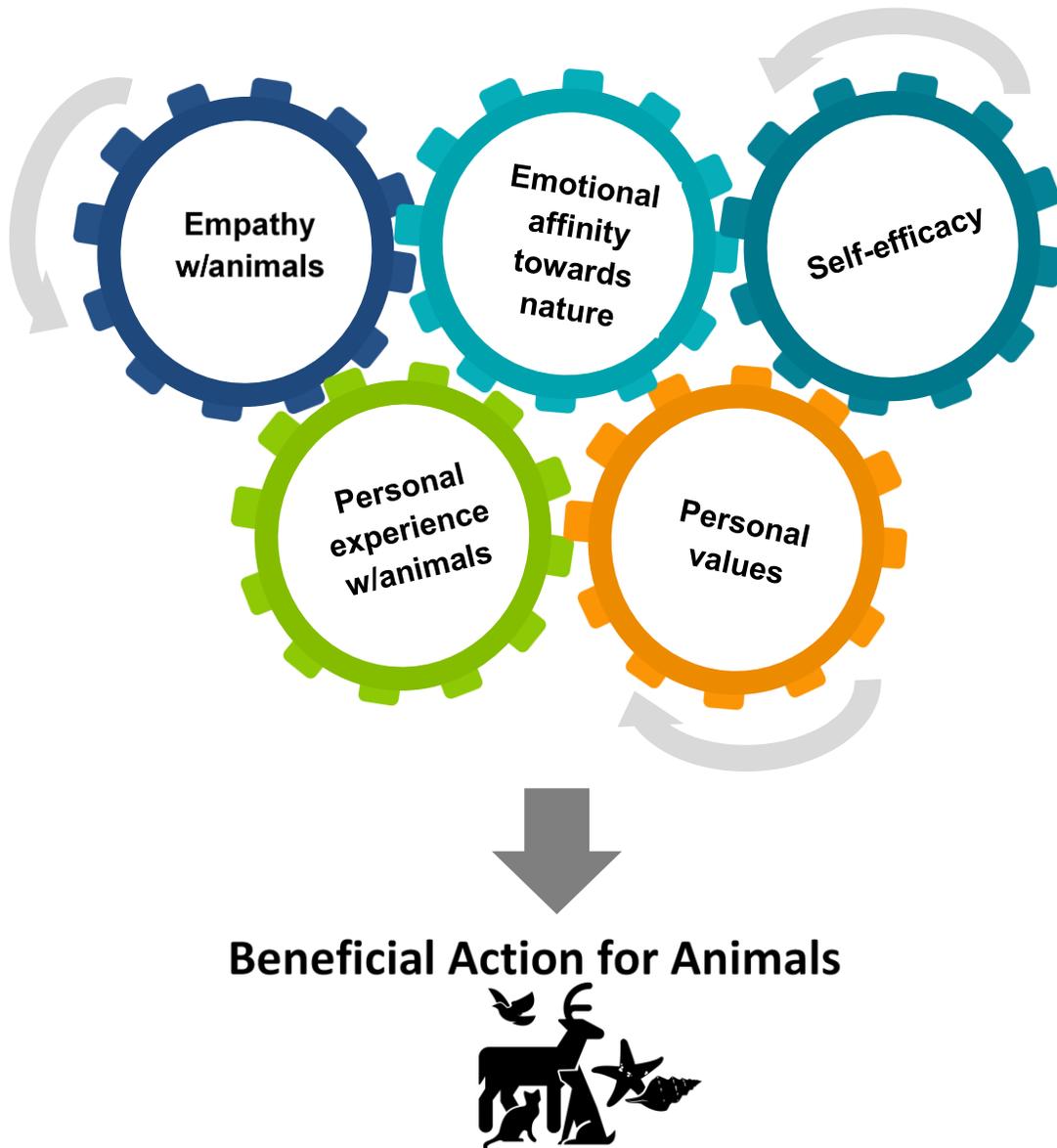
EMPATHY AND ITS RELATIONSHIP TO BENEFICIAL ACTION:

It is widely accepted that knowledge alone does not lead to action and that a person's attitudes and emotions play a significant role in his or her behavior. Similarly, in regards to taking action to benefit animals and nature, researchers agree that there is no single predictor, but rather it is the relationship between several elements that can increase the likelihood of someone engaging in behavior beneficial to animals and nature. Empathy with animals has been identified as one of these influential factors (Berenguer, 2007).

Research has shown that having a high level of empathy with animals or nature can be a mediator to taking beneficial action on their behalf, but further research is needed to determine if there is a direct causal link between empathy and caring behavior. Instead many agree that there are additional affects and values that correlate to beneficial action, such as emotional affinity towards nature, feeling a part of nature, environmental self-efficacy, positive experiences in nature, and personal values (Cheng, 2012; Kals 1999). While zoos and aquariums may not be able to influence all of the relevant factors, with the growing understanding about the

personal experiences that develop empathy as well as identification of best practices in fostering this skill, our institutions are in a well-suited position to impact our visitors' empathy with animals.

Empathy with animals is one of many factors that can lead someone to take action on behalf of wildlife.



Best practices in developing empathy in children:

Framing

- Children are constantly building and rebuilding their understanding of the world and language has the power to discourage or encourage empathy (Chawla, 2009; Ornaghi et al., 2013).

Modeling

- In moral development valued adults and teachers play an important role by modeling behavior, attitudes, expressing values and sharing pleasure in interactions with wildlife (Cheng & Monroe, 2012; Chawla, 2007; 2009; Arluke, 2003; Stout, 1999; Ornaghi et al., 2013; Myers, 2007).

Increasing Knowledge

- By increasing student's knowledge of their own emotions and the experiences of others, they can more accurately perceive the emotions of others (Myers, 2009; Myers & Saunders, 2002; Stout, 1999).

Providing Experiences

- By spending time in nature we are more likely to develop a connection with it (Blizard and Schuster, 2007; Chawla, 2007, 2009; Cheng & Monroe, 2012; Kals et al., 1999).
- Through interactions with animals we build relationships based on familiarity, observations, preceiving shared attention and providing care(Arluke, 2003; Kohl and Wenner, 2012; Myers, 2004, 2007; Myers and Saunders, 2002).

Practice

- An important part of promoting an ethic of empathy is providing opportunities to successfully practice the skill and giving positive feedback to when it is observed (Arluke, 2003; Chawla, 2007, 2009; Cheng & Monroe, 2012; Myers, 2009).

Activate Imagination

- Role-playing activates connections between emotions and thoughts, allowing individuals to experience what it is like to be the animals (Gerdes et al., 2013; Myers, 2007, 2009; Stout, 1999)
- Narratives create an empathic response by helping people identify with the characters and effecting the ways someone perceives an animals (Blizard & Schuster, 2007; Davis, Gerdes et al., 2013; Ornaghi et al., 2013)
- Mimicry can activate mirror neurons and help promote kinesthetic empathy (Gerdes et al, 2013; Myers, 2007; Varkey et al., 2006)
- Cognitively taking the perspective of another increases concern for its wellbeing (Berenguer, 2010; Davis et al., 1996; Myers et al., 2009; Ornaghi et al., 2013; Schultz, 2000)
- Comparing or relating animal experiences to our own can promote deeper connections (Arluke, 2003; Pekarik, 2004)

References:

