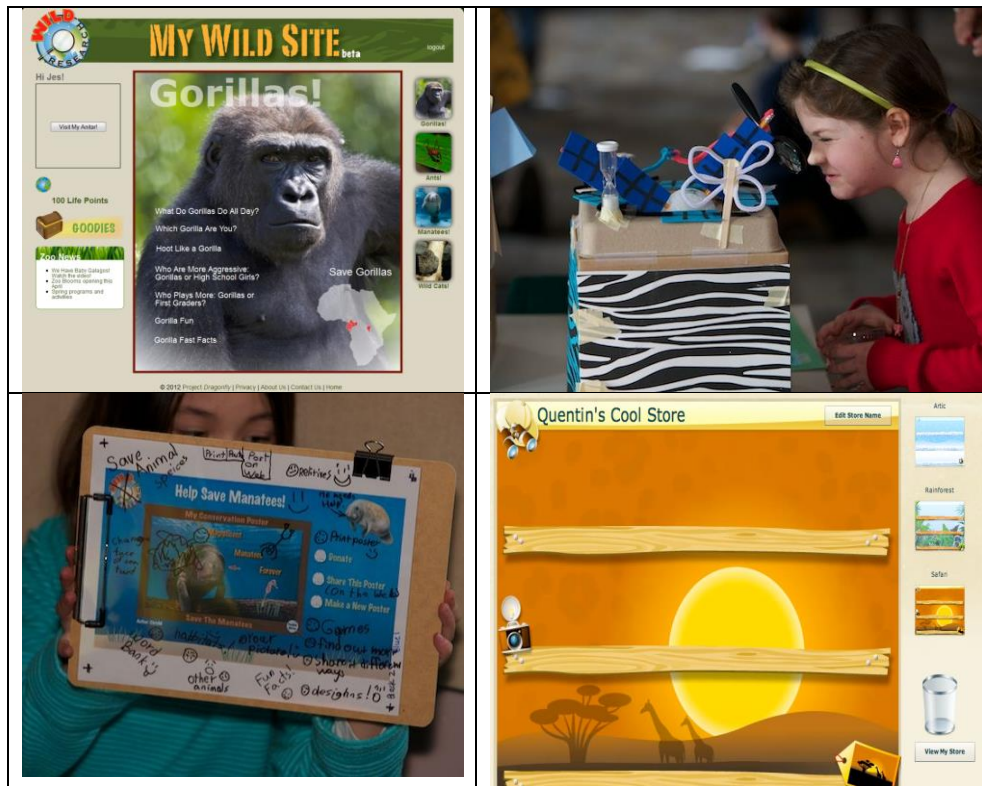


Extending Zoo Visitor Engagement through Conservation Action Stations Onsite and Conservation Campaigns at Home

iSave Species Extended Engagement Interactives Research Study

www.isavespecies.org

June 2013



Prepared by Jes A. Koepfler, Principal and User Experience Research Specialist, UXR Consulting, Inc.
In consultation and collaboration with Chris Myers, Lynne Myers, & Jamie Bercau-Anzano of Miami University

Acknowledgements

Many people helped collect and analyze data across the three phases of this study. Special thanks go to the summer 2012 cohort of research assistants from Miami University who helped collect interviews at the zoo; to the spring 2013 students from Miami University, who participated in the co-design sessions; to Tammy M. Cherry, who served as a Research Associate assisting with interviews and qualitative analysis in Phase I and Phase II; to Elizabeth Bonsignore of the University of Maryland's HCIL, who co-developed and implemented the design sessions and supported analysis and interpretation in Phase III; to the entire iSaveSpecies/Project Dragonfly team and staff; and to the many students, youth, and families who willingly participated in these studies.

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If you use materials from this report, please cite it accordingly:

Koepfler, J. A. (2012). Extending Zoo Visitor Engagement through Conservation Action Stations Onsite and Conservation Campaigns at Home. [Technical Report]. UXR Consulting, Inc. Philadelphia, PA.
Available at: <http://uxrconsulting.com/about/jes/publications>

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Executive Summary

Study Overview & Purpose

The iSaveSpecies team contracted User Experience Research Consulting, Inc. (UXR) to conduct a research study that would inform the development of online extended engagement conservation activities to bridge and support zoo visitors' onsite experiences with computer-based conservation stations. As such the study focused on two key concepts – **engagement** and **conservation**. Across three phases, we investigated visitor attitudes, perceptions, and experiences related to conservation action through the iSaveSpecies system and in their personal lives, and their ideas and interests towards extending their engagement with the iSaveSpecies system both onsite and once they had left the zoo.

The Extended Engagement study was comprised of three phases:

- I. **Onsite interviews** with intergenerational groups who have used the iSaveSpecies poster stations (Summer 2012)
- II. **Follow-up phone interviews** with parents/caregivers two to four weeks after their zoo visit (Fall 2012)
- III. **Co-design sessions** with youth (ages 7-12) (Spring 2013)

The study was designed to explore how *iSaveSpecies Conservation Stations*, such as poster-creating and poem-making activities at touchscreen kiosks at the zoo, lead to extended engagement through *iSaveSpecies Extended Conservation Interactives* online within the context of a broader *Conservation Campaign*, which were defined as follows:

- **iSaveSpecies Conservation Stations** are computer stations located at zoo exhibits that seek to encourage conservation-related actions, such as awareness raising, knowledge sharing, fund raising, and other behaviors. Current stations provide visitors with the opportunity to create posters, make poems, take quizzes, make observations about animals, and more.
- **iSaveSpecies Extended Conservation Interactives** are web-based or app-based tools that allow visitors to participate in conservation actions, typically after the visitor has left an iSaveSpecies Conservation Station, whether that is later on in the zoo visit experience, in the car on the ride home, at home, or at school. A beta version of the website exists at <http://isavespecies.org/>, and this study sought to support development of new potential activities on this site.
- **Conservation Campaigns** make up a full set of iSaveSpecies facilitated onsite and online actions associated with the zoo's exhibits. The iSaveSpecies project currently has plans for conservation campaigns related to great apes, Wild Cats, as well as a more issue-based "Sustaining Life" campaign.

Research Questions

This study was guided by five research questions developed in collaboration with the iSaveSpecies team:

1. In what ways are visitors impacted by participation in conservation action through the iSaveSpecies system?
2. What kinds of tools, features/functionality, and interactive experiences promote visitor action?

3. What does extended participation and engagement look like with regard to existing tools in the iSaveSpecies system?
 - a. What are the levels/ranges of participation?
 - b. Where does participation happen? (on-exhibit, off-exhibit, at home, at school)
4. How do the different interactives, visitor group types, and location of use impact the continued engagement through iSaveSpecies Extended Conservation Interactives?
5. Does the concept of a Conservation Campaign fit with the ways in which visitors think about conservation and the ways that they wish to and are motivated to participate?

Summary of Key Findings & Recommendations

Phase I: Onsite Interviews

Below is a list of key findings and associated recommendations for the iSaveSpecies conservation stations and extended engagement interactives based on the analysis of 80 group interviews with Cincinnati Zoo visitors collected from June 22-July 16, 2012. The semi-structured interviews covered the following topics:

- A. General group makeup
 - B. Zoo visitation habits
 - C. Group interactions with the conservation stations
 - D. Attitudes towards the conservation stations
 - E. Sharing posters and poems from the conservation stations
 - F. Conservation action
 - G. Computers in Zoos
 - H. Suggestions for Improvement
1. Intergenerational and family groups visit zoos in all shapes and sizes and often do not go home to the same places when they leave the zoo.
 - a. Build extended engagement interactives that target an individual and allow them to share that experience with other members of his/her family group(s) after the visit.
 - b. Build an interface that is responsive to multiple screen sizes (i.e. desktop and mobile-friendly) to account for the different locations and times when groups might begin their extended engagement (i.e. in the car ride home or when they are at school).
 2. The conservation stations appeal to zoo members who visit often and want to augment their experiences with the animals.
 - a. Consider zoo members as a key target audience of the extended engagement interactives online. Work with these individuals to help design the online activities in a way that will augment their onsite experiences and capitalize on their affinity with their zoo (i.e. use zoo specific branding and personalization).
 3. Onsite interactions with the conservation stations ranged from individual use by children and/or adults to collaborative efforts. The offsite experiences will likely reflect a similar range of interactions likely with more individuals participating individually.
 - a. Target children as the primary audience for the offsite interactives and anticipate that they may not have adult help.

4. Participants enjoyed the conservation stations and the ability to create the posters/poems, share them with friends and family, and keep them as mementos of their visit.
 - a. Provide additional opportunities for users to engage with their posters/poems during extended engagement activities.
5. Participants were able to connect with the animals and learn more about them through the creation of the posters/poems.
 - a. Incorporate interactives that would allow users to learn more about the animals once they returned home by connecting directly to the poster or poem that they created.
6. Sending completed posters/poems by email was popular among participants. It allowed participants to share their experience with others as well as give themselves something to look at on their way home (by mobile device) or once they returned home initiating the first step of extended engagement.
 - a. Use the poem/poster as a scaffolding device for extended engagement. Participants should connect directly from the poster/poem to an extension of that activity online through a related game, quiz, or new messaging activity.
 - b. Consider using the moment of emailing the poster/poem as an opportunity to have people opt-in for starting a conservation campaign or building a presence on the iSaveSpecies website to follow up with when they return home.
7. Some participants had privacy concerns with regard to sharing their personal email addresses.
 - a. Include language on the iSaveSpecies interface that clearly articulates the system's privacy policy related to sharing personal information.
8. Most participants liked the idea of posting their posters/poems to Facebook, however several groups cautioned that privacy and time would hinder posting while onsite.
 - a. Provide opportunities for visitors to post their posters and poems to a wide range of social networking sites (Facebook, Twitter, Instagram, Flickr, etc.) within the email that participants send to themselves and to other family members. This is another opportunity to extend visitor engagement once visitors have left the exhibit.
 - b. Provide opportunities for visitors to post to social networks for other activities that might be developed for the iSaveSpecies online system.
9. Visitors had specific ideas about what they thought conservation action was and focused on noble aspects like protecting the earth, actionable behaviors like consuming less, or awareness raising activities. Participants were not always certain if the conservation station allowed them to engage in conservation action as they had defined it.
 - a. The idea of a conservation campaign should include ideas about protecting the earth, changing behaviors, and raising awareness to align with visitors' initial perceptions. These categories and others could be used as labels or progress bars associated with various interactives online.
 - b. For additional conservation-related activities, such as connecting with scientists and researchers in other countries or raising money, visitors will need scaffolding to understand how those actions relate to conservation and why it is so important for them to engage in the those types of activities.

10. Participant comments highlighted the value of having computer-based interactives onsite at zoos as a tool for extending engagement, and indicated that a balance between the zoo visit and the use of computers at the zoo was important.
 - a. Create extended engagement activities that provide a balance of computer time at home to meet the needs of worried parents who are trying to limit the amount of time children spend on computers more generally.
 - b. Create extended engagement activities that provide additional learning opportunities as well as variety to keep kids engaged and parents happy.

11. Participants provided a range of suggestions for improving the existing conservation stations including providing more images of the animals and words or phrases to choose from, adding sound and/or video components, adding more stations in the exhibits for busy days, providing more educational information at the stations, and providing the colored version of the poster in the email.
 - a. Implementing these ideas into the onsite stations should be done with caution – adding noise to an already busy exhibit and increasing the amount of time users spend at the computers may compromise the visitor experience. Instead, use these ideas as a first step towards scaffolding the online experience based on the onsite experience. For example, provide the same poster experience online with additional educational videos, more images, more words and phrases to choose from, etc.

Phase II: Follow-up Phone Interviews

Below is a list of key findings and associated recommendations for the iSaveSpecies conservation stations and extended engagement interactives based on the analysis of 13 follow-up phone interviews with individuals who visited the Cincinnati Zoo in the summer of 2012 and agreed to a follow-up phone interview which took place between October 20-November 6, 2012. The semi-structured phone interviews covered the following topics:

- A. Learning about their engagement with the poster email post-visit
 - B. Discussing new concepts for taking actions
 - C. Defining conservation actions and campaigns
 - D. Identifying incentives for ongoing engagement
 - E. Determining what technology is available in the home
 - F. Addressing concerns about privacy and minors on the Internet
1. Participants were pleased with the simplicity of the poster email, but they had concerns about the vagueness of the sender and noted issues particularly for older generations when receiving the email.
 - a. Provide individuals with the opportunity to personalize the sender and receiver of the email to reduce confusion by recipients and to continue to foster intergenerational engagement onsite and offsite.

 2. Participants were interested in sharing their posters via Facebook through a button or link in the follow-up poster email.
 - a. Incorporate a Facebook button or link at the bottom of the poster email that would allow participants to share their children's posters online. Note that it will most likely be parents sharing via Facebook and not children, due to parental restrictions.

 3. The full range of Actions appealed to participants. In particular, they were very interested in hearing from a scientist and sending a photo of themselves or their children with a Manatee or Wild Cat.

- a. Consider the development of all of the Actions at some point to reach the largest audience possible, but prioritize hearing from a scientist and sending a photo in the development plan for creating new actions and activities for zoo visitors.
4. Participants rated the web store, ringtone, and campaign as least interesting, but noted that they thought their children might be more interested in some of these activities.
 - a. Conduct additional testing of these ideas with members of the target audience, but be mindful of parents' concerns since they are the gatekeepers of access to the Internet for their children.
5. Participants thought the location for engagement with the Actions should be determined by the amount of time an Action would take to complete. They were split on whether the Actions should be affiliated with the local zoo or with a conservation effort more generally.
 - a. Be mindful of the amount of time an Action might take to complete onsite, so that it enhances, but does not disrupt a zoo visit.
 - b. Provide options for connecting with one's local zoo or conservation efforts more broadly, particularly with any fundraising related Actions.
6. Participants listed a range of conservation-related activities that they engaged in on a daily basis, but did not identify any web-based activities related to conservation action.
 - a. iSaveSpecies has a unique opportunity to fill an existing gap in terms of web-related conservation activities for children and intergenerational groups. Parents are mindful of the amount of time their children spend online, however, so the website should be careful to craft actions that only require short time allotments and connect with offline activities when possible.
7. Participants' initial definitions of "conservation campaign" were often focused on the role of money in a campaign. When they heard the team's definition, they were pleased and felt that it was comprehensive, though some mentioned apprehension about the word "campaign". Participants felt the definition aligned well with the web store and campaign Actions.
 - a. Maintain the conceptual idea of a conservation campaign, in particular one that includes everything from sharing information to raising funds for animals.
 - b. Consider alternative terms for campaign that will be less influenced by political events that will occur every two years.
 - c. Conduct further testing on the web store and campaign concepts with members of the target audience.
8. The full range of incentive ideas were attractive to the participants. In particular the zoo rewards were very popular among the parents. They perceived other things like the achievement points as being particularly interesting to their children.
 - a. Consider the need for incentives for both parents and children in order to maximize possible engagement beyond the zoo experience.
 - b. Develop a system that advances visitors through a series of Actions with incentives to the match the associated effort to foster an ongoing extended engagement process.
 - c. Conduct additional testing with members of the target audience to determine which incentives would be most appealing to this group.
9. Participants reported a wide range of technology devices in the home with varied access and restrictions.

- a. Ensure that tools are compatible with a wide range of platforms, including Apple and Android, and that web-based applications are designed responsively so that they automatically adjust to the variations in screen size afforded by switching between mobile devices and larger screens.
 - b. Be mindful of the amount of time a child would be expected to interact with the website to mitigate issues related to parental restrictions.
10. Participants indicated that they take the privacy of their children’s information seriously and that the least amount of information possible should be collected. They wanted reassurance that the site was safe and secure and would not sell any of their personal information.
- a. Follow the Children’s Online Privacy Protection Act (COPPA) guidelines for best practices regarding privacy of information related to minors (www.epic.org/privacy/kids/).
 - b. Follow best practices on usable privacy and security design with regard to icons and messaging ensuring visitors that the site is both safe and secure (CyLab Usable Privacy & Security Lab at Carnegie Mellon University – www.cylab.cmu.edu/partners/success-stories/cups.html).

Phase III: Co-design Sessions

Below is a list of the key themes and big ideas from the analysis of photos, design artifacts, and notes from the co-design sessions held at Miami University on March 24, 2013, with 12 college students and 18 youth between the ages of 7-12. The co-design sessions covered the following design activities and prompts:

- A. Design a Web Store for Conservation Action (Bags of Stuff)
 - B. Conservation Action Posters (Layered Elaboration)
 - C. Conservation Community (Layered Elaboration)
 - D. Conservation Action Newsletter (Layered Elaboration)
1. Conservation Web Store
- a. Theme: Creating or building things to sell in the store (e.g. clothing).
 - b. Theme: Educational games – both timed and non-timed games for learning fun facts about animals.
 - c. Theme: Learning facts including those that are common, rare, and special; those that are about animals, plants, and conservation; and coming from scientists, zoo keepers or other conservationists.
 - d. Big Idea: Consider interactives that are ideal for mobile devices and take advantage of affordances like shaking and gliding.
 - e. Big Idea: Think about ways that scientific inquiry tools like clickers and timers could be reimagined online for things like counting items bought in a store, counting people using renewable resources, or tracking saved or expended energy.
 - f. Big Idea: Balance opportunities for authentic zoo information and real-life examples with fictional characters and avatars.
2. Conservation Poster
- a. Theme: Provide multiple media formats for creating and sharing posters.
 - b. Theme: Allow kids the opportunity to personalize their posters and see themselves in the posters by applying head shots to creatures in the scene, or incorporating them as other members of the scene.
 - c. Big Idea: Kids are interested in the larger ecosystem and family tree of animals.

- d. Big Idea: “Happiness” is a meaningful concept to kids and they want to find out how they can help make animals happier through conservation actions.
 - e. Big Idea: 2D posters can come to life online through interactive and moving creatures on the screen.
3. Conservation Community
- a. Theme: Similar to wanting multiple media formats for creating and sharing posters, kids want multiple forms of communication to connect with members of a conservation community including chat, social media, commenting on videos, and asking questions directly.
 - b. Big Idea: Kids liked the idea of connecting with the conservation community at their local zoo.
 - c. Big Idea: Physical communication through things like postcards still appeal to kids.
4. Conservation Action Newsletter
- a. Theme: Following themes from the other design prompts, kids mentioned that personal touches and connecting to their own zoo was important to them.
 - b. Theme: Several groups came up with fun and “punny” titles for the newsletter including “Daily Zoos” (instead of Daily News) and “Zoo Work Times” (instead of New York Times).
 - c. Theme: Kids came up with a vast array of information that they would be interested in receiving in a newsletter including most visited animal of the week at their zoo, “This day in history...” facts related to animals, and a conservation project of the week to do at home, among others ideas.
 - d. Big Idea: Kids came up with unique ways to make the newsletter interactive by suggesting a voting area or a Q&A section where kids responded to a question like: “What animal do you want to own?”
 - e. Big Idea: Building on ideas from the Conservation Community design prompt, kids thought the newsletter would provide a unique opportunity to engage with conservationists.

Recommendations:

The co-design sessions revealed a wide array of activities and information that young people might be interested in with regard to conservation action. The following is a list of things to keep in mind when designing conservation activities for youth between the ages of 7-12 based on the key themes and big ideas that emerged from the design artifacts they created:

- Consider the affordances of mobile devices for shaking, gliding, and tapping
- Balance high-quality conservation information with fantasy and imagination
- Allow for creation, experimentation, and personalization whenever possible
- Take advantage of the variety of information types available and serve them up to kids through games, interactives, community connections, and through ‘earned’ points or leveling up to keep them coming back

Phase I (Summer 2012): Onsite interviews at iSaveSpecies kiosks at the Cincinnati Zoo

Methods

Onsite Interviews

To begin to address these research questions, UXR developed semi-structured interview instruments in consultation with iSaveSpecies team members. The instrument was pilot tested during training sessions for research assistants held June 21-22, 2012 in the Manatee exhibit at the Cincinnati Zoo. Minor adjustments were made to the formatting and question wording of the instruments and were then deployed for data collection at the zoo in both the Manatee and Wild Cat exhibits from June 22-July 16, 2012. Eight researchers collected data during the 24-day data collection period.

Researchers stationed themselves in the Manatee and Wild Cat exhibits near the exits and with a view of the entire area containing the conservation action stations. Once an intergenerational group of visitors (defined as being a group of two or more people with at least one member visibly over the age of 18 and under the age of 18) entered the area and engaged with a touchscreen, they became eligible for participation in the study.

Researchers waited for visitor groups to complete their engagement with the stations before asking if they would be willing to participate in a 5-10 minute interview. Researchers offered participants an incentive of \$5 for use in the Zoo gift store for their participation in the interviews.

Researchers did not conduct observation studies of participants' interactions with the stations, because a similar study had already been completed by the Institute for Learning Innovation as part of the Wild Research grant (see Heimlich & Yocco, 2010, for more details).

Once all of the interviews had been conducted and transcribed, two researchers conducted thematic analysis (Braun and Clarke, 2006) of the transcripts using an iterative, grounded theory approach (Charmaz, 2006). Beginning with a subset of the data (13%, n=10 interviews), each researcher developed a set of themes and codes separately. They then met to discuss and merge the codes as necessary, determine proto-themes, and re-code the subsample of data for consistency. Once the coding rubric was stabilized, one researcher then coded the remainder of the dataset.

One researcher annotated the interviews manually in Microsoft Word and then entered the codes into an SPSS 17.0 database for further analysis. Due to the highly qualitative nature of the data, only descriptive statistics and cross-tabulations were used to analyze the data with the purpose of identifying patterns and relationships within the data. Cross-tabulations were conducted with independent

variables such as exhibit (Manatee vs. Wild Cat), visitor-type (regular/member visitor or not), and yes/no responses compared to corresponding “why” responses (e.g. Do the touchscreen interactives make you feel like you are taking a conservation action? Why or why not?). Inferential statistics were not appropriate for this type of data and were not conducted.

Limitations

Due to the use of convenience sampling, the results from this study cannot be, and were not intended to be, generalized to a broader population of zoo visitors. The findings highlight a specific set of experiences that represent a range of ages, group types, and interactions among people who have used the conservation action stations at the Cincinnati Zoo. Although the findings are not generalizable, they are representative of a range of attitudes, perceptions, and behaviors that can inform the design of new informal learning experiences at zoos and extended engagement activities for visitors at home and at school. The findings point to lessons learned and potential best practices that may be transferable across zoo institutions and in other informal learning environments.

Findings & Discussion

Sample

Researchers conducted a total of 106 group interviews in the Manatee (n=54) and Wild Cat (n=52) exhibits. Twenty-six (26) interviews were removed from the sample due to recording issues, incompleteness, participants not meeting the inclusion criteria, or because they were training interviews used for practice by new researchers.

- ❖ Eighty (80) interviews made up the sample that was coded, entered into SPSS, and then analyzed.

Researchers used a semi-structured interview protocol, seeking to ask questions across all of the main themes of the interview, but allowing the participants to guide the conversation. As a result, not all 80 groups responded to the exact same set of questions. We have reported percentages in this document based on the total sample of n=80 for consistency, but also indicated the number of participants for whom the question was not asked or for topics that participants did not otherwise comment on at the end of each section in gray.

A. General Group Makeup

This study targeted groups that had both children and adults in them, who did not appear to be part of an organized group such as the Boy Scouts or a bus tour. To begin the interview researchers asked participants a few open-ended questions about themselves and their group. Some groups reported specific relationships among the group members such as parents and children (29%) while others simply said they were family more generally (15%). Often participants specified whether or not there were multiple generations represented in their groups (i.e. “Yeah, grandsons and my son's fiancé”) (14%), or whether they were there with more than one family unit (33%).

[10% of the participants were not asked about their group makeup or did not comment on this topic directly].

Many groups indicated that they were visiting the Cincinnati Zoo from out of town (33%); a portion of them were visiting for the first time (16%). A roughly equal portion of the groups indicated that they were local to Cincinnati (28%).

[40% of the participants were not asked where their group was visiting from or did not comment on this topic directly.]

1. Intergenerational and family groups visit zoos in all shapes and sizes and often do not go home to the same places when they leave the zoo.

- ❖ **Build extended engagement interactives that target an individual and allow them to share that experience with other members of his/her family group(s) after the visit.**
- ❖ **Build an interface that is responsive to multiple screen sizes (i.e. desktop *and* mobile-friendly) to account for the different locations and times when groups might begin their extended engagement (i.e. in the car ride home or when they are at school).**

B. Zoo Visitation Habits

Interview groups represented a wide range of zoo visitation patterns. Nearly one-third of the groups (30%) were frequent zoo visitors, going to zoos 3-5+ times a year; many of them visited the Cincinnati Zoo in particular. Others visited zoos sometimes (1-2 times a year, 15%), or rarely (less than one time a year, 8%).

Nearly one-third of the interview groups (30%) mentioned that they were members of the Cincinnati Zoo (even some individuals who came from cities elsewhere in Ohio). One-third of the participants (33%) mentioned that they had used the interactive before. These frequent-user groups were typically zoo members.

[33% of the participants were not asked where their group was visiting from or did not respond to the question directly.]

2. The conservation stations appeal to zoo members who visit often and want to augment their experiences with the animals.