- A. Arluke. "Childhood Origins of Supernurturance: The Social Context of Early Humane Behavior." *Anthrozoos*. 16(1)3-27, 2003.
- J. Berenguer. "The Effect of Empathy in Environmental Moral Reasoning." *Environment and Behavior*. 42(1)110-134, 2010.
- J. Berenguer, "The Effect of Empathy in Proenvironmental Attitudes and Behaviors," *Environment and Behavior*, 39(2), 2007.
- C. Blizard, and R.M. Schuster. "Fostering connections to natural places through cultural and natural storytelling." *Children, Youth and Environments*. 17(4)171-206, 2007.
- B. M. P. Cuff, S. J. Brown, L. Taylor, and D. J. Howat, "Empathy: A Review of the Concept," *Emotion Review, Journal of the International Society for Research on Emotions*. December, 2014. Accessed online 5/1/15 at <http://emr.sagepub.com/content/early/2014/12/01/1754073914558466>.
- L. Chawla. "Growing Up Green: Becoming Agents of Care for the Natural World." *Journal of Developmental Practices*. 4(1)6-23. 2009.
- L. Chawla. "Childhood Experiences Associated with Care for the Natural World: A Theoretical Framework for Empirical Results." *Children, Youth and Environments*, 17, 144-170. 2007.
- J. Chen-Hsuan Cheng, and M. C. Monroe. "Connection to nature: Children's affective attitude towards nature." *Environment and Behavior*. 44(1) 31-49. 2012
- W. Crain. *Theories of Development: Concepts and Applications*. New Jersey: Prentice Hall, 2000.
- H. Davis, C. Conklin, A. Smith, and C. Luce. "Effect of Perspective Taking on the Cognitive Representation of Persons: A Merging of Self and Other." *Journal of Personality and Social Psychology*, 70(4), 1996, 713-726.
- K. E. Gerdes, E. A. Segal, K. F. Jackson, and J. L. Mullins, "Teaching Empathy: A Framework Rooted in Social Cognitive Neuroscience and Social Justice," *Journal of Social Work Education*, 47(1), 2011.
- J. Goldman. "Mirror Neurons are essential, but not in the way you think." Retrieved 5/1/15 from <http://nautil.us/blog/mirror-neurons-are-essential-but-not-in-the-way-you-think>.
- E. Kals, D. Schumacher, and L. Montada, "Emotional Affinity toward Nature as a Motivational Basis to Protect Nature," *Environment and Behavior*, 31 (2), 1999.
- R. G. Franklin, A. J. Nelson, M. Baker, J. E. Beeney, T. K. Vescio, A. Lenz-Watson, & R. B. Adams. "Neural Responses to Perceiving Suffering in Humans and Animals." *Social Neuroscience*, 8(3), 217-227, 2013.
- R. Kohl. and A. Wenner. *Prison Animal Programs: A Brief Review of the Literature*. Office of Strategic Planning and Research. MA. No. 13-362-DOC-01, 2012.
- O.E. Myers, C. D. Saunders, and S. M. Bexell. "Fostering Empathy with Wildlife: Factors Affecting Free-Choice Learning for Conservation Concern and Behavior." In Falk, J. H., Heimlich, J. E. & Foutz, S. *Free Choice Learning and the Environment*. AltaMira Press. Lanham, Maryland (39-5), 2009.
- O. E. Myers. *The Significance of Children and Animals: Social development and Our Connections to Other Species*. West Lafayette, Indiana: Purdue University Press, 2007.
- O.E. Myers, C. D. Saunders, and A. A. Birjulin. "Emotional Dimensions of Watching Zoo Animals: An Experience Sampling Study Building on Insights from Psychology." *Curator* 47(3)299-321, 2004.
- O. E. Myers and C. D. Saunders, "Animals as Links toward Developing Caring Relationships with the Natural World" in P. H. Kahn, Jr. and S. Kellert (Eds.), *Children and Nature: Psychological, Sociocultural and Evolutionary Investigations*. Cambridge, MA: MIT Press, 2002.

- V. Ornaghi, J. Brockmeier, and I. Grazzani. "Enhancing Social Cognition by Training Children in Emotion Understanding: A Primary School Study." *Journal of Experimental Child Psychology*. 119(2014)26-39, 2013.
- A. J. Pekarik. "Eye-to-Eye With Animals and Ourselves." *Curator*. 47(3)257-260, 2004.
- S. Pfattheicher, C. Sassenrath, and S. Schindler, "Feelings for the Suffering of Others and the Environment: Compassion Fosters Proenvironmental Tendencies," *Environment and Behavior*, 2015. Accessed online 5/1/15 at <http://eab.sagepub.com/content/early/2015/03/07/0013916515574549>.
- P. W. Schultz, "Empathizing with nature: The effects of perspective taking on concern for environmental issues," *Journal of Social Issues*, 56(3), 2000.
- D. Sobel, *Childhood and nature*. Portland, ME: Stenhouse Publishers, 2008.
- C. J. Stout. The art of empathy: "Teaching Students to Care." *Art Education*. 52(2)12-24, 33-34, 1999.
- K. P. Tam, "Dispositional empathy with nature," *Journal of Environmental Psychology*, 35(852), 2013.
- K. L. Thompson and E. Gullone, "Promotion of empathy and prosocial behaviour in children through humane education," *Australian Psychologist*, 38(3), 2003.
- P. Varkey, D. S. Chutka, and T. G. Lesnick. "The Aging Game: Improving Medical Students' Attitudes Toward Caring for the Elderly." *Journal of the American Medical Directors Association* 7(4)224-229, 2006.



INTRODUCTION TO ANIMAL WELFARE

INTRODUCTION

Providing for excellent animal welfare in zoos and aquariums encompasses both ethical and scientific responsibilities. AZA-accredited institutions, as well as any other organization that houses or exhibits live animals, have an ethical responsibility to ensure the well-being of the animals in their care. In addition, AZA-accredited institutions have a scientific responsibility to gain a greater understanding of the well-being of the animals in their care by advancing animal welfare science. Using data to make evidence-based animal management decisions is the key component for ensuring good animal welfare.

WHAT IS WELFARE?

Although a commonly used term, the meaning of “animal welfare” has been debated for decades. Early concepts of welfare focused solely on the prevention of “suffering” (described in (Maple & Perdue, 2013), or on biological fitness – survival, reproduction and production (Barnett & Hemsworth, 1990). However, an animal’s overall well-being depends on more than the absence of negative states or experiences. Later definitions of welfare emphasized affective or psychological states (e.g. (Mason & Veasey, 2010; Yeates & Main, 2008), the interaction of the animal and its environment (e.g. (Broom, 2001), or positive states and experiences (Yeates & Main, 2008). However, the pursuit of any one of these avenues may not result in the same assessment of an individual’s welfare state as judged by the others (Fraser, 2009). The physical, mental and emotional states of an individual may be dependent on one another and can vary from day to day. Thus, it is important to consider these states in combination with one another over time to determine an animal’s overall welfare state.

The current AZA definition of welfare incorporates many of the previous concepts, while emphasizing the individual, measurable nature of welfare and the idea that animal welfare does not exist in a binary state of “good” and “bad”:

Animal welfare refers to an animal’s collective physical, mental, and emotional states over a period of time, measured on a continuum from poor to excellent” (AZA Animal Welfare Committee, 2015).

The Animal Welfare Continuum



An animal typically experiences good welfare when healthy, comfortable, well-nourished, safe, able to develop and express species-typical relationships, behaviors, and cognitive abilities, and not suffering from unpleasant states such as pain, fear or distress. However, it is important to understand that animal welfare can be a complex topic. Individual animals experiencing the same environmental conditions may fall on different points of the welfare continuum, and a single individual’s welfare state may vary from day to day. It is up to animal care professionals to utilize objective data and their personal expertise to evaluate the welfare of their animals and make management decisions that allow them to thrive.

ANIMAL WELFARE FRAMEWORKS

While having a thorough and complete definition of animal welfare is important, it is also critical to be able to apply these concepts in the day to day care of animals. Several frameworks for animal welfare have been developed to assist animal care professionals in understanding the factors that contribute to an animal’s

overall well-being. The Five Freedoms (FAWC, 1992), the Five Domains (Mellor & Beausoleil, 2015) and the Five Opportunities to Thrive (Vicino and Miller, in prep) are some of the most popular examples of welfare frameworks. Woodland Park Zoo utilizes the Five Opportunities to Thrive as we strive to continually evaluate and advance the well-being of the animals in our care.

“STRESS” AND ANIMAL WELFARE

We use the word “stress” every day when describing our jobs, commutes, family struggles and other challenging aspects of our lives and the negative effects these things have on our personal well-being. So it is not surprising that applying the term to the animals in our care also conjures negative images and perceptions. However, in a scientific context, “stress” refers to any stimulus that threatens or appears to threaten the homeostasis of an individual (Moberg & Mench, 2000). These stimuli can be perceived as positive (going on a first date) or negative (running late for work), and the same stimulus can be perceived differently by different people (riding a rollercoaster), but the body’s physiological response will be the same.

When you, or I, or one of the animals in our care experiences such a stimulus, our brains trigger an elaborate physiological pathway that activates both the nervous and endocrine systems simultaneously and allows us to cope with these unpredictable events. The autonomic nervous system triggers the release of epinephrine which increases the heart and respiration rate, and releases stored energy. The brain also activates the hypothalamic-pituitary-adrenal (HPA) axis, which triggers the release of glucocorticoid hormones, such as cortisol, from the adrenal glands. These processes work together to prepare the body for a “fight or flight” response to cope with the unpredictable stimulus. Once the stressor is no longer detected, these pathways are deactivated, the production of epinephrine and glucocorticoids ceases, and the body returns to homeostasis. Thus, “stress” is a normal part of life that our bodies are well equipped to cope with, and is not inherently detrimental, as the everyday usage of the word would suggest.

The immediate threats that humans and animals experience every day are termed acute stress and result in short-term increases in epinephrine and glucocorticoid concentrations followed by a return to homeostasis. The body is highly adapted to cope with these acute stressors, and each of us does so every day, often without realizing it. However, when a threat is prolonged and a person or animal doesn’t have the ability to control or change the situation, chronic stress can occur, resulting in detrimental physical consequences. Repeated stimulation of the autonomic nervous system and the HPA axis without time for rest or recovery can lead to muscle wasting, gastrointestinal dysfunction, reduction in growth and brain function, decreased immune response and poor reproduction (Brann & Mahesh, 1991; Moberg & Mench, 2000; Sapolsky, 1994). It is in these chronic stress situations where welfare can become compromised.

Eliminating all stress should not be the goal for ensuring optimal animal welfare. Instead, we should ensure that animals are not suffering as a result of stress that is too severe, too complex or too prolonged and allow animals the opportunity to thrive in response to appropriate physical and mental challenges.

INPUTS AND OUTPUTS

Animal welfare is a science, and thus it can be measured objectively. However, because animal welfare encompasses many aspects of an animal’s individual experience and crosses several academic disciplines, there is no single measure of “welfare”. Instead, we must take a holistic approach to assessing an animal’s well-being and consider both the **inputs**, or factors that might influence an animal’s overall well-being, and the **outputs**, or the measurable effects of those inputs on the animal.

Inputs: the factors that can affect an individual’s welfare at any point in time

Outputs: the measurable physical and behavioral outcomes that indicate an animal’s relative welfare state at any point in time.

INPUTS

The factors that can influence an individual animal's welfare can generally be grouped into three main sources of inputs:

Animal Management - Everything that caregivers provide to the animal during the course of routine husbandry. Some examples include, but are not limited to:

- Exhibit size & complexity
- Veterinary care
- Nutrition & Diet presentation
- Social group
- Environmental enrichment
- Training program
- Care staff expertise & attitude
- Visitor effects (proximity, noise levels, behavior)
- Neighboring exhibits/species

Individual History – Past and current inputs have shaped each animal's individual history and thus how they experience and perceive their environments. Some individual factors that can influence how individuals respond to similar conditions include:

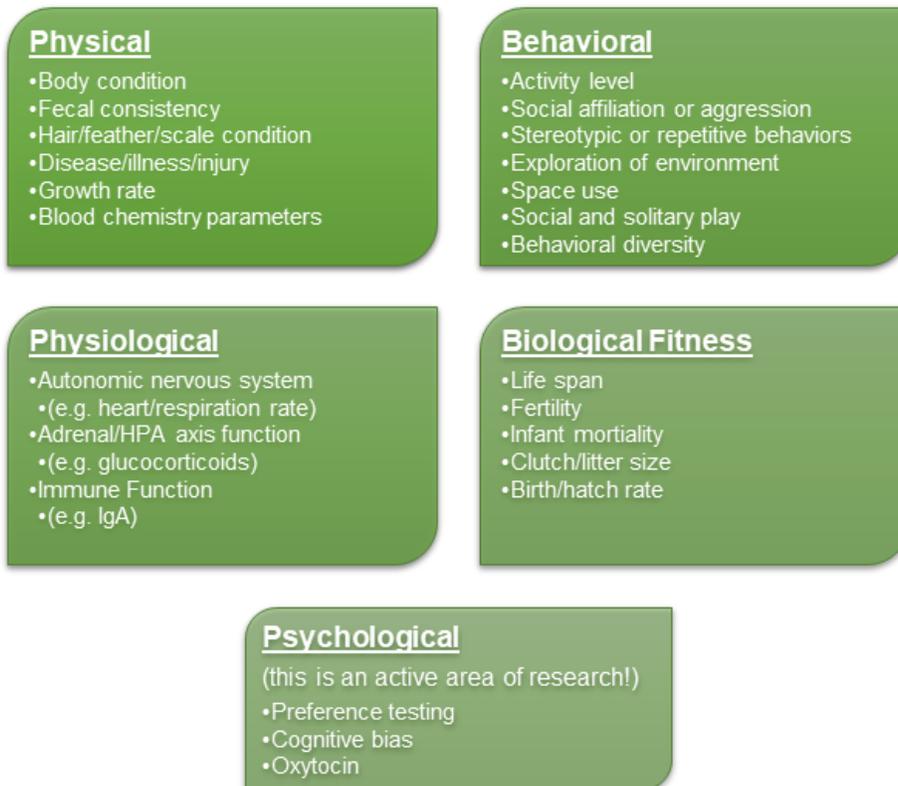
- Hand- or mother-rearing
- History of trauma or injury
- Life stage
- Health status
- Personality or temperament
- History of interactions with care staff

Natural History – each animal is adapted both physically and behaviorally to specific environmental conditions that they would experience in the wild. Considering the natural history of the animal can help guide other inputs and with interpreting outputs. Important natural history considerations include:

- Diet
- Home range size
- Latitude
- Habitat type
- Social system
- Mating system
- Age of separation from parent
- Activity budgets

OUTPUTS

Outputs are the factors that can be measured to indicate where an animal falls on the welfare continuum. These indicators can be physical, behavioral, physiological, or related to biological fitness or psychological state. A few examples of measurable outputs are listed below, but this is an emerging frontier of research, and new indicators are actively being developed.