- ❖ **Consider zoo members as a key target audience of the extended engagement interactives online. Work with these individuals to help design the online activities in a way that will augment their onsite experiences and capitalize on their affinity with their zoo (i.e. use zoo specific branding and personalization).**

C. Group Interactions with the Conservation Stations

The stations allowed visitor groups to engage in a variety of ways. Many groups indicated that a child in their group led the activity (21%). Some groups worked on it collaboratively with both adults and children co-creating the posters/poems (15%). And other groups surrounded the set of conservation stations in the exhibit and each group member completed his or her own poster/poem (14%).

[45% of the participants were not asked this question or did not comment on this topic directly.]

3. Onsite interactions with the conservation stations ranged from individual use by children and/or adults to collaborative efforts. The offsite experiences will likely reflect a similar range of interactions likely with more individuals participating individually.

❖ Target children as the primary audience for the offsite interactives and anticipate that they may not have adult help.

D. Attitudes toward the Conservation Stations

Groups really enjoyed the iSaveSpecies Conservation Stations in both the Manatee and Wildcat exhibits. In particular, participants really enjoyed having a product (i.e. a poem or poster) that they could share with someone who was not on the zoo visit with them or to have as a memento (by emailing it to themselves) of their trip to the zoo that day (36%).

[I liked] that you can create a poster...and also send it to whoever – your family or somebody. (Child, Manatee)

[I liked] that there's a poem I could pick. [Child]. We could print it off and frame it and save it as like a souvenir of our trip to the zoo. [Adult] (Child & Adult, Wild Cat)

My kids love it. They like to go home and get an email. They think it's fun. (Adult, Wild Cat)

Participants also liked that it was interactive, commenting on the touchscreens and the hands-on nature of the activity (34%).

What I like about this is the kids can get involved. It is a lot better. It is more hands on than a lot of other places I have been to. (Adult, Manatee)

I think it's cool and it's nice for the kids to be able to engage in it and do a little hands-on with it. (Adult, Wild Cat)

I just think the kids like all the interactive stuff. It makes it fun for them. (Adult, Wild Cat)

Some of the groups commented that the stations provided an opportunity to learn more about or help the animals by creating conservation messages (19%), or that it allowed them to make an emotional connection with the animals through the pictures and messages (13%).

And also I like some of the options where it is an endangered animal or something and that will raise awareness for people who are reading it and stuff. (Child, Wild Cat)

You get to learn about the conservation of the manatees. (Child, Manatee)

I think it's really neat. I like the way you can choose your background and choose the cat. (Adult, Wild Cat)

And they give you lots of information...What kind of cats they are, what kind of habits, what they do or do not eat. (Adult, Wild Cat)

Participants commented on the fact that the stations were user-friendly and great for people of all ages (11%).

I like also how they have it at varying heights so depending on how short or how tall you are, someone can utilize it. (Adult, Manatee)

Those who did not provide specific responses, made generally positive comments on how they thought the stations were “great” and “fun” (11%). Only two groups mentioned something negative about the stations, wanting them to have more options for the words that could be entered into the posters/poems or wanting a bit more information about the animals in the exhibits (3%).

[9% of the interview groups were not asked this question or did not comment on this topic directly.]

4. Participants enjoyed the conservation stations and the ability to create the posters/poems, share them with friends and family, and keep them as mementos of their visit.

❖ **Provide additional opportunities for users to engage with their posters/poems during extended engagement activities.**

5. Participants were able to connect with the animals and learn more about them through the creation of the posters/poems.

❖ **Incorporate interactives that would allow users to learn more about the animals once they returned home by connecting directly to the poster or poem that they created.**

E. Sharing Posters & Poems from the Conservation Stations

Email

The majority of groups stated that they had sent their posters or poems to themselves or someone else via email (80%). This feature of the conservation stations was a first step towards the process of extending engagement when 34% of the respondents sent their posters and poems home to themselves for follow-up. The email feature also further supported intergenerational interactions when 25% of the respondents indicated that they sent the posters and poems to their mother or father and 18% sent them to their grandparents (these responses came mostly from children in the groups). Participants also sent posters to friends/peers (9%), brothers/sisters (4%), aunts/uncles (3%), and work colleagues (1%).

Participants hoped that the people they sent their poster or poem to would print it out, forward it on to others, and/or get a taste of their zoo visit experience without having been there.

Yeah, show people that I have been to the zoo. (Child, Manatee)

[We sent it to] one of our girl friends that wasn't able to make it. So we sent copies of that email to them and her friends. (Adult, Wild Cat)

Those who did not send the email (15%) indicated that they did not want to share their email address with the iSaveSpecies system, worried that they might end up on a mailing list or had other similar privacy concerns. A few people said that they ran out of time and left before sending the poster or poem to an email address.

[5% of the participants were not asked this question or did not comment on this topic directly.]

6. Sending completed posters/poems by email was incredibly popular among participants. It allowed participants to share their experience with others as well as give themselves something to look at on their way home (by mobile device) or once they returned home initiating the first step of extended engagement.

- ❖ Use the poem/poster as a scaffolding device for extended engagement. Participants should connect directly from the poster/poem to an extension of that activity online through a related game, quiz, or new messaging activity.
- ❖ Consider using the moment of emailing the poster/poem as an opportunity to have people opt-in for starting a conservation campaign or building a presence on the iSaveSpecies website to follow up with when they return home.

7. Some participants had privacy concerns with regard to sharing their personal email addresses.

- ❖ Include language on the iSaveSpecies interface that clearly articulates the system's privacy policy related to sharing personal information.

Social Networks

In addition to email, groups were asked if they would like to be able to share their poster/poem through any online social networking sites. Most participants were interested in the opportunity to post their posters and poems to their Facebook page or Twitter account (40%).

Yes, like Twitter. (Adult, Manatee)

On Facebook definitely. (Adult, Wild Cat)

Because there's a lot of kids out there that go on Facebook like 24/7. That would definitely reach out to them. (Adult, Wild Cat)

I would probably post it on Facebook and say my brother made this at the zoo. (Child, Wild Cat)

I would have posted it on my wall immediately. ... Because more people see it that way. Because if you send it to one email only one person gets to see it but Facebook everybody sees it. (Adult, Manatee)

A few respondents gave helpful ideas for how to implement social network sharing by linking it to the email rather than providing the opportunity directly from the iSaveSpecies touch screen. Participants noted that they might not have the time to enter their account information while at the zoo, so including it in the follow-up information would work best for them. Others had privacy concerns about entering personal information into a public station and felt that attaching the social network sharing feature to the email would mitigate that concern.

...that's not a good thing, putting your user name and password in with people in the public over your shoulder on a touch screen that's public. But maybe email it to ourselves and a reminder like once you email this to yourself then be sure to post this on your Facebook because the idea of conservation around networking and raising awareness, if the suggestion would be there. Maybe when you got the email it says hey, you can also post this to your Facebook, click the Facebook logo or Instagram or whatever, Twitter. (Adult, Wild Cat)

Being able to post it to Facebook would make me a little bit cautious just because I would be having to put my private information out there but having an email link attachment to be able to post it to Facebook might be nice when it gets sent to you. (Adult, Manatee)

Some of the participants indicated that they would not post it to a social networking site due to privacy concerns or because adults explicitly did not allow or want their children to use sites like Facebook (20%).

They probably would if they had Facebook but I do not allow that yet, they are still ten and 12. For me probably not because I normally read and I am lucky if I post something. I am not much into that and then he does not have Facebook. (Adult, Manatee)

No Facebook. She is not old enough. (Adult, Manatee)

I think I might be a little reluctant to give out my Facebook account. (Adult, Wild Cat)

Being able to post it to Facebook would make me a little bit cautious just because I would be having to put my private information out there but having an email link attachment to be able to post it to Facebook might be nice when it gets sent to you. (Adult, Manatee)

[38% of the participants were not asked this question or did not comment on this topic directly.]

8. Most participants liked the idea of posting their posters/poems to Facebook, however several groups cautioned that privacy and time would hinder posting while onsite.

- ❖ **Provide opportunities for visitors to post their posters and poems to a wide range of social networking sites (Facebook, Twitter, Instagram, Flickr, etc.) within the email that participants send to themselves and to other family members. This is another opportunity to extend visitor engagement once visitors have left the exhibit.**
- ❖ Provide opportunities for visitors to post to social networks for other activities that might be developed for the iSaveSpecies online system.

F. Conservation Action

In order to eventually understand how website visitors might perceive the idea of a “Conservation Campaign”, researchers asked groups to define conservation action in their own words and then describe the ways in which something like creating a poster/poem on a touchscreen station might align with that definition.

Groups defined conservation action in three main ways: 1) protection (33%), 2) behavior (20%), 3) awareness & knowledge (15%). No groups defined it as developing an emotional connection or other affective response to the animals, nor did anyone identify advocacy or policy-related actions with regard to conservation. A few people were unsure or provided a different response. For example, one group mentioned “donating money” as a defining characteristic of conservation action (Adult, Manatee).

Protection

Groups that described conservation action as protection gave responses that included ideas about protecting the earth, animals, and other living things (33%). Only 5 of these respondents did not feel that the conservation stations aligned with this definition.

Conservation is where you're protecting the animals or people are protecting the animals. (Adult, Wild Cat)

I would define it as taking care of the environment and the resources that everybody needs, not just people, but the animals too. (Adult, Manatee)

Behavior

Groups that described conservation action as behavior-driven identified actions such as preservation, saving resources, not being wasteful, recycling, using less water, and taking public transportation (20%). Only 2 of these participants did not feel that the conservation stations aligned with this definition.

It encourages people to step up and not make the environment all trashy so the animals have a better place to live. (Child, Wild Cat)

Well, conservation really involves all kinds of things as far as not wasting and trying to use what is in your natural environment. Look at global warming and what we are doing to it. This summer alone is – it is just bad. (Adult, Wild Cat)

We are big recyclers, so we have a family of five, but we don't even have one garbage filled out when we take it to the curb, because we recycle our cans, our glass, our plastics, our paper. We do all of that, and you can, you can see a negative effect, you know, on the community, the landfills, you know, it is like let's put all of this stuff to use, even with our food scraps, we have a compost in our garden. (Adult, Manatee)

Well, it could range from things like following water rules like when you are boating through the channels... And not speeding because of the manatees that can become injured. (Adult, Manatee)

Whether it is water, electricity or animals, if you want to conserve something you are saving it. (Adult, Manatee)

Awareness & Knowledge

Groups that described conservation action as awareness & knowledge presented ideas about raising awareness or providing education to people about conservation (15%). Only 2 of these respondents did not feel that the conservation stations aligned with this definition.

Well, with the boys, just educating them on how it affects us. We're not just here to come see animals behind glass or cages. We're here to understand why they're there and that ...um... we're learning about them and we're understanding why they're trying to increase their numbers and that kind of stuff. (Adult, Wild Cat)

Conservation means trying to protect the habitat and conserve the spaces where they live and making things like the zoo where we can educate. So, conservation action is you learning about it. That's an action. (Adult, Wild Cat)

Something to give you knowledge to help save a species maybe, or to preserve the species. (Adult, Manatee)

Although many participants felt that the conservation stations gave them an opportunity to engage in their personal definitions of conservation action, some respondents were unsure (16%) and could not say whether or not the conservation stations allowed them to engage with conservation action in that way.

[38% of the participants were not asked this question or did not comment on this topic directly.]

9. Visitors had specific ideas about what they thought conservation action was and focused on noble aspects like protecting the earth, actionable behaviors like consuming less, or awareness raising activities. Participants were not always certain if the conservation station allowed them to engage in conservation action as they had defined it.

- ❖ **The idea of a conservation campaign should include ideas about protecting the earth, changing behaviors, and raising awareness to align with visitors' initial perceptions. These categories and others could be used as labels or progress bars associated with various interactives online.**
- ❖ **For additional conservation-related activities, such as connecting with scientists and researchers in other countries or raising money, visitors will need scaffolding to understand how those actions relate to conservation and why it is so important for them to engage in the those types of activities.**

G. Computers in Zoos

At the end of the interview, groups were asked what they thought about doing computer-based activities at the zoo more generally, such as the poster in the Manatee exhibit and the poem in the Wild Cat exhibit. Nearly everyone thought they were a good idea. Most participants saw them as a way to provide variety to their zoo visit or to begin extending their engagement within the zoo visit experience (43%).

I think it's a positive because it's just another way to engage the kids. Some kids are auditory, some are visual, some are creative. So, I think it's just another aspect to engage some kids that may or may not be engaged in other ways. (Adult, Wild Cat)

It was fun to have something interactive to do while you are looking at the exhibits. Sometimes if you are just looking at a bunch of exhibits you aren't doing anything interactive then it gets a little boring. It was nice to have interactive stuff. Sparks your interest more. (Adult, Wild Cat)

Oh, they love it. It gives them something else besides just looking at the animals. I mean, they love walking around and looking at the animals. That is the main reason why we are here, but it is this generation, they like to have the buzz, the whistles, the bells, and the computer stuff, so it just enhances it for them. (Adult, Manatee)

It kept us in this room longer than we probably would have been. (Adult, Manatee)

More than a third of the respondents (35%) mentioned that the conservation stations were educational and useful for augmenting the learning that was already occurring within the zoo exhibits.