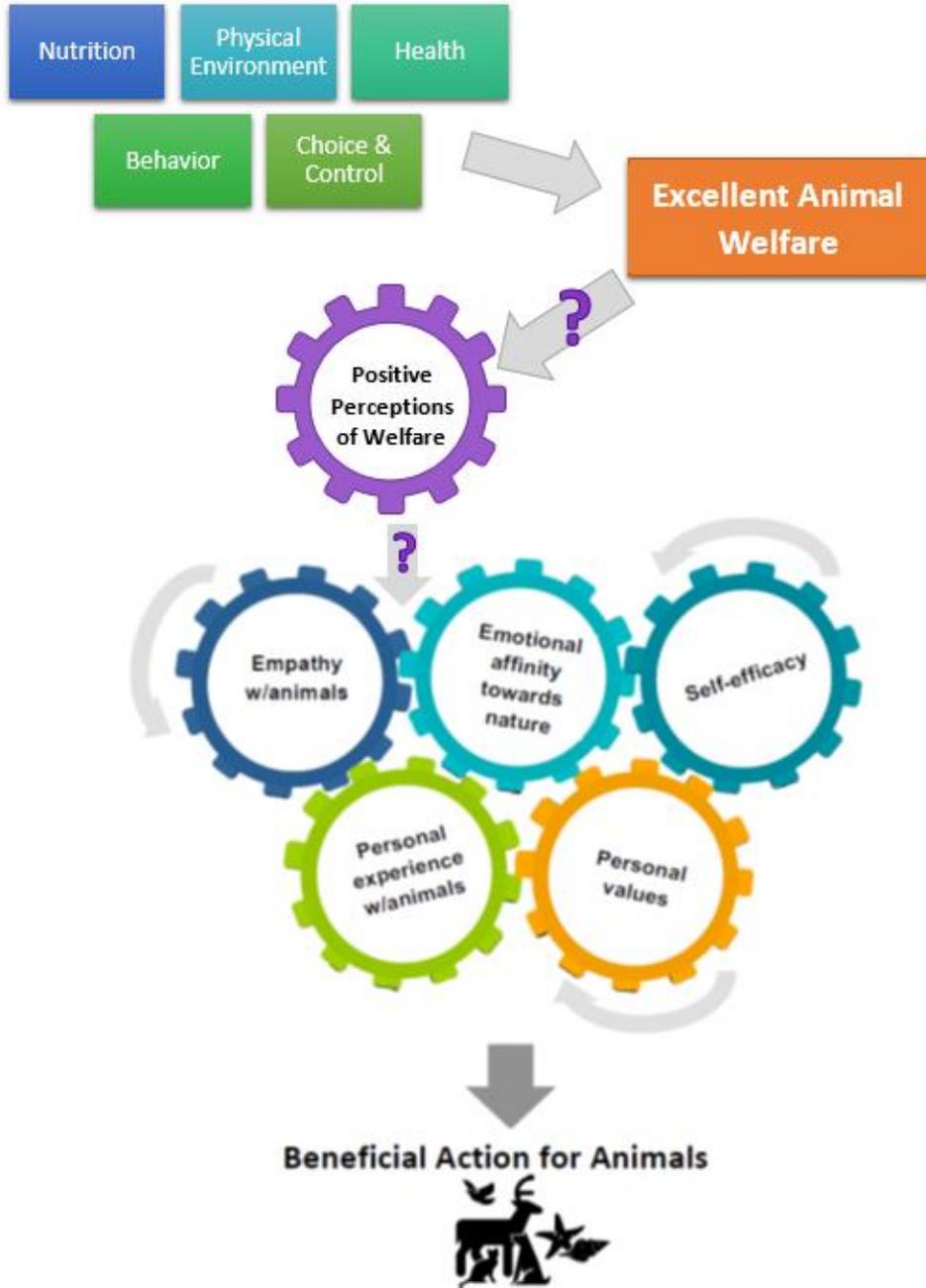
In general, it is a best practice to utilize a variety of measures (inputs and outputs) that focus on indicators of positive and negative welfare states. Input and output indicators are not in a strict one to one relationship. Any input can influence many different outputs and a single output may be used to measure the effects of multiple inputs. It is also important to note that all indicators of animal welfare may be species, and even individual, dependent. Welfare is a complex topic, but using these tools to objectively evaluate an individual's welfare state is the first step in ensuring the animals cared for by zoos and aquariums have the opportunity to thrive.

WELFARE AND ITS RELATIONSHIP TO BENEFICIAL ACTION

It is widely accepted that knowledge alone does not lead to conservation action and that a person's attitudes and emotions play a significant role in his or her behavior. Similarly, in regards to taking action to benefit animals and nature, researchers agree that there is no single predictor, but rather it is the relationship between several elements that can increase the likelihood of someone engaging in behavior beneficial to animals and nature. Though it is a relatively new area of research, perceptions of animal welfare are beginning to emerge as influential factors (Miller, Luebke, & Matiasek, 2018).

The limited research available has begun to demonstrate a relationship between the way visitors perceive the animals housed in zoos and aquariums and their attitudes toward the facility and conservation in general. Zoo and aquarium visitors that felt the animals they saw were "well cared for" report higher satisfaction with their visit (Ballantyne & Packer, 2016). Additionally, animals engaged in active, species-typical behaviors have been associated with positive affective responses (Luebke, Watters, Packer, Miller, & Powell, 2016) and positive perceptions of animal welfare (Miller et al., 2018). Conversely, observing pacing behavior in a tiger has been associated with negative perceptions of the care provided by the facility and a decreased interest in supporting conservation initiatives (Miller, 2012). Much more research is needed to establish the causal link between animal welfare and beneficial action in zoo and aquarium visitors, but there is some evidence that this relationship exists, and it is important to better understand how excellent animal welfare translates into meaningful action from our guests.

The Five Opportunities

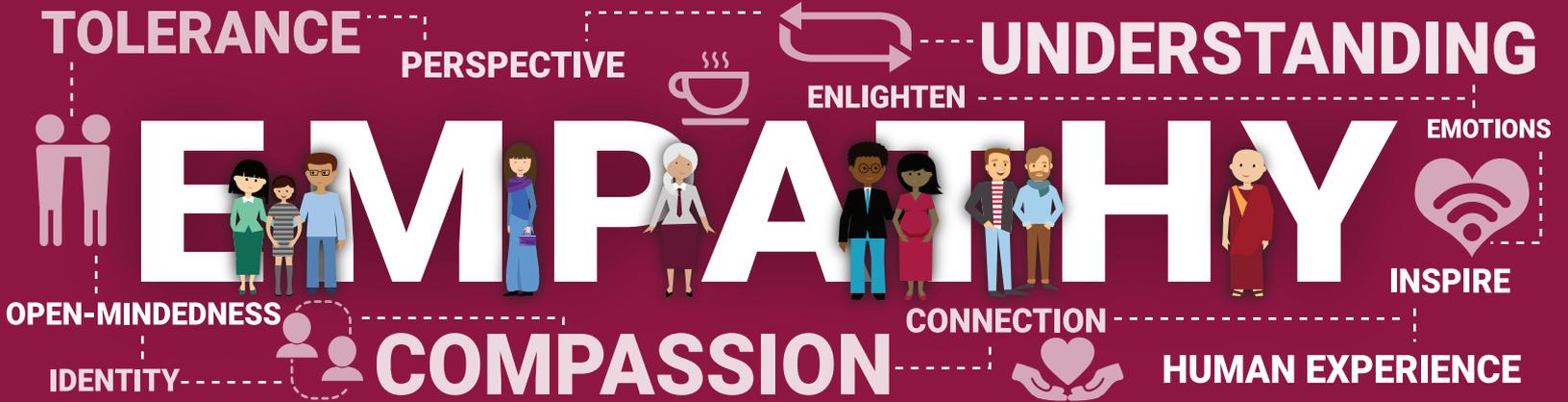


REFERENCES

- Ballantyne, R., & Packer, J. (2016). Visitors' Perceptions of the Conservation Education Role of Zoos and Aquariums: Implications for the Provision of Learning Experiences. *Visitor Studies*, 19(2), 193–210.
- Barnett, J. L., & Hemsworth, P. H. (1990). The validity of physiological and behavioural measures of animal welfare. *Applied Animal Behaviour Science*, 25(1), 177–187.
- Brann, D. W., & Mahesh, V. B. (1991). Role of corticosteroids in female reproduction. *The FASEB Journal*, 5(12), 2691–2698.
- Broom, D. M. (2001). Coping, stress, and welfare. In *Coping with challenge: Welfare in animals including humans* (pp. 1–9).
- FAWC (1992). The five freedoms. London: Farm Animal Welfare Council.
- Fraser, D. (2009). Assessing animal welfare: different philosophies, different scientific approaches. *Zoo Biology*, 28(6), 507–518.
- Luebke, J. F., Watters, J. V., Packer, J., Miller, L. J., & Powell, D. M. (2016). Zoo Visitors' Affective Responses to Observing Animal Behaviors. *Visitor Studies*, 19(1), 60–76.
- Maple, T. L., & Perdue, B. (2013). *Zoo animal welfare*. New York: Springer.
- Mason, G., & Veasey, J. S. (2010). How should the psychological well-being of zoo elephants be objectively investigated? *Zoo Biology*, 29(2), 237–255.
- Mellor, D., & Beausoleil, N. (2015). Extending the “Five Domains” model for animal welfare assessment to incorporate positive welfare states. *Animal Welfare*, 24(3), 241–253.
- Miller, L. J. (2012). Visitor reaction to pacing behavior: influence on the perception of animal care and interest in supporting zoological institutions: Visitor Reaction and Support. *Zoo Biology*, 31(2), 242–248.
- Miller, L. J., Luebke, J. F., & Matiasek, J. (2018). Viewing African and Asian elephants at accredited zoological institutions: Conservation intent and perceptions of animal welfare. *Zoo Biology*.
- Moberg, G. P., & Mench, J. A. (2000). *The Biology of Animal Stress: Basic Principles and Implications for Animal Welfare*. CABI.
- Sapolsky, R. M. (1994). Individual differences and the stress response. *Seminars in Neuroscience*, 6(4), 261–269. 3
- Yeates, J. W., & Main, D. C. J. (2008). Assessment of positive welfare: A review. *The Veterinary Journal*, 175(3), 293–300.