It reinforces what they have read and by reading it over again it kind of gets in their brain a little bit better. (Adult, Wild Cat)

It is a good learning experience. It is a good learning tool for them. (Adult, Manatee)

I think it gives more information. (Adult, Manatee)

A smaller set of respondents provided positive, though vague, responses, simply stating that the stations were “good” or “fun” (15%). Other groups mentioned specifically that the computer stations were good for older kids (5%) , good for younger kids (3%), good as long as they had plenty of time (3%), and/or good when the weather was too hot or too cold, providing visitors with some indoor respite (3%).

A small percentage of respondents (9%) mentioned that the stations were (or had the potential to be) distracting or detract from the purpose of seeing the animals. Another set of respondents (9%) thought that even though the conservation stations might be a little distracting, they did not mind their children engaging with the station as long as it did not take over the entire zoo experience.

[8% of the participants were not asked this question or did not respond to the question directly.]

10. Participant comments highlighted the value of having computer-based interactives onsite at zoos as a tool for extending engagement, and indicated that a balance between the zoo visit and the use of computers at the zoo was important.

- ❖ **Create extended engagement activities that provide a balance of computer time at home to meet the needs of worried parents who are trying to limit the amount of time children spend on computers more generally.**
- ❖ **Create extended engagement activities that provide additional learning opportunities as well as variety to keep kids engaged and parents happy.**

H. Suggestions for Improvement to the Conservation Stations

Throughout the interviews groups often provided additional comments or suggestions for improving the current conservation station activities. These comments are listed below. The recommendations included providing more images of the animals and words or phrases to choose from, adding sound and/or video components, adding more stations in the exhibits for busy days, providing more educational information at the stations, and providing the colored version of the poster in the email in addition to the outlined, coloring-book styled version.

Provide more images and words

I think they should add more cats, like the bigger cats also. (Child, Wild Cat)

They need ‘s’ for plural words, because it was hard to make actual statements without any s’s in there. (Adult, Manatee)

Maybe words like “cool” and “manatees are cool”...kind of the fun words. “Manatees rock” is what she wanted to write. (Adult, Manatee)

It would be nice if there was a wider variety of pictures to choose from. The keyboard is not terribly user friendly. That would make a huge difference... [There are] a lot of the words up there – it would be nice if there were phrases rather than words, because he is just grabbing words a lot of times and

there is only I think three or four choices for phrases at the bottom. But if there were a wider variety of pre-made phrases that would help a lot. (Adult, Manatee)

Provide sound/video

Maybe have like sound so that way it could say it. Instead of me reading it to him it'd be somebody else. (Adult, Wild Cat)

Maybe some sounds. (Child, Manatee)

I wish you could add music... to the email. (Adult, Manatee)

Maybe some videos showing what is actually happening to the manatees or something that keeps a little more attention than the pictures. (Adult, Manatee)

I mean a little more speech active or voice active or a video would be nice for maybe one or two of the machines. (Adult, Manatee)

Provide more educational information

If there is some way that we could see actual, see like real efforts and things that are being made, so that they could feel like they were a little more a part of it, rather than just theoretical this is what we need to do to take care of the animals in the world. (Adult, Manatee)

I guess if you could be a little more interactive, telling you about what's in the exhibit itself. That would be nice. (Adult, Manatee)

Provide more stations

There are a few [stations]. I would like to see maybe a few more [stations] even. The manatee, the number that you have here at this exhibit is fantastic. [At] the night encounter one [Wild Cat], there are only three and so there is always a line for one of those. (Adult, Manatee)

Maybe some stools in front of the higher ones [touchscreens]. I know the lower ones tend to be really popular so if they get some stools so you could actually sit and reach the other ones that would help a lot. (Adult, Manatee)

Provide full-color poster in email

The e-mail is the one that's not colored in. If you could have the e-mail one like that [like the one on the touchscreen], that would be good too. (Adult, Manatee)

11. Participants provided a range of suggestions for improving the existing conservation stations including providing more images of the animals and words or phrases to choose from, adding sound and video components, adding more stations for busy days, providing more educational information at the stations, and providing the colored version of the poster in the email.

❖ Implementing these ideas into the onsite stations should be done with caution – adding noise to an already busy exhibit and increasing the amount of time users spend at the computers may compromise the visitor experience. Instead, use these ideas as a first step towards scaffolding the online experience based on the onsite experience. For example, provide the same poster experience online with additional educational videos, more images, more words and phrases to choose from, etc.

Phase II (Fall 2012): Follow-up phone interviews with zoo visitors after their zoo visit

Methods

Follow-up Phone Interviews

As a follow-up to the onsite interviews, UXR created a semi-structured phone interview in consultation with iSaveSpecies team members, which included visual aids to share with the participants through a free web-based screen sharing tool called Join.Me (<https://join.me/>).

An initial recruitment email was sent to all individuals who participated in the summer interviews and provided an email address (some individuals only provided a phone number) for follow-up on October 16, 2012 (n=63). The email was sent from a member of the Cincinnati Zoo introducing the research team. A member of the research team then sent a second email to the list, which provided potential participants with a link to sign up for a phone interview time slot. Reminder emails were sent by the Zoo and the research team on October 30, 2012. A \$20 Amazon.com or zoo store gift card was offered as an incentive to participate in the interviews.

Once all of the interviews had been conducted, the audio files were transcribed and analyzed by interview question for emergent themes and patterns using an iterative open coding approach similar to Phase I (Charmaz, 2006).

Findings & Discussion

Sample

The recruitment emails were sent to 63 individuals. Five emails bounced back, resulting in the potential for 58 individuals to participate in the follow-up interviews. Individuals who provided a phone number in their follow-up contact sheet with no email address or who had a bounced email, were also contacted to participate in the interview. A total of 18 individuals signed up to participate and 13 individuals followed through with the interview. Table 1 below summarizes the recruitment and response rate for this study.

Table 1. Recruitment and Response Summary

	# of people
1. Contacted via email	63
2. Bounced Emails	(-5)
3. Contacted via phone (due to bounced email, or did not provide an email initially)	22
4. Committed to a scheduled interview	18
5. No-shows or cancellations	(-5)
Interviews completed	13

About half of the participants had visited and were interviewed in the Manatee exhibit during the summer (n=7) and half were interviewed in the Wild Cat exhibit during the summer (n=6). Of the Manatee interviewees, five were members of the Cincinnati Zoo. Of the Wild Cat interviewees, two were members of the Cincinnati Zoo. During the phone interviews, participants were shown mockups that reflected the two different zoo exhibit interactives.

Most of the follow-up phone interview participants were from the Cincinnati area (n=9) and most of the participants were female, typically stay-at-home parents (n=10). The participants represented a wide range of ages of children from 1 year old to 18 years old, with 9 of the participants having at least one child in the target age group for the iSaveSpecies project of 7-14 years old.

In the following sections, a summary of the findings begins the section with quotes from interviews included in italics where appropriate. The quotation is identified in parentheses by the exhibit they represent, their Cincinnati Zoo membership status, their gender, and whether or not their children were in the target age group. Findings and recommendations are included within the context of these themes at the end of each section and are highlighted in blue-colored tables.

A. Poster Email Receipt and Language

Participants who regularly visit the zoo reported that they create posters nearly every time they visit, indicating that their children really enjoy the onsite interactives. Typically they send the poster to themselves or someone else via email every time as well (see Figure 1).



Figure 1. Sample poster email

Several participants reported that when they sent the email home, either to themselves or a parent, they would often look at the email again (mostly on a laptop computer, two participants mentioned that they looked at it on a mobile phone) and then either save the file or print the poster followed by deleting or archiving the email.

We sent it to my e-mail address and then once we got it, we forwarded it to our friends in Reno, and our friend in Florida. (Manatee, non-member, female, target)

I end up opening up and letting my daughters look at their poster and then we decide whether to print it or save it. (Manatee, member, female, target)

Typically, when we do them, we only view them once and then we delete them. My son makes one every time we go to the zoo so we have a bunch of them. We send them to ourselves and we send them to grandma. (Manatee, member, male, target)

Several participants reported that when they send the email to a grandparent, the recipient is suspicious of the email and will often delete it before opening it because it does not indicate who the email is coming from. All of these participants felt that the email could be more personalized to prevent this issue in the future. Suggestions included: having the first name of the poster creator in the email, including the name of the Cincinnati Zoo in the email, and language that would indicate that the poster creator made the poster for a specific person.

I do not think our grandpa, who is my father; I do not know if he knew what it was. (Wild Cat, non-member, female, target)

People do not even open it because who knows what you are going to get. (Wild Cat, non-member, female, target)

When I got it in my email it was – it was just from the Wild Research team so maybe if it had some kind of clever – what do I want to say – caption? Something like that. (Manatee, non-member, female, target)

I forward it [to the grandparents] so that they know that it is coming from me instead of straight from Wild Research Team because my father ...is very leery of messages that are just being unsolicited sent to him. (Manatee, member, female, target)

It would be better if the poster image was directly in the email. If it were just immediately on the screen, it would be an immediate reinforcement to somebody that received something from the zoo. It is cool and jazzy looking. You can see who it was from. (Wild Cat, member, female, non-target)

Usually it is viewed on our phone. Occasionally we save them and occasionally we will remember that we have them and open them up on our laptops or desktops at home. We just follow the link to the site and then [my son] likes to look around on whatever site that is. (Wild Cat, member, male, non-target)

Participants were asked whether they would like to be able to share their poster via any other mechanisms. Unprompted, several individuals mentioned that they would like to share their posters on Facebook. After being prompted with a list of possible social media sites, 11 participants indicated that they would be interested in sharing their children's posters on Facebook. One person each suggested that texting, Twitter, Instagram, and Pinterest would be additional ways that they would like to share their poster. Participants preferred the idea of being able to do this form of sharing via the poster email rather than onsite at the kiosk (due to privacy concerns related to signing into one's Facebook account on a public machine).

I don't think people would want to do that, you know, at the zoo or whatever, but if there was a way to just easily hit the button – if it went to your Facebook page and people could share... (Manatee, member, male, non-target)

Facebook definitely, Instagram would be second, and then Pinterest... yeah... that is all. (Wild Cat, non-member, female, target)

1. Participants were pleased with the simplicity of the poster email, but they had concerns about the vagueness of the sender and noted issues particularly for older generations when receiving the email.

❖ Provide individuals with the opportunity to personalize the sender and receiver of the email to reduce confusion by recipients and to continue to foster intergenerational engagement onsite and offsite.

2. Participants were interested in sharing their posters via Facebook through a button or link in the follow-up poster email.

❖ Incorporate a Facebook button or link at the bottom of the poster email that would allow participants to share their children's posters online. Note that it will most likely be parents sharing via Facebook and not children, due to parental restrictions.

B. Taking Action

The iSaveSpecies team developed a list of potential activities that zoo visitors could drag onto their posters (either onsite or in a follow-up activity), called Actions. During the interviews, the researcher shared her computer screen with the participant and discussed each Action, eliciting feedback on the idea and asking for the participant's overall interests in each one (see Figure 2).



Figure 2. Wild Cat poster mockup with new Action ideas used in phone interviews.

Each Action was described to the participants as follows:

- Action 1: What if you could thank a Manatee/Wild Cat hero? For example, maybe you could send an email or poster to someone – a scientist; a conservationist; a school that raised \$ for Manatee/Wild Cat; a zoo or other conservation organization – thanking them for their good work helping to save the Manatee/Wild Cat.
- Action 2: What if you could send a photo of yourself with a Manatee/Wild Cat? [a photo of yourself would be added to a photo of a Manatee/Wild Cat]
- Action 3: What if you could adopt a Manatee/Wild Cat by donating funds? You would get a picture of the Manatee/Wild Cat and news about Manatee/Wild Cat conservation.

- Action 4: What if you could create your own Manatee/Wild Cat Web Store to help save Manatees/Wild Cats? You would get to design your store and all the funds raised in your virtual store go towards Manatee/Wild Cat conservation.
 - The iSaveSpecies team is thinking about developing an interactive that would allow you to build your own conservation store on the web. You would be able to design your store, stock the shelves with digital and real products (like t-shirts), and share access to your store so that friends, family, and others can buy things. The money you raise from your store would fund wildlife conservation.
- Action 5: What if you could hear from a scientist studying Manatees in the wild/Wild Cats? For example, you could add an audio clip; or sign up to receive an email, text messages, or an e-newsletter from a scientist.
- Action 6: What if you could download a Manatee Squeak/Wild Cat Growl ringtone? Others you shared your poster with would be able to download that ringtone straight from your poster.
- Action 7: What if you could receive Manatee/Wild Cat updates from the zoo via email/text/tweet/other?
- Action 8: What if you could start a campaign to help save Manatees/Wild Cats?