THE IMPACT OF MUSEUMS: EMPATHY

A DATA STORY



Compassion. Understanding. Tolerance.



All of these matter deeply in our changing world.

Not quite half of museum-goers, however, say that the development of empathy or understanding is an important impact of museums.



Additionally, *who* explicitly values empathy tends to vary by life stage. Among the broader population, young adults without children are significantly more likely to value empathy than any other segment of the population.

Overall, however, empathy, compassion, and tolerance are generally not values that are expressed all that often. It doesn't mean they are not *valued*, but most people don't express them.



Perhaps the chain to empathy makes it an impact that is harder to realize and express.

(Knowledge/learning sure has a way of getting all the attention and credit, doesn't it?)

And the cultivation of empathy is a significant impact of museums.



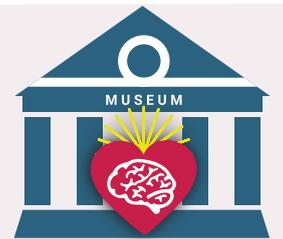
"Museums are an amazing opportunity to understand how others live or have lived and to understand our history and how it points to our future. As a parent, I want my son to be as empathetic as possible, and this type of experience is essential to that goal. I can't imagine replicating that in another way."

Fortunately, some museum-goers *do* credit museums for helping them develop more empathy, compassion, and tolerance, saying museums help them:

- "viscerally and emotionally connect"
- "work toward a better society for all"
- "explore the rich diversity of human experience"
- "reflect on different perspectives"
- "learn tolerance of those different from ourselves."

AND MUSEUMS DO IT! AFTER ALL:

"To grow a world with more empathy and caring for one another, knowledge must be shared and museums are the medium."



Data Stories are created for *The Data Museum*, where research conducted by Wilkening Consulting is released. Sources include:

- Wilkening Consulting's 2017 and 2018 Annual Surveys of Museum-Goers
- Wilkening Consulting's 2018 Broader Population Sampling
- AAM and Wilkening Consulting's "Museums and Public Opinion" (2017)

*Data Stories share research about both museum-goers (who visit multiple museums each year) and the broader population (including casual and non-visitors to museums).

Visit The Data Museum at wilkeningconsulting.com/datamuseum for supporting context and data.



Wilkening Consulting

audience research | knowledge curation

© 2018 Wilkening Consulting, LLC



ADVISORY PANEL BIOGRAPHIES

We have assembled a team of advisors who will help guide the project and set research priorities. They will be meeting quarterly for the duration of the project.

STEPHANIE ALLARD

Dr. Stephanie Allard is the Director of Animal Welfare at the Detroit Zoological Society and oversees the activities of the Center for Zoo and Aquarium Animal Welfare and Ethics. She holds a joint B.S. in Human Biology & Anthropology and Neuroscience & Behavioral Biology from Emory University and received a M.S. and Ph.D. in Experimental Psychology from the Georgia Institute of Technology. Dr. Allard has more than 15 years of experience developing and managing research, animal care and welfare, and conservation programs in zoos. She has lectured internationally on animal welfare and has published articles and book chapters on captive animal behavior and welfare. She is involved with several Taxon Advisory Groups and Species Survival Plans for the Association of Zoos and Aquariums (AZA) as a species coordinator, steering committee member, and advisor. She is also a member of the AZA's Animal Welfare Committee and the Vice-Chair of the Behavior Scientific Advisory Group.

RAPHAEL BERNIER

Dr. Raphael Bernier is a Professor in the Department of Psychiatry at the University of Washington, the Executive Director of the Seattle Children's Autism Center, Associate Director of the Center on Human Development and Disability, and a licensed clinical psychologist. He received his PhD at UW, his clinical training at UCLA, and also holds degrees from the University of Wisconsin and Tufts University. As the author of over 100 scientific articles and the book *Autism Spectrum Disorders: A Reference Handbook*, the Principal Investigator of several NIH and privately funded studies focused on the etiology and neuroscience of neurodevelopmental disorders, and an active clinician, Dr. Bernier is at the intersection of science and practice of neurodevelopmental disorders.

LISA FORZLEY

Lisa Forzley recently returned to the classroom and is currently teaching at an elementary school in Detroit, Michigan, where she weaves humane and empathy education into the curriculum and school culture. Previously, Lisa was the Curator of Humane Education for the Detroit Zoological Society where she oversaw the Berman Academy for Humane Education for 11 ½ years. She has her B.A. in Elementary Education and her M.Ed. in Humane Education. Lisa's served on the board of directors for the Association of Professional Humane Educators and the Michigan Alliance for Environmental and Outdoor Education and is currently on the board of directors for the Humane Education Coalition, a global alliance for collective impact with a mission to advance the field of humane education - human rights, environmental ethics, and animal protection sectors - for the betterment of all living beings. In addition, Lisa is a certified yoga teacher and incorporates mindfulness and social emotional learning practices into the work that she does.

KARLEEN GARDNER

Karleen Gardner is Director of Learning Innovation at the Minneapolis Institute of Art (Mia) and the Project Director for the Mia's Center for Empathy and the Visual Arts. Gardner serves on Mia's leadership team and collaborates to develop and implement institutional strategies and impactful community-centered initiatives. With a strong belief in museums as spaces for dialogue and reflection, she works with cross-functional teams and partners to develop programs and exhibitions that foster conversation, new ways of thinking, empathy,

and global understanding. Gardner is a frequent presenter at national and international conferences, is a peer reviewer for the *Journal of Museum Education*, and volunteers for the American Alliance of Museum's Education Committee. She holds an MA in Art History from the University of Mississippi and a MS in Museum Education Leadership from Bank Street College.

ELIF M. GOKCIGDEM

Elif M. Gokcigdem, Ph.D. is the Founder of Empathy-Building Through Museums Initiative. Elif is an innovative thought leader, historian of Islamic art, and a museums scholar who is committed to creating fertile grounds of empathy through informal learning platforms to inspire positive behavior change, caring mindsets, and compassionate worldviews that value all of humanity and the planet. Dr. Gokcigdem is the Author and Editor of two visionary books on the subject of empathy-building through museums: *Fostering Empathy Through Museums* (Rowman & Littlefield, 2016), and *Designing for Empathy: Perspectives on the Museum Experience* (forthcoming, Rowman & Littlefield, 2019). She was the creative content developer and facilitator of the world's first Summit on "Fostering Universal Ethics and Compassion Through Museums" with His Holiness the 14th Dalai Lama, which took place in Dharamsala, India in October 2018. She has presented her work in various international conferences, including the AAM, ASTC, and the European Science Foundation. She is a member of the advisory group for the Mia's Center for Empathy in Visual Arts, and is a fellow of the World Summit on Innovation and Entrepreneurship(WSIE)'s World Innovation Organization.

JERRY LUEBKE

Jerry Luebke is currently an independent research consultant specializing in the zoo and aquarium industry. His research focuses on assessing visitors' informal learning experiences at zoos and aquariums. Previously, Jerry was on the staff of the Chicago Zoological Society-Brookfield Zoo for 16 years. He served as a senior manager of audience research and was responsible for conducting various visitor studies, exhibit evaluations, and education program assessments. He led a zoo-wide multi-disciplinary team that was responsible for overseeing audience research strategies and ensuring the organization was meeting its mission and business goals as well as the needs of its diverse audiences. He has over 25 years of experience in education, business, and social services. Before joining the Chicago Zoological Society, Jerry was a senior manager with Arthur Andersen's Professional Education Division where he worked in the evaluation and assessment services unit for 11 years. He also taught special education classes at the high school level for several years. Jerry has a master's degree in special education and a doctorate degree in educational psychology from Northern Illinois University.

JILL MELLEN

Dr. Jill Mellen has worked in the zoo and aquarium field for over three decades. While getting her master's degree, she worked as Children's Zoo Supervisor at Miller Park Zoo in Bloomington, Illinois. Jill next worked at the Oregon Zoo as Conservation Research Coordinator focusing on the behavior of zoo animals as well as some of the earliest environmental enrichment efforts. She received her Ph.D. in animal behavior from the University of California at Davis. Her Ph.D. was one of the first multi-institutional zoo studies; she looked at environmental factors associated with reproductive success in zoo felids. In 1996, she moved to Florida to be part of the opening team of Disney's Animal Kingdom as their Education and Science Director. Dr. Mellen's areas of expertise include animal welfare, animal behavior, and enhancing guest experiences in informal learning settings such as zoos and aquariums. She was a member of Disney's Conservation Fund grant review team allocating \$3 million annually to conservation organizations. Within the Association of Zoos and Aquariums (AZA), Jill chaired the Animal Welfare Committee, Felid Taxon Advisory Group, and Ethics Committee and served on AZA's Accreditation Commission. Jill retired from Disney in 2016 and moved back to Portland, Oregon where she currently consults with organizations about animal welfare issues and welfare research.

JEFFREY SKIBINS

Dr. Jeffrey Skibins is an Assistant Professor in the Recreation and Park Management program at East Carolina University. Dr. Skibins' research focuses on human dimensions of wildlife conservation. Much of his research revolves around three overarching questions: 1) how can parks, protected areas, zoos, and aquariums increase public participation in wildlife conservation, 2) how do we improve the long-term sustainability of ecotourism, and 3) how does interpretation influence the visitor experience. To address these questions, he uses conservation psychology theories and frameworks to investigate how visitors' emotions, attitudes, and on-site experiences can be modeled to predict pro-conservation behaviors. His findings are designed to provide managers strategies to enhance wildlife conservation, interpretation and exhibit design, public campaigns, and visitor experiences. His projects address wildlife conservation at a global scale. Currently Dr. Skibins is conducting research in Australia, Africa, and North and South America.

KIM-PONG TAM

Acknowledging that mitigation of environmental problems requires changes in human behavior, Kim-Pong Tam is developing psychological models that aid effective promotion of environmentally responsible behavior in the public. Specifically, he is investigating (i) how people construe their relationship with the natural world, and the emotional and behavioral implications of such construal; (ii) the socio-political dynamics and collectivistic motivations behind people's responses to environmental problems; and (iii) cross-national variations regarding environmental attitude and behavior through the lens of cross-cultural psychology.

JENNIE M. WARMOUTH

Jennie Warmouth is an Educational Psychologist with a Ph.D. in Learning Sciences Human Development and Cognition (University of Washington, 2017). Her qualitative research seeks to understand how children develop empathy. She is particularly interested in the social, emotional, and cognitive impact that companion animal relationships have on childhood development across cultures. Her fieldwork has involved case studies in the U.S. and the U.K. Her non-human animal research explores human-animal relationships in the cultural context of family systems theory. Her classroom based research centers on the enhancement of children's socio-emotional development, self-regulation and moral agency through project-based writing and humane-education involving non-human animal partners.

Her teaching practice is dedicated to exploring innovative pathways for inspiring and empowering her students through hands-on, project-based, and community-focused learning opportunities. She connects with and engages her students through an integrative, interdisciplinary, and experiential approach to instruction that illuminates the interconnectedness between humans and environment, develops critical thinking skills, and calls for community action. She provides her students with the tools to connect with one another, investigate their environment, and advocate for change when they recognize injustice.

She is a three time Fulbright alumna, recipient of the 2018 Patsy Collins Award for Excellence in Education, Environment and Community, and she sits on the executive board of directors for the Progressive Animal Welfare Society (P.A.W.S.).

SUSIE WILKENING

Susie Wilkening has over 20 years of experience in museums, including over a dozen years leading custom projects for museums as well as fielding groundbreaking national research on the role of museums in American society. Susie enjoys sharing her findings at various annual meetings, including the American Alliance of Museums, American Association of State and Local History, Association of Science-Technology Centers, Association of Children's Museums, and state and regional museum meetings. Susie is a go-to expert on museums for the media, including The New York Times, The Wall Street Journal, Fast Company, NPR, and others. Additionally, she is the primary author of *Life Stages of the Museum Visitor* and regularly contributes to Museum, ASTC Dimensions, and AASLH's History News.

Susie earned a BS in History, Technology, and Society from Georgia Tech and an MA from the Winterthur Program in Early American Culture at the University of Delaware. She resides in Seattle, and her husband and curious young children often accompany her as she travels to various museums and historic sites.



PROJECT HIGHLIGHTS FROM OTHER AZA ORGANIZATIONS

Here is some more information about work that's being done to foster empathy for wildlife from other organizations that are attending the symposium.

AN UNEXPECTED LESSON IN EMPATHY

CHAHINKAPA ZOO

In May 2018, the long awaited arrival of two southern white rhinos turned into a horrific and exhausting experience. If the team was not already a close knit unit, this event would have done it. Both rhinos were injured in transport from a hired company. Many things happened en route. Unloading was a near death experience for at least one rhino. The aftereffects were many, and the road to health and success was long.

Only a few days after the initial experience when the outcome was unclear, the Zoo Director held a zoo staff family dinner. Her intent was to share the successes of their loved ones in the line of duty. It turned into a lesson of empathy as tears were shed by management, staff, and family members as our "Rhino Story" was told. Family members thought they knew the jobs of their spouses, children, parents, but revealed after that they finally "get it". Staff were happy to have the testimony from supervisors to their families. They said that often they cannot explain the emotions and feelings they experience in the zoo work place.

A new found communication tool was found in each staff with the public. And senior staff was instrumental in the public discussions with our visitors which was testimonial to the importance to our story. Over 70,000 visitors came to see the rhinos in the summer of 2018. Our hope is that most of them took away a bigger message with an empathetic viewpoint.



An Unexpected Lesson in **EMPATHY**

Key lessons learned

- Empathy for our animal collection begins with empathy for each other and the roles we play.
- A lesson can be taught during an unexpected event or activity. Learn from it and grow a program.
- Don't underestimate the compassion that we in the zoos foster in our public. It is a daily encounter.

Evaluation type(s)

- No planned evaluation was conducted as the event was not originally thought of as an empathy training experience. HOWEVER, the effects can be judged somewhat from the visitors' comments, (some of them documented), and the number of staff family members who joined the volunteer team.
- News media helped spread the story and our visitors truly connected like never before.

ANIMAL CONNECTIONS CONTINUUM

ZOOLOGICAL SOCIETY OF MILWAUKEE

Program Vision is to help youth develop empathy towards others and animals, fostering self-awareness and social-awareness of the world around them.

Program Objectives

- Develop empathy for animals, nature, and other human beings.
- Increase students' awareness of the physical, emotional, and social needs of animals.
- Instill a life-long compassion for the care and preservation of animals.
- Facilitate positive encounters with animals to help students develop emotional connections with animals.
- Provide students with an opportunity to visit a variety of animals at the Milwaukee County Zoo.