Overall, participants were most interested in the idea of hearing from a scientist who was studying a Manatee or Wild Cat, followed by sending a photo of themselves or their children with a Manatee or Wild Cat. Participants rated creating a web store, downloading a ringtone, and starting a campaign to help a Manatee or Wild Cat as least interesting of the ideas. Table 2, below, summarizes participants' interest ratings for each Action.

Table 2. Summary of participants' interest in the proposed Actions (scale: 1=not very interested, 2=pretty interested, 3=very interested)

Action	Median/Mean, St Dev (Min, Max)
Action 5: Hear from a scientist studying [animal]	3/2.85, SD=0.38 (2, 3)
Action 2: Send a photo of you with [animal]	3/2.62, SD=0.77 (1, 3)
Action 3: Adopt an [animal] by donating funds	2/2.15, SD=0.56 (1, 3)
Action 1: Thank an [animal] hero	2/2.08, SD=0.86 (1, 3)
Action 7: Receive [animal] updates from the zoo	2/1.85, SD=0.90 (1, 3)
Action 8: Start a campaign to help [animal]	2/1.77, SD=0.60 (1, 3)
Action 6: Download an [animal] ringtone	1/1.77, SD=0.92 (1, 3)
Action 4: Create an [animal] Web store to help save the [animal]	1/1.69, SD=0.85 (1, 3)

Participants really liked the idea of hearing from a scientist because it was educational, did not feel like it would take much time, and it mirrored the types of information their children already engaged in through email, like the zoo newsletter.

I know my daughter already gets the generic zoo update...she loves them. She reads them all the time. So, specific ones about the Manatee or the Night Hunters would be great. (Wild Cat, member, male, non-target)

The photo was appealing to participants, who thought that it would be a fun way to engage their children and create an even more powerful memory/memento of their time at the zoo. A few participants envisioned being able to stand in front of the Manatee tank and have their photo taken

with the animal. Other participants liked the idea of being able to drag a picture of themselves onto their poster.

If you had a camera in front of you to take a picture of yourself with it I think that'd be interesting because I think the kids would like to see themselves standing there. (Manatee, member, male, non-target)

Sending the photo is an instant kind of gratification like 'Oh, look at me' – this is cool. And with Facebook and the different websites and being able to email people and stuff – that is kind of fun. (Manatee, non-member, female, target)

For the Actions that the participants indicated less interest in, there was a discrepancy between what parents said *they* would be interested in and what they thought *their children* might be interested in. While parents were least interested in creating a web store, several thought that their tween- and teen-aged children would be interested in it. Parents, however, felt that it would take too much time and that it would mean that their kids would be spending too much time in front of a computer. One participant felt that it would feel too commercialized, and would want it to be more educational.

As gatekeepers of access to the Internet during leisure time, the parent's perspective is an important one to consider. However, it does not provide enough information to know how to proceed in terms of design. This idea should be further tested with members of the target audience (7-14 year olds) to determine how best to design a web store experience that addresses the interests of the target audience and the concerns of their parents.

It would be something my daughter would like to do and I would help her with it, but for me to do it on my own, not really; but for my daughter, a teenager, a young pre-teen kid, I think that would be fantastic. I know her girlfriends too; they all are interested in stores and making stores for some reason. (Manatee, non-member, female, target)

That seems like a lot of work to have to do to, you know. (Manatee, member, male, non-target)

My sixth grader would definitely do that. She loves to do stores...especially if you provided the products. Yeah, she would do that. That would be a three for her. It would be a one for me, but I could be talked into it. I do not have a lot of time. (Manatee, non-member, female, target)

Those who liked the idea felt that it could be modeled after Webkinz, or that it could be the type of thing a school group or Girl Scout troop might take on.

I am imagining it would look like the thing on Webkinz. (Manatee, member, female, target)

Something where you could, they are actually taking care of these animals at the zoo. I think he would like to do that kind of thing [like Webkinz]. (Wild Cat, member, male, non-target)

Girl Scouts like doing projects like that. Like doing campaigns and raising money and stuff and giving it to organizations... You could sell apps in the web store - like putting your face in a monkey. (Wild Cat, non-member, female, target)

Although, most participants seemed unlikely to want to create a web store, they could envision the different types of things that might be stocked on the shelves. Some people mentioned physical objects like “Creating t-shirts like on Threadless”, while others thought the iSaveSpecies team might be able to create apps related to conservation to sell from the store. Other examples included:

...maybe they could do for Christmas or something like that, because we do get grandparents and stuff Christmas items. So, maybe something they could personalize and send to them. I don't know if that would be a t-shirt or you know, like a necklace or something where they could send something to Granny or you know, whatever, and personalize it. (Manatee, member, female, target)

I would want to do real things like you could sell maybe like a shirt that has like an animal or something that says ‘Save Wildcats’ or something. (Wild Cat, non-member, female, target – comment from 11 year old daughter who was home sick from school)

When asked where the extended engagement with these various Actions should happen, participants noted that activities that could be done quickly, like downloading a ring tone and taking a photo, could be done onsite. More time intensive activities, like creating a web store or starting a campaign, could be done at home.

When asked if the activities should connect directly to the participant’s local zoo or if it should relate to broader conservation efforts, participants were mixed. Half of them said that any money raised should go directly to their zoo, while the others felt it should go to zoos in general or conservation efforts broadly. One person mentioned that it did not matter, but that the email and communication should come directly from the zoo.

3. The full range of Actions appealed to participants. In particular, they were very interested in hearing from a scientist and sending a photo of themselves or their children with a Manatee or Wild Cat.

❖ **Consider the development of all of the Actions at some point to reach the largest audience possible, but prioritize hearing from a scientist and sending a photo in the development plan for creating new actions and activities for zoo visitors.**

4. Participants rated the web store, ringtone, and campaign as least interesting, but noted that they thought their children might be more interested in some of these activities.

❖ **Conduct additional testing of these ideas with members of the target audience, but be mindful of parents’ concerns since they are the gatekeepers of access to the Internet for their children.**

5. Participants thought the location for engagement with the Actions should be determined by the amount of time an Action would take to complete. They were split on whether the Actions should be affiliated with the local zoo or with a conservation effort more generally.

❖ **Be mindful of the amount of time an Action might take to complete onsite, so that it enhances, but does not disrupt a zoo visit.**

❖ **Provide options for connecting with one’s local zoo or conservation efforts more broadly, particularly with any fundraising related Actions.**

C. Conservation Action and Campaigns

In the onsite interviews over the summer, researchers asked groups to describe what they thought the phrase “conservation action” meant to them. The follow-up phone interviews built on this concept, asking participants to describe some conservation actions they engaged in at home and then to describe what they thought the phrase “conservation campaign” meant.

The participants in this group described a range of activities that they engaged in related to conservation – from being “avid recyclers” to learning how to compost, setting up rain barrels, and conserving energy in the home. No one identified any web-based activities that they engaged in related to conservation, which is an opportunity gap for the iSaveSpecies project to fill.

When asked to define “conservation campaign”, many participants associated the concept with money, likely due to the interviews taking place during the 2012 Presidential campaign and election season. Participants also perceived the concept of a campaign to be time consuming, which made them less interested in the concept initially. More elaborate descriptions from participants tended to encompass many of the ideas that the iSaveSpecies team is considering. They provided a wide range of definitions like the ones below:

That you are raising funds for conservation. (Wild Cat, non-member, female, target)

It sounds like a fund raising effort to try and bring in revenue to support conservation efforts. (Manatee, member, male, non-target)

Conservation Campaign means they're helping to raise money which is kind of hard to do in this environment. I don't think there is any reason that we will have that much money, or that much time that they're willing to involve in something that they're not passionate about already. (Wild Cat, non-member, female, target)

Well, a campaign is usually some marketing effort where you try to get a message out to get everyone's attention, so a conservation campaign makes me think that you are trying to spread a message through different media, different people through their own network. (Manatee, non-member, female, target)

To me it means getting a bunch of people together or a group to make money or to help different species whether it's by testing for innovations or selling different things or anything like that, something that's going to help, even if it's just volunteering time to clean up the Manatee's place or something like that. (Manatee, member, male, non-target)

It just makes me think of trying to get information out to people about conservation. (Manatee, member, female, target)

The conservation campaign means that at some point I am able to participate in some way or other. If it were of benefit to those animals and to the zoo or to the environment, whatever the case may be, if it brings to light what possibilities are instead of not knowing. Meaning that it, like with the poster and whatnot it is a reminder. ...And it sparks an interest. (Manatee, non-member, female, target)

I think of specific efforts that are already underway in the scientific community in order to come up with survival species plans... I also think of it as community outreach in order to educate people about the need for this, the reason it is worthy of their interest and their dollars. (Wild Cat, member, female, non-target)

After sharing their own definitions, the researcher showed the participants the iSaveSpecies team's definition and read it out loud to them:

The iSaveSpecies team believes someone joins a "Conservation Campaign" when they work to protect the future of an animal species, an ecosystem, biodiversity, or some other aspect of the environment that they care about. Conservation includes not just other species, but people and our chances of living on a healthy planet. To be a part of a Conservation Campaign means taking action, for example by learning and sharing information, changing behaviors, or otherwise contributing to conservation efforts.

Participants generally liked the team's definition of a conservation campaign, but felt that the description could be streamlined and more kid-friendly. They felt that the word "campaign" was not the best description due its associations with money and its association with time that parents do not have to dedicate to these types of activities. They were unable to offer better alternatives to the term, however. Participants liked that the definition provided a range of concepts including education and sharing of information.

...everything that conservation is, is in those statements right there. ...they have different animal species and you know, having a healthy planet and everything. ...everything in there pretty much hit the nail on the head, I think... (Manatee, member, male, non-target)

This sounds good. I would like to know a little more how it can help my community. (Manatee, member, female, target)

A lot of people attribute campaign to fundraising. I am not quite sure what you would change that word to, maybe 'reach out' or something like that. (Wild Cat, non-member, female, target)

One thing that I like is that it focuses on efforts and education. I feel it is important... (Manatee, member, male, non-target)

It's easy to understand, and it covers the whole gamut, and it's not just about asking for money, so that's good. (Wild Cat, non-member, female, target)

Participants felt that all of the Actions, but especially the web store and starting a campaign actions, were aligned with the team's definition of a conservation campaign.

All those things are conservation actions... changes of behavior if you will. I mean, you also have to keep in mind it is more than just... it is a collective of different things. Forwarding that information and sharing it with everybody is one piece of... it is an action. It shares information and brings an issue to people's minds. (Manatee, non-member, female, target)

6. Participants listed a range of conservation-related activities that they engaged in on a daily basis, but did not identify any web-based activities related to conservation action.

❖ **iSaveSpecies has a unique opportunity to fill an existing gap in terms of web-related conservation activities for children and intergenerational groups. Parents are mindful of the amount of time their children spend online, however, so the website should be careful to craft actions that only require short time allotments and connect with offline activities when possible.**

7. Participants' initial definitions of "conservation campaign" were often focused on the role of money in a campaign. When they heard the team's definition, they were pleased and felt that it was comprehensive, though some mentioned apprehension about the word "campaign". Participants felt the definition aligned well with the web store and campaign Actions.

❖ **Maintain the conceptual idea of a conservation campaign, in particular one that includes everything from sharing information to raising funds for animals.**

❖ **Consider alternative terms for campaign that will be less influenced by political events that will occur every two years.**

❖ **Conduct further testing on the web store and campaign concepts with members of the target audience.**

D. Incentives

The researcher provided each participant with a list of incentive ideas to encourage them and their children to continue engaging with the iSaveSpecies system. After reading through this list, participants identified their top choices among the options:

- Digital badges or icons (that you could share with your friends) (e.g. "Manatee Hero!" or "Friend of Manatees!" includes drawing/photo of Manatee that you can share on your Facebook page)
- Earning achievement points to allow you increase your level from beginner to conservation hero.
- Zoo rewards – discounts on shows/food/beverages/rides/gift shop; behind-the-scenes tours or other special opportunities such as keeper-helper, create an enrichment toy for an animal; help zoo researcher collect data on animal behavior; etc.
- Access to other games or interactives related to your conservation campaign
- Letters or texts from the scientists/researchers in the field about wild
- Digital painting made by a gorilla
- Certificate of appreciation from the zoo
- Have your name and/or photo added to "Conservation Hero" display at zoo
- Zoo T-shirt or hat

In general, participants thought the range of incentive ideas presented in the interview would attract a wide range of zoo visitors. Parents in particular were attracted to the zoo rewards (n=10), but mentioned that their children would likely be interested in the points (n=5), games/interactives (n=5), zoo swag (n=4), hero display (n=3), and letters/text updates (n=3). Parents also mentioned that any special opportunities at the zoo, such as behind-the-scenes tours or animal encounters would be highly motivating. No one mentioned the digital badge as a top idea, but it could be incorporated into the more popular achievement points idea.