Program Overview

- Each grade level scaffolds on one another throughout the three-year program. The grade level topics are:
 - 2nd Grade: Sense of self and familiar animals
 - 3rd Grade: Community and native animals
 - 4th Grade: Others and global impact
- Social Emotional Learning core concepts covered over the three-year program:
 - Self-awareness, self-management, social-awareness, relationship skills, and responsible decision making (See CASEL model)
- Combined with 21st Century Skills, students engage in STEAM-based activities that promote critical thinking, creativity, collaboration and initiative. Programming includes classroom visits and field trips. Many visits include a live animal encounter. Program animal ambassador is the chinchilla, although other animals are also seen throughout three years.



Key lessons learned

- Fostering strong relationships with the teachers in the classroom is key to program success and buy-in.
- Plan and build for more time for evaluation components; implementing, inputting raw data, and assessing results.
- Consistency in teaching staff is key for both the success of program development and implementation.
- Investment in ongoing professional development, peer mentoring, and self-reflection is imperative to the growth of the program.

Evaluation type(s)

- Pre & Post-Surveys for each grade level
- Self-assessment during live animal encounters
- Field journals with reflective activities
- In-classroom evaluation observations
- Classroom educator feedback
- Control group comparisons

BEACH NATURALISTS

SEATTLE AQUARIUM

Beach Naturalists facilitate conversations on Seattle's beaches about wildlife, promoting empathy and beach etiquette to protect the environment.



Key lessons learned

- Empathy is a useful interpretive tool for this context
- Empathy can be particularly helpful for framing conversations around beach etiquette

Evaluation types

- Journals/logs kept by beach captains
- Documenting conversations on the beach

EMPATHY OBSERVATIONS IN ZOO CLASSES

MINNESOTA ZOO

Empathy observations is an observation tool used to evaluate our Zoo Classes. This observation tool was adapted from the MECAP framework called The Empathetic Behavioral Observational Framework. It was specifically designed to be used to assess empathy outcomes and related emotions during the animal demonstration portion of Zoo programs.

An indicator behavior will be recorded when any member of the audience or group being observed demonstrated the behavior, marking the data instrument with a tally mark would be made. Any statements that seem important would be marked in the notes section. Having the notes is especially important to interpreting the data- please complete this for each class with as much detail as possible. Similarly, having data recorded “post” experience, even if just recording the comments as the students pass through the line, will be instrumental to determining how/if the experience is affecting the participants.

The staff members will record results using Survey Monkey on one of the Zoo iPad, or via pen and paper. The staff member should be familiar with the list of outcomes, indicators, and examples of each. When completing the actual checklist, the observer should also remember to include the name of the program being taught, grade level, name of school as well as general class dynamics before the animal demo and any other details that would help in interpreting the data later (i.e. unique things about that particular class and the students in the class, behavioral issues, etc.).



Empathy Outcomes and Related Emotion Outcomes

The indicators we will be looking at will be to measure the following outcomes:

Empathy Outcomes:

- Able to take perspective of animals
- Shows positive behavior towards animals
- Shows emotional response towards animals

Related Emotions Outcomes

- Has interest or curiosity towards animals
- Recognizes animals as individuals

Key Lessons Learned

- We have modified the tool after first usage in 2017-18 school year (based on data review).

- We have also included additional training for educators on framing animal observations in a way to encourage empathy.
- We have now had multiple observers use the data sheet and compare notes and it appears to be a reliable tool. However, we are not certain it is best measuring empathy changes as a result of the animal experience, since the way the classes are structured, it is difficult to get a post measurement.
- We are further exploring how we might update the tool, and/or if it is necessary.

Evaluation types

- Observation
- Pen/paper or SurveyMonkey form

EMPATHY WORKSHOPS FOR AZA PROFESSIONALS

SEATTLE AQUARIUM

These workshops build capacity within the AZA for empathy development. Workshop participants often include staff from education, executive leadership, animal care, philanthropy, and marketing/communications. Over two days, workshop participants learn about the concept of empathy and spent time thinking about how to incorporate empathy into their programming.

Key lessons learned

- Not everyone is going to buy in, even within our own field, but fruitful and interesting conversations can still be had.
- Participants who go through the workshop find innovative ways of infusing their programs with empathy.
- The workshops are particularly strong when participants from across the institution are included.

Evaluation types

- Postcard filled out and sent six months after the workshop
- Post-workshop survey

FOSTERING EMPATHY CURRENT PROJECTS

ZOO BOISE

Zoo Boise's mission is to connect our visitors with animals to inspire and involve our community in the conservation of wildlife worldwide.

Zoo Boise received a grant to apply fostering empathy best practices to the design of and educational programming around a new exhibit opening July 2019 – Gorongosa National Park (GNP). The objective of the project is, after having experienced the exhibit or program, visitors will 1) increase their level of empathy for wildlife and 2) channel their empathy into a conservation action.

The grant also provided training for education staff through visits to other zoos & aquariums to meet with and learn from their exhibit designers, education staff and visitor studies departments as well as Visitor Studies

Association conference & workshops regarding how to incorporate fostering empathy best practices and evaluate the impact on visitors.

In Spring 2019, Education & Communications staff will provide training to all zoo employees regarding definition of empathy how to implement practices that foster empathy, and how it is important to Zoo Boise's conservation mission. Programs will be implemented Spring 2019 through Spring 2020; a summary is provided below.

MANY THANKS to Woodland Park Zoo, Seattle Aquarium, Point Defiance Zoo, Shedd Aquarium & Brookfield Zoo for sharing their time, expertise and resources with Zoo Boise!

Program	Audience	Evaluation Method	Comments
Exhibit Design	General Public	<ol style="list-style-type: none"> Adults – In-person, onsite survey; pre & post exhibit visit. Evaluation tool has been created, tested and validated. Pre-exhibit data collection begins Spring 2019. Children – Observation onsite; pre & post exhibit visit. Aiming to utilize tools similar to those already developed by Seattle Aquarium (with their permission of course!). 	Fostering Empathy best practices incorporated into new exhibit design as well as interpretive plan including graphics, interactives, pathside demos led by volunteers and zookeeper talks.

Program	Audience	Evaluation Method	Comments
Formal Programming	Adults	TBD	
Formal Programming	Families Adults & age 6+ Adults & age infant to 6	TBD	
Formal Programming	Youth – Elementary	Group observation and/or “voting” style survey; pre & post exhibit visit and experiencing specific GNP-focus lessons.	Camp-style programs.
Formal Programming	Youth – Teen	TBD	
Formal Programming	Schoolchildren - elementary	TBD Will be determined by age level and specific GNP lesson.	GNP exhibit specific curriculum in development. Different activities for different age levels.

KIDS TREK NATURE PLAYGROUND

NORTHWEST TREK WILDLIFE PARK

Kids' Trek opened to enthusiastic children and parents on April 2, 2016. This unique playground features natural elements, areas for free play, and countless educational features that immerse children in a natural world of exploration and discovery. The play area is designed for toddlers and children up to age 12, with the youngest visitors a new target group for NWT. Kids' Trek helps to:

- *Engage kids* in a new kind of fun on one-of-a-kind play structures that include imaginative slides, climbing nets inside a 20-foot-tall replica of a hollowed out old-growth tree, a sand-filled area, a stream to splash in, tunnels to crawl through, a simulated eagles' nest composed of taut ropes to balance on, a “construction area” with natural materials, giant log “stepping stones” and more.

- *Encourage children* to learn about and investigate nature so they develop a deeper appreciation for the great outdoors and empathy for the animals, plants, and trees that live there.
- *Teach kids* about reusing and recycling materials. Much of the lumber used in various Kids' Trek structures and benches was reclaimed from Northwest Trek's Free-Roaming Area, where trees are sometimes removed due to hazard or disease, or because they were downed in storms.
- *Foster* the kind of "unorganized free play" recommended by the American Academy of Pediatrics for healthy growth and development.