Several participants mentioned that the incentives could be used in combination, for example, as a child achieved a certain number of points they might unlock certain games or have the opportunity to cash in

their points for a digital painting made by a gorilla. Parents also cautioned that the purpose of the incentives should maintain an educational focus and not become too commercialized or “gimmicky”.

I wouldn't want my children to engage in something very “gimmicky” that's designed to keep their attention at a particular thing and away from more meaningful activities. ...there need to be different levels of rewards that they get based on how much they sell. So maybe you start with your digital guys or icons, or give them access at one level to see maybe a webcam or a scientist feeding the manatee with the lettuce. And then maybe they get on a different level, some information from the scientists or the people working with the animals on a daily basis and then maybe a culminating prize of going to the zoo and having a private opportunity to work with a zoo Researcher. (Manatee, non-member, female, target)

...I could almost see when you leave the zoo you get your membership coupon to go to this website. You use your code number. You set up your online persona – your avatar. You know you get something that gives you a reason to go to that site. You can automatically get ten points that you can use to play a game that is cool on there. You use your points in order to buy information or buy a new game. (Wild Cat, member, female, non-target)

..if that were something that were available on a mobile device I think that would increase the use as well. If it is a game that you could play on the iPhone when we are out and about and he needs entertaining for five minutes. But, I think from that point he would really enjoy it especially if he knew that when he got home it would be enhanced and that he would be able to do something on his game because he had been there with an extra life or power up or I do not know, whatever you guys do. I think that would really motivate him quite a bit. (Manatee, member, male, non-target)

8. The full range of incentive ideas were attractive to the participants. In particular, the zoo rewards were very popular among the parents. They perceived other things like the achievement points as being particularly interesting to their children.

- ❖ **Consider the need for incentives for both parents and children in order to maximize possible engagement beyond the zoo experience.**
- ❖ **Develop a system that advances visitors through a series of Actions with incentives to the match the associated effort to foster an ongoing extended engagement process.**
- ❖ **Conduct additional testing with members of the target audience to determine which incentives would be most appealing to this group.**

E. Technology in the Home

Nearly all of the participants mentioned using Firefox as their primary web browser, or Safari for Mac users when looking at the poster email or engaging on the web more generally. Participants reported using a range of technology in their homes. Many had several devices that were web-enabled, which included iPod Touches, tablets (iPads, Kindle Fires), mobile phones (iPhones, Android devices), e-readers (Kindles, Nooks), laptops, and desktops. Parents reported that they allowed a range of access to these devices for their children. Some parents described strict rules about the time that their children spend on the Internet or “on screens”, while others mentioned that they limited their children’s web use to educational sites only.

Parents mentioned that their children were playing games and visiting educational websites on a range of these devices. They play Webkinz, ISO Math, Backyardigans, Netmania, games on the PBS kids website, and mobile phone app games like Angry Birds and Catapult Kings, among others.

9. Participants reported a wide range of technology devices in the home with varied access and restrictions.

- ❖ **Ensure that tools are compatible with a wide range of platforms, including Apple and Android, and that web-based applications are designed responsively so that they automatically adjust to the variations in screen size afforded by switching between mobile devices and larger screens.**
- ❖ **Be mindful of the amount of time a child would be expected to interact with the website to mitigate issues related to parental restrictions.**

F. Privacy

Parents were willing to share different degrees of information about their children in an online profile—from nothing to city and state to first name and even address. Several parents wanted to be sure that anything their child signed up for could be linked to their own email address, so that they could monitor activity, and provide permission for engaging in certain activities, especially anything involving money.

Parents indicated that they did not want real full names or real photos of their children associated with an online account. The security of the website should also be clearly indicated through icons and safety/security messages to indicate to parents that the website is safe and secure, particularly if there are any monetary transactions on the site.

I think the team would be wise to respect some of the privacy issues and training that kids have been getting in school so they are not asking students to disclose anything that they are being taught not to share online... names, addresses... I think children should not be allowed to set up a web store without getting parental consent. (Manatee, non-member, female, target)

As long as it is a secure website that is not shared with zillions of other websites I think you would be OK. As long as you have a secure website that your terms of agreement are that you are not going to sell or share what information you have to other people or other companies or – I think that is where you need to stick. I think today is a public world otherwise and really nothing is private anymore, unfortunately. (Manatee, non-member, female, target)

Made up screen name, [the site should be for] looking at stuff but not talking to people (Wild Cat, non-member, female, target)

10. Participants indicated that they take the privacy of their children’s information seriously and that the least amount of information possible should be collected. They wanted reassurance that the site would safe and secure and not sell any of their personal information.

- ❖ **Follow the Children’s Online Privacy Protection Act (COPPA) guidelines for best practices regarding privacy of information related to minors (www.epic.org/privacy/kids/).**
- ❖ **Follow best practices on usable privacy and security design with regard to icons and messaging ensuring visitors that the site is both safe and secure (CyLab Usable Privacy & Security Lab at Carnegie Mellon University – www.cylab.cmu.edu/partners/success-stories/cups.html).**

Phase III (Winter 2013): Co-design sessions with youth

Methods

Co-design Sessions

As a follow-up to the onsite interviews with families and follow-up phone interviews with parents, UXR developed and implemented a design day partnering youth (7-12) with college students from Miami University who were completing their capstone course in Community Science and Public Action. Chris Myers, project PI for iSaveSpecies was the course instructor.

On March 18, 2013, Jes Koepfler of UXR and Beth Bonsignore of the University of Maryland's Human Computer Interaction Lab (HCIL) traveled to Miami University and met with the students from Community Science and Public Action course to discuss the theory and practice of the co-design methods that they would be engaging in with the youth the following weekend. We spent the first half of the class discussing co-design's origins in the participatory design movement and describing the techniques that have been developed by the HCIL's co-design group known as KidsTeam.¹ During the second half of class, we engaged in a practice exercise using the co-design technique of layered elaboration.²

On the following Sunday, March 24, 2013, we returned to Miami University to facilitate the co-design sessions. The day was comprised of three major activities: 1) a human obstacle course activity in the room in which youth and college students led each other through the maze while blind-folded, 2) a low-fidelity prototyping activity called Bags of Stuff, and 3) a layered elaboration activity.

The human obstacle course activity was used as a tool to help everyone in the room get to know each other and also to set the stage for the day's goals which involved elaboration, collaboration, and innovation. We highlighted the following major themes and ground rules before beginning the day (these themes are adapted from the KidsTeam process used in the HCIL):

- Use first names
- All ideas are valid and valuable
- Elaborate on each other's ideas
- Be respectful when others are talking
- Be clear when giving instructions
- Use detail when describing your design ideas
- Speak loudly so everyone can hear you
- Work together for the best results

¹ Druin, A. (N.D.). Children as design partners: An introduction. <http://www.cs.umd.edu/hcil/kiddesign/>

² Walsh, G., Druin, A., Guha, M. L., Foss, E., Golub, E., Hatley, L., Bonsignore, E., & Franckel, S. (2010). Layered elaboration: A new technique for co-design with children. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. New York: ACM Press, 1237-1240.

With everyone in agreement on the ground rules, we proceeded with the design activities. At the end of the day youth participants were given folders with certificates of participation and gift cards to Amazon.com or iTunes as a thank you for their time and creative ideas.

Findings & Discussion

Sample

The iSaveSpecies team recruited a total of n=18 youth (ages 7-12) to participate in the co-design sessions. We placed these young people into mixed groups in terms of age and gender across the design teams. Three youth participants were paired with two college students for a total of k=6 teams with five members each. The youth were recruited by the iSaveSpecies team and were recruited through a network of potential participants at a local private school in Oxford, OH.



Fig. 3: College students and youth guide each other blind folded through a human maze as part of an ice breaker activity.

A. Design a Web Store for Conservation Action (*Bags of Stuff*)

We gave each team a large Ziploc bag filled with items for the Bags of Stuff activity – a low-fidelity prototyping exercise.³ Each bag contained a variety of arts and crafts supplies such as pipe cleaners, gems, popsicle sticks, glue, tape, scissors, and markers. They also included items that were placed in the bags to inspire ideas about public action and participation in science such as sand timers, clickers, and cardboard pieces from recently unpacked computer equipment.

Once groups received their supplies, we gave them a design prompt and 20 minutes to respond to the prompt using the Bags of Stuff.

Design Prompt: Design a Web Store for Conservation Action

- We want you to **design a web store** that inspires kids and families to engage in **conservation action** like:
 - **Learning** more about animals and the environment
 - **Sharing** what you learn
 - **Changing** things you do in your everyday life to help save the planet
 - **Being** good stewards of the environment we have

³ Svanæs, D. & Seland, G. (2004). Putting the users center stage: Role playing and low-fi prototyping enable end users to design mobile systems. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. New York: ACM Press, 479-486.

- **Donating** money or volunteering to help with conservation efforts
- If you raise money in your store, the money would go towards animal conservation!

After the design period, each group stood up and reported back on their designs.



Fig. 4: A design team stands up to share their Conservation Web Store ideas.

From these artifacts and group reports, we identified themes and big ideas for what could be included in the design of a future Conservation Action Web Store. Themes are ideas that were represented across multiple groups whereas big ideas are concepts that may have only emerged in one or two design artifacts, but they highlighted an innovative idea that should be considered for future design and development.

1. Theme: Creating or building things to sell in the store (e.g. clothing)

- ❖ **Older kids like branded clothing (e.g. partner with Patagonia)**
- ❖ **Building things that are both virtual and physical (e.g. postcards to email or to mail)**
- ❖ **Books that can be read online, created and shared, or purchased and read offline.**



Fig. 5: The DressDown.com Conservation Web Store

2. Theme: Educational games

- ❖ Timed games vs. non-timed games
- ❖ Earning unique facts vs. common facts; endangered animals vs. common animals
- ❖ Engaging with an animal's habitat



Fig. 6: A timed game made of different-sized jewels. The type of jewel determines the type of fact you get. Big jewels give you interesting facts about endangered or unique animals.

3. Theme: Learning facts

- ❖ Facts integrated with interaction (e.g. asking a genie or scientist, playing a game, shaking an object).
- ❖ Facts can be common, rare, special; about animals, plants, and conservation; from scientists, zoo keepers, or other conservationists.



Fig. 7: The Animal Genie who grants you three interesting facts about an animal of your choice.

4. Big Idea: Interactives ideal for mobile devices

- ❖ **Hovercraft for catching/saving animals, getting points, and learning new information. Guided by a scientist or you could play with others in a multiplayer version of the game.**
- ❖ **Cheetah snow globe where you share the object and get information and fun facts about animals and conservation.**



Fig. 8: Hovercraft game (left); cheetah snow globe (right).

Clickers and timers were deliberately included in the Bags of Stuff with the hope that they might inspire ideas related to scientific inquiry such as counting, measuring, and tracking – the types of activities that zoo visitors can do in some of the exhibits. The youth designers came up with some really unique ways to think about clickers and timers in an online setting.

5. Big Idea: Clickers and timers

- ❖ **Kids want to count:**
 - **items bought in the store,**
 - **people using renewable resources,**
 - **animals saved, and**
 - **donations.**
- ❖ **Kids want to use a timer for**
 - **store hours,**
 - **timed games, and**
 - **tracking saved or expended energy.**

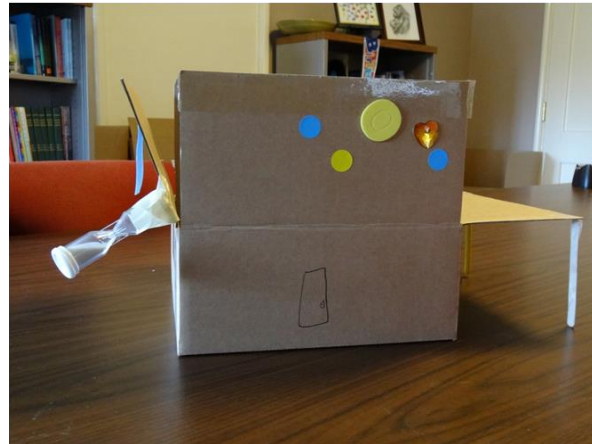
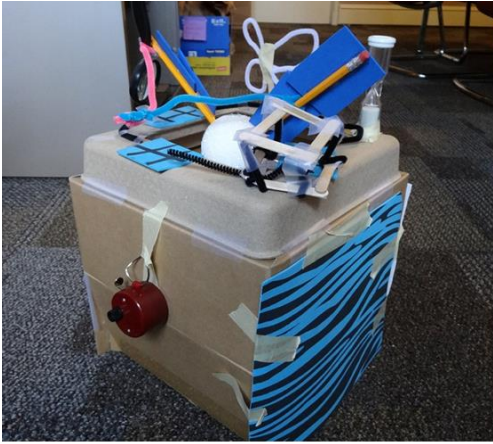


Fig. 9: Clicker used as a way to tell you how much renewable energy was being used by visitors to the Conservation Store (left); timer that indicates the store hours for this web store (right).

6. Big idea: Hybrid worlds – blending real life with fiction

- ❖ Kids built a book shelf that would allow them to create books, check out physical books, or read them online.
- ❖ Kids described killing zombies by engaging in conservation actions like using renewable resources. In other examples, genies or robots provided information about animals and conservation.



Fig. 10: A book shelf in an online store that would allow kids to create books, check out physical books, or read books online.

Having genies, robots, zombies and other fictional characters show up as a part of real world information is not uncommon for kids in this age group. This is a phenomenon that has occurred with Kidsteam designers at the University of Maryland over the years and one that highlights how kids want to see “experts” and “scientists” on their own terms. They want to anthropomorphize familiar fun figures into pseudo-mentors or guides. They do not really want a friendly ranger or zoo person – they want an animal or something fantastical representing that real-life individual.

B. Conservation Action Posters (Layered Elaboration)

The iSaveSpecies team provided a set of generic mockups from the existing iSaveSpecies interactives to use as backdrops and inspiration for the layered elaboration activities. We divided the room in half and gave the groups on each side of the room a clipboard with a different design prompt and mockup, sharpies of the same color for their group, and several layers of transparency. We conducted three rounds of design and elaboration. The first group with the prompt and mockup initiated a design in 10 minutes by drawing on a transparency sheet layered on top of the mockup using their group's Sharpie marker color. A second group was then given this initial design. They layered a transparency sheet on top of that design and elaborated on it in 8 minutes using their group's different set of colored Sharpies. Finally, a third group was given the updated design and given 6 minutes to elaborate on that. After each round, groups stood up and the college students in the group quickly described (in 1 minute) the key features of their group's efforts on each prompt. All three groups on each side of the room contributed to all three design prompts resulting in two sets of layered designs for each prompt.



Fig. 11: This team reports back on their additions to the Conservation Action Newsletter.

From the design artifacts and group reports, we identified themes and big ideas for what could be included in the design of a future Conservation Action Poster, Conservation Community, and Conservation Action Newsletter. Themes are ideas that were represented across multiple groups whereas big ideas are concepts that may have only emerged in one or two design artifacts, but they highlighted an innovative idea that should be considered for future design and development.

The following design prompt and mockup was given for the Conservation Action Poster:

Prompt: How would you design your own Conservation Action Poster after you got home from the zoo?



Fig. 12: Mockup for Conservation Poster design prompt.

7. Theme: Multiple media formats for creating and sharing

- ❖ Kids wanted to be able to share their posters in as many ways as possible. Some ideas included:
 - Print, post on web, gallery of posters, vote, and social media

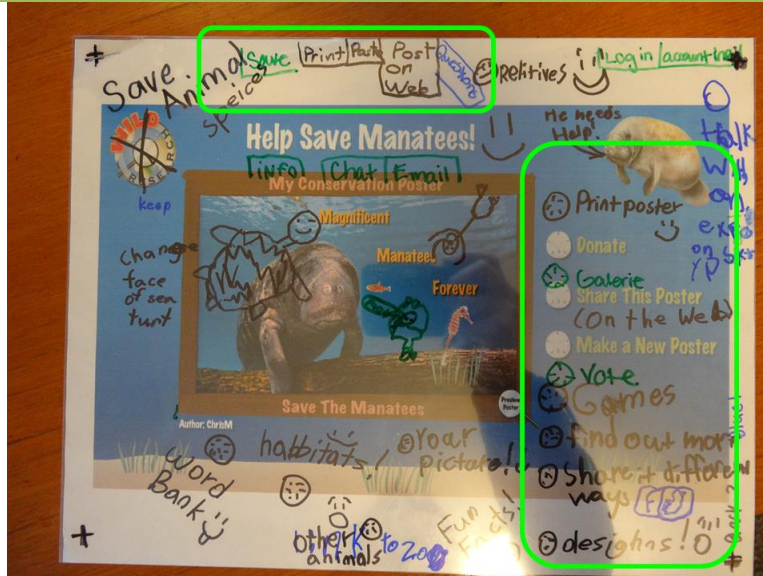


Fig. 13: Layered elaboration depicting multiple media formats for creating and sharing.

8. Theme: Personalization

- ❖ Kids wanted to see themselves in their posters and have access to a logged in version where all of their activity could be saved and their settings could be personalized

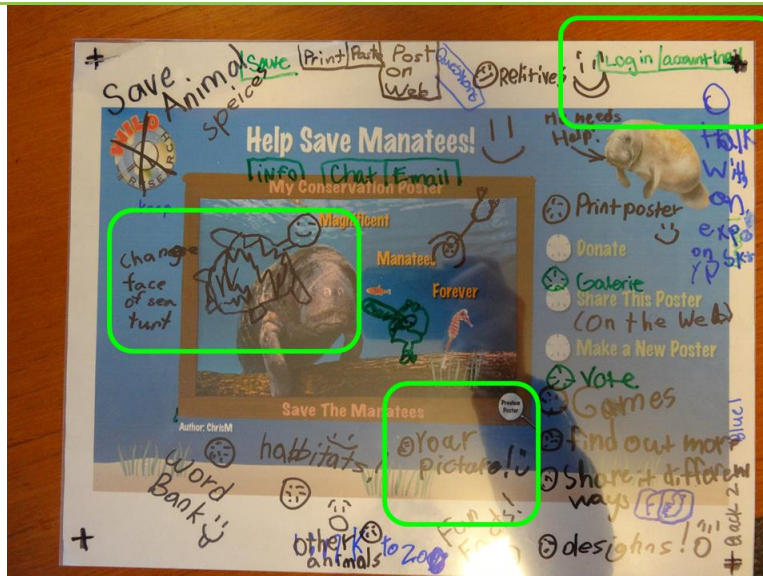


Fig. 14: Layered elaboration depicting personalization.

9. Big Idea: Learn about animal families and ecosystems

- ❖ Based on the posters they created, kids wanted to learn more about the animals associated with their poster such as the relatives of the specific animal and others who might share the same ecosystem or living environment with them.

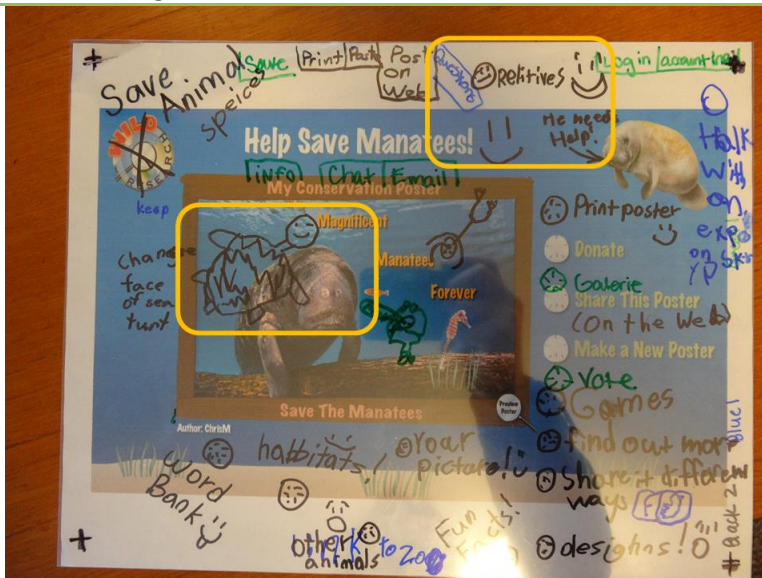


Fig. 15: Layered elaboration depicting animal families and ecosystems.

10. Big Idea: Animal happiness meter

- ❖ One group had the unique idea to have an animal happiness meter that went up or down based on positive and negative actions by the user.

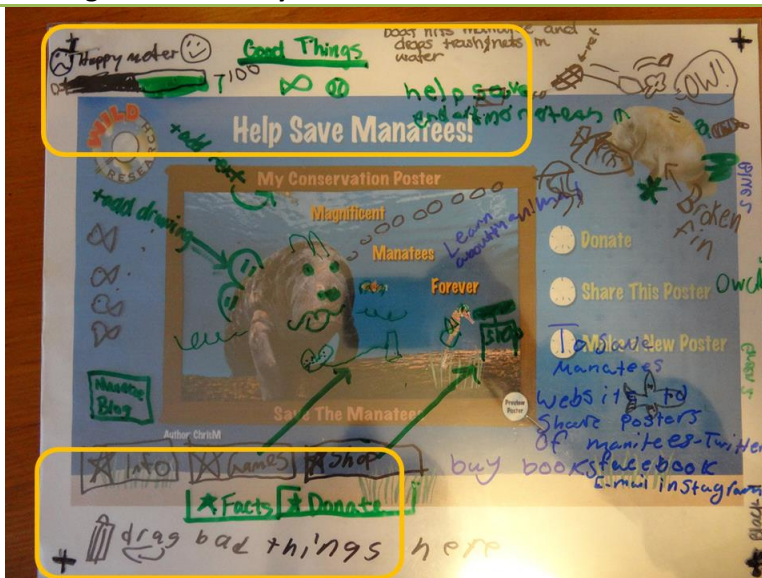


Fig. 16: Layered elaboration depicting big idea of the animal happiness meter.

11. Big Idea: Interactive animals moving around the screen

- ❖ Even though they were designing from 2D images, kids thought about ways of making the images come alive through movement in the online versions of the posters.

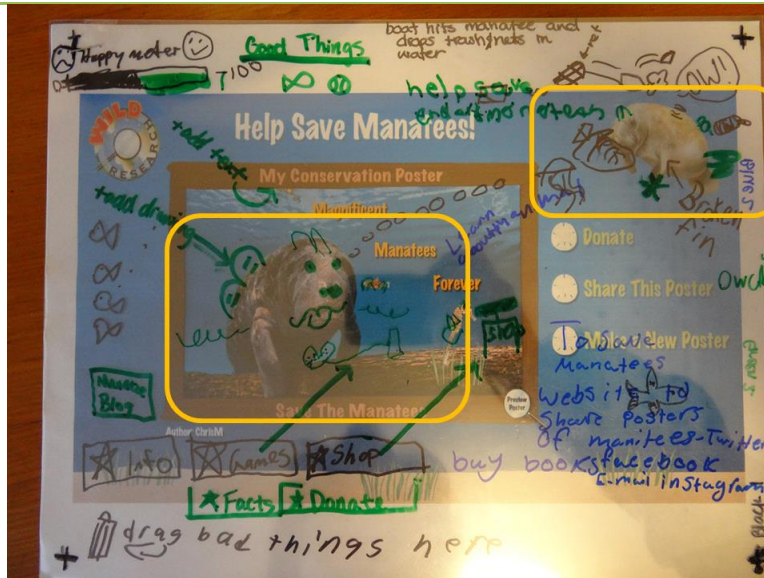


Fig. 17: Layered elaboration depicting big idea of interactive animals on the screen.

C. Conservation Community (Layered Elaboration)

The following design prompt and mockup was given for the Conservation Community design effort:

Prompt: How would you like to connect with other scientists, zoo keepers, and kids doing conservation?



Fig. 18: Mockup for Conservation Community design prompt.

12. Theme: Multiple forms of communication

- ❖ Kids came up with a number of ways that they would be interested in communicating with members of a conservation community including chat, social media, commenting on videos, and asking questions directly.

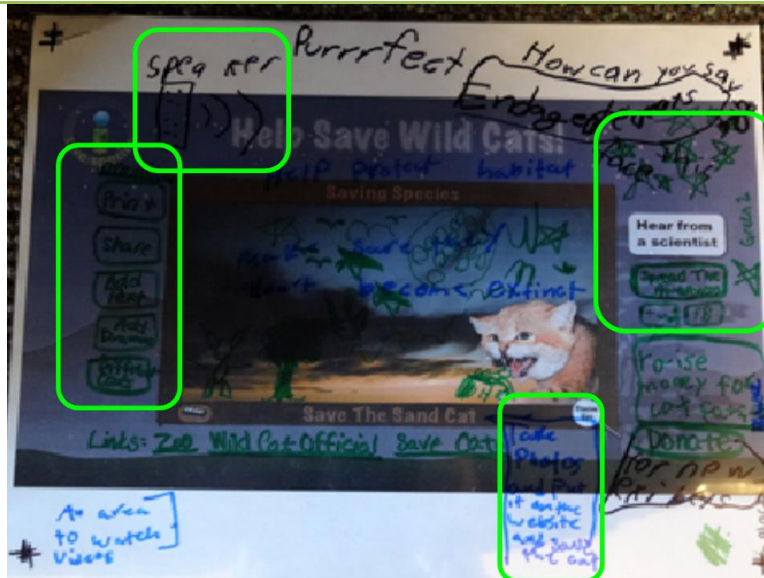


Fig. 19: Layered elaboration depicting the theme of multiple forms of communication.