Key lessons learned

- 1. Kids will play with anything you put in front of them, whether you intend for them to play with it or not!
- 2. Unstructured play is critical to child development. When given the choice of an organized program or free play, most children choose free play.

Evaluation type(s)

- None at this time

LI'L EXPLORERS: PRESCHOOL AT THE ZOO

RACINE ZOO

Li'l Explorers Preschool is a program that uses visits from live animals and story times help our youngest learners connect with animals, while crafts, games, and snacks keep them engaged and moving.



Key lessons learned

Through Lil' Explorers, the youngest members of our community are taught to care for and empathize with animals. During each session, children are introduced to a variety of conservation topics. Students often play games pretending to be animals and are able to meet animals and learn about them close up. Our goal is that this class will lead children to a life of mindful conservation and animal respect.

Evaluation type(s)

- Currently we administer satisfaction surveys for parents and an informal evaluation of each child's understanding from class to class.
- Through our experiences through this new empathy network, we look forward to learning more evaluation techniques that we can apply to Lil' Explorers, particularly around empathy, a key outcome in this program.

THE NATURE OF GROWING UP

WOODLAND PARK ZOO

This is an animal keeper-led, empathy-based Ambassador Animal program in which students, their chaperones and other zoo guests are able to gain a greater understanding of how different animals grow and learn.

Primary goals

- Participants demonstrate a greater understanding of animals' needs, especially young animals
- Participants demonstrate increased positive attitudes toward animals, such as respect and appreciation



Key lessons learned

- Your target audience may not always be the actual audience, so invest in adaptability.
- In order for training to be impactful, invest in consistency.
- Demonstrating a positive interaction between humans and animals comes naturally for an animal keeper; leading a young audience through a perspective-taking exercise does not come as naturally. Invest in providing the time and space for the refinement of new techniques.

Evaluation type(s)

- Tested & piloted peer assessment tools
- Empathy best-practices assessment
- Daily post-program debrief
- Expressions of empathy from the audience

ROADMAP (A PROGRAM OF DENVER ZOO)

COMO PARK ZOO & CONSERVATORY

ROADMAP (Reaching Our Audiences by Developing Mission Aligned Programs) is an education and engagement initiative developed by the Denver Zoo. Como Park Zoo & Conservatory received a 3-year grant to launch the ROADMAP at Como. One element of the ROADMAP is the Guest Interaction Guide (GIG), which encourages building empathy as a strategy for creating more meaningful connections with guests. Through the process of developing our own version of the GIG, we learned more about MECAP and applied for an additional grant to bring the Empathy Workshop to our staff. The workshop, held in December 2018, has inspired us to look more closely at how we can intentionally weave empathy best practices throughout the ROADMAP initiative and beyond.



Key lessons

- We had been walking through the world a bit misinformed on what empathy truly is, and is not, and its potential as an important factor in influencing conservation action.
- Zoos and aquariums, when using intentional best practices, are well-suited to build empathy with our guests, volunteers, and staff.

Evaluation type(s)

- To be determined (as far as empathy practices in particular are concerned), however we are working with a consultant to do baseline, formative, and summative evaluation of the ROADMAP initiative.

SAVING IMASAMBI

INTERNATIONAL CRANE FOUNDATION

Comic Book Campaigns

A Conservation Comic book has been designed in collaboration with International Crane Foundation to be used as an inspirational and educational tool for young people. Its key messages encourage young people to protect Grey Crowned Cranes and not take their eggs or chicks.

The International Crane Foundation's Education and Design Department collaborated with the Rwanda Wildlife Conservation Association (RWCA) and Endangered Wildlife Trust (EWT) to create a comic book to help children living near critical Grey Crowned Crane areas understand that poaching cranes and eggs is illegal and that wildlife is meant to live in the wild.

Distribution and evaluation by Rwanda Wildlife Conservation Association

Before distributing the comic book, we met with teachers to explain our goals. We talked with the students in primary 4 to primary 6 classes (the top 3 classes of primary education) about Grey Crowned Cranes.



Evaluation type(s)

- Students complete a pre-questionnaire to gather their knowledge and understanding of Grey Crowned Cranes and conservation.
- They are then given the comic book to keep.
- We re-visit the same students approximately 3 weeks after the campaign to complete a post-questionnaire to measure changes in knowledge and attitudes.

SEA JOURNEY

THE ALASKA SEALIFE CENTER

Thanks to the generous support we have received over the last four years from various funders, we have been providing a program to school children called Sea Journey. The Sea Journey project focuses on the area of Alaska served by the Anchorage School District (ASD), the largest district in the state (by population). The minority-majority student population is one of the most ethnically diverse in the country with 20% of students participating in the district's English Language Learners (ELL) program.

The program is designed as a year-long experience for the students focused on building empathy for the animals of Alaska's marine ecosystems utilizing the "Best Practices in Developing Empathy toward Wildlife" research. Multiple contacts with the students, both in person at the aquarium, in their classrooms in Anchorage, and through digital connections from the exhibit floor and behind the scenes of the aquarium via video teleconference to each class, allows for individual connections to four ambassador species of Sea Journey. Students get to select one of these ambassador species to investigate further and learn about both individual animals living at the ASLC and the populations in the wild.

Sea Journey integrates with the ASD's Social Emotional Learning (SEL) program. This districtwide initiative, "involves teaching and facilitating skills that students and adults need to be successful at home, school, in the

workplace, in life.” ASD employs SEL at a district-wide level and Sea Journey interconnects well within it. Combination of the two allows for thorough integration of lesson objectives by utilizing the infrastructure of training and support with which ASD teachers are already familiar.

Finally, this project improves one of the most effective ways for Sea Journey participants and ASLC visitors to understand and begin to express empathy for animals: by encountering them up close and personal. This is a difficult proposition considering that the barrier of water and tank glass creates an immediate disconnect. We have enhanced the underwater aquarium experience to minimize those barriers through interactive exhibits, which have been very effective. However, Sea Journey students can literally become physically connected to the marine environment at our touch tank. By immersing their hands into the water to feel the marine animals on display, students thereby immerse themselves in the opportunity to experience the world as a sea anemone, a sea cucumber or a starfish.



Key Lessons Learned

- One of the most satisfying discoveries from the first year is just how well our team planned the project out. Very few challenges or problems arose (all were able to be addressed and responded to on the fly) and the lessons and assignments for the student participants were well received and produced fantastic learning outcomes.
- Despite the fact that we did not work directly in concert with those developing the Empathy Best Practices, our direction and outcomes showed similarities in comparison. Going forward and combining our practical, “on the ground” experience with their theoretical, “meta” look at the subject should prove for a much more effective Sea Journey Program and continuing the collection of valuable data for the research.

Evaluation types(s)

- Pre/post assessments for both student and teacher participants.

WLDLIFE CHAMPIONS COMMUNITY ENGAGEMENT

POINT DEFIANCE ZOO AND AQUARIUM

The purpose of the Wildlife Champions project is to establish a long-term partnership between Arlington Elementary School in South Tacoma and the Metropolitan Park District of Tacoma, promoting empathy towards animals and natural areas in the South Tacoma community. The overall outcome of this project is for the elementary students to develop empathy for animals so they become better stewards of their natural neighborhood.



Key lessons learned

We just began this October, but we do have several learning questions that we are investigating:

- Is this model of collaboration, in which multiple community partners come together and co-create curricula and co-lead program delivery, transferable to other schools in our community?
- How can we ensure that underserved populations have access to experiences and programs that promote empathy towards animals on a sustainable basis?
- At what level do our program partners embrace empathy towards animals as an outcome, and will this be influenced by our partnership?

Evaluation type(s)

- We will be monitoring three domains during the grant period: empathy and stewardship development, Wildlife Champions program development and implementation progress, and the total number of program participants.
- To accomplish this, we have hired Beez Kneez to help develop evaluation tools, model effective assessments and conduct detailed analysis and reporting.
- We have developed nine distinct assessments, incorporating MECAP tools, to gauge empathy and stewardship development over the 41-month term of the grant.