13. Big Idea: Connect to your local zoo

- ❖ Kids liked the idea of connecting with the conservation community at their local zoo.

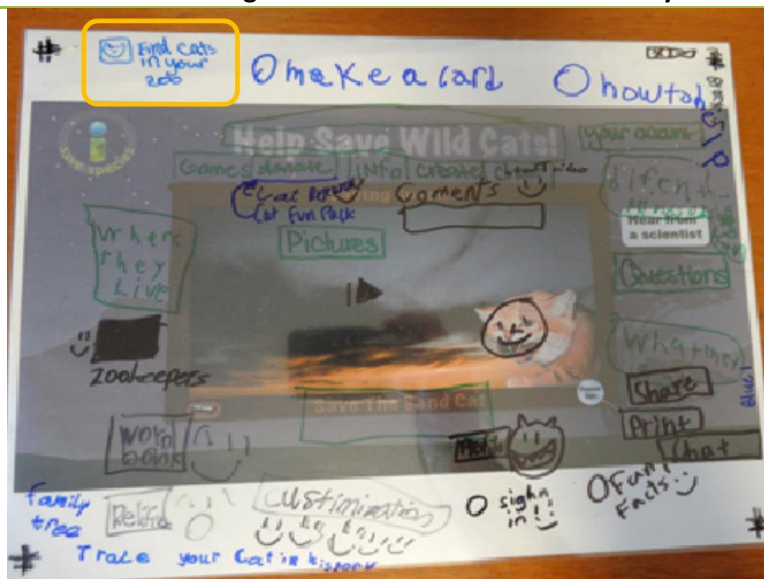


Fig. 20: Layered elaboration highlighting the big idea of connecting with the conservation community at the local zoo.

14. Big Idea: Physical communication

- ❖ Kids also liked the idea of connecting their online world to their physical world by engaging with a conservation community through physical objects like making a card to share with someone or ask a question.



Fig. 21: Layered elaboration highlighting the big idea of bridging online and offline experiences through physical objects.

D. Conservation Action Newsletter (Layered Elaboration)

The following design prompt was given for the Conservation Action Newsletter:

Prompt: How would you design your own newsletter for conservation action?

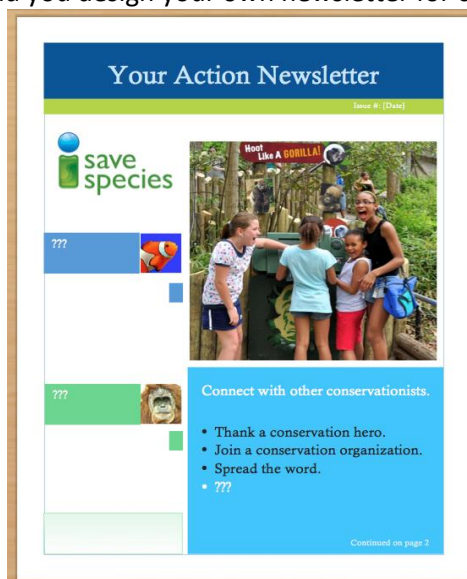


Fig. 22: Mockup for Conservation Action Newsletter design prompt.

15. Theme: Personal touches and connection to your zoo

- ❖ Following themes from other design prompts, kids reinforced their interest in being able to personalize their newsletter and connect with their zoo through the newsletter.

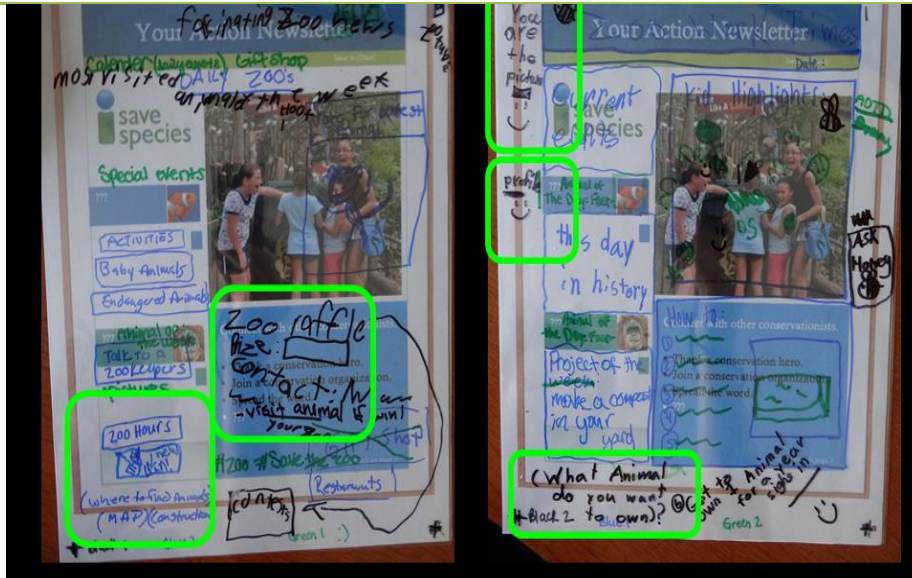


Fig. 23: Layered elaboration from both sides of the room representing the theme of personal touches and connecting with the zoo.

16. Theme: Punny titles

- ❖ The design teams came up with several different “punny” titles to call the newsletter such as “Daily Zoos” (instead of Daily News) and “Zoo Work Times” (instead of New York Times).



Fig. 24: Layered elaboration from both sides of the room representing the different titles groups came up with.

17. Theme: Types of information

- ❖ Kids thought of a vast array of information types that they would be interested in receiving in a newsletter, including:
 - Most visited animal of the week at their zoo
 - “This day in history...” facts related to animals
 - A conservation project of the week for people to do at home
 - Baby animals
 - Endangered animals
 - Logistical information about the zoo (e.g. restaurants, zoo hours, etc.)

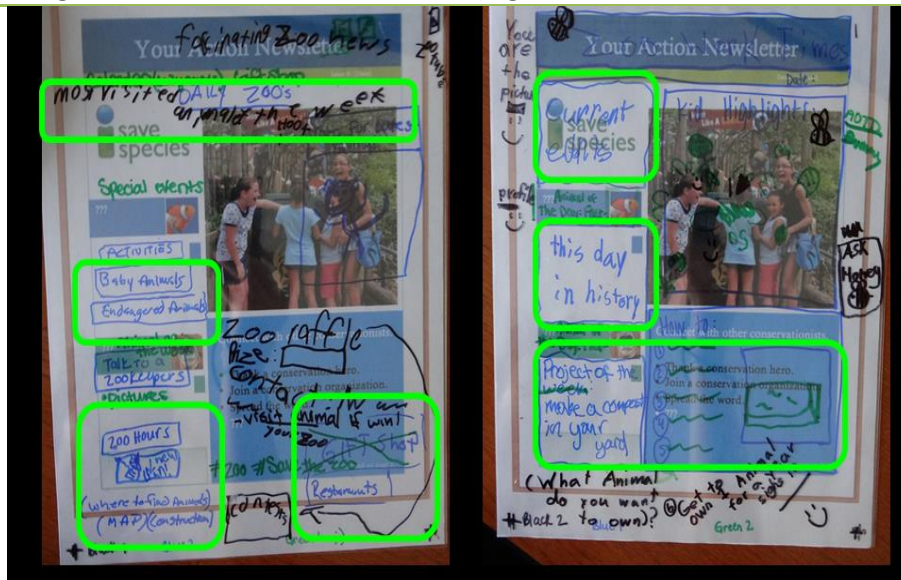


Fig. 25: Layered elaboration from both sides of the room representing the different types of information kids would be interested to see in a newsletter.

18. Big Idea: Kid highlights & voting

- ❖ Kids wanted to know what other kids were doing in terms of conservation and connecting with animals. They wanted areas to highlight these activities.
- ❖ Kids also wanted a way to make the newsletter interactive and came up with the idea to include a voting section, for example voting on the next animal that would be featured in the newsletter.

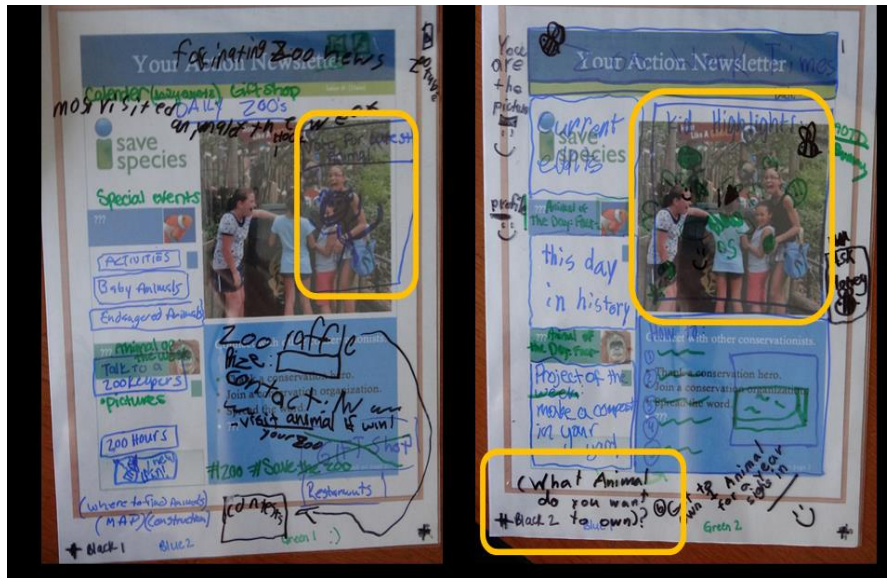


Fig. 26: Layered elaboration from both sides of the room representing the big idea of creating interactivity with the newsletter through kid highlights and voting.

19. Big Idea: Connecting with conservationists

- ❖ Spilling over from the design prompt about connecting with a Conservation Community, design teams were inspired to keep this idea in the Conservation Action Newsletter concept as well.

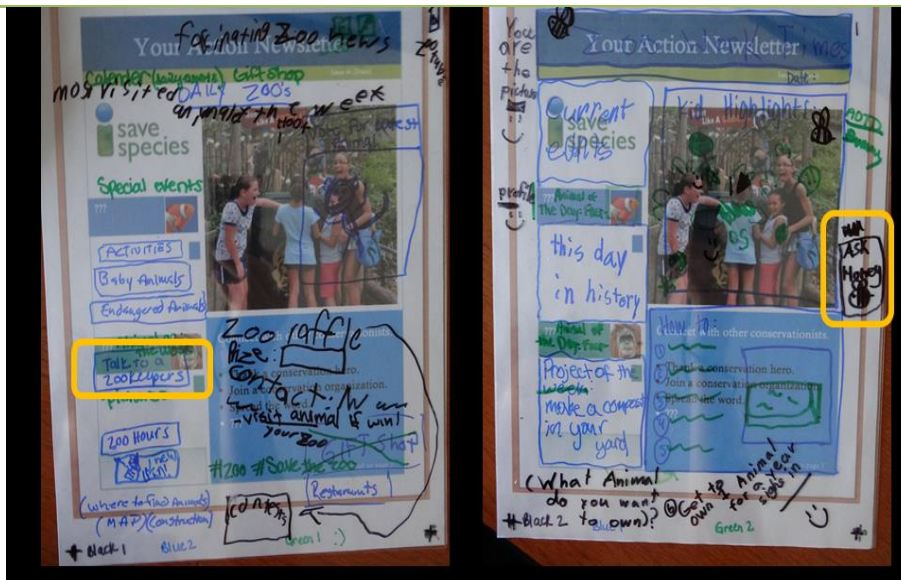


Fig. 27: Layered elaboration from both sides of the room representing the big idea connecting with conservationists through the newsletter.

Conclusion & Next Steps

The results of each phase helped address each of the research questions, first from the perspective of the family group, second from the perspective of the adult, and third from the perspective of youth in the target audience age range of 7-14. The list below summarizes what has been learned to date from both the Phase I onsite interviews and the Phase II follow-up phone interviews with regard to each research question.

RQ1. In what ways are visitors impacted by participation in conservation action through the iSaveSpecies system?

Phase I: Visitors described a number of ways that the conservation stations onsite allowed them to engage in conservation action ranging from raising awareness, to encouraging specific conservation behaviors, to protecting the Earth.

Phase II: There are currently very few, if any, websites that visitors use related to conservation action, although they engage in offline conservation-related behaviors at home such as recycling, composting, and reducing energy and water use. iSaveSpecies has the opportunity to fill this gap while being mindful of parents concerns about screen time for their children.

RQ2. What kinds of tools, features/functionality, and interactive experiences promote visitor action?

Phase I: The primary features and functions of the conservation stations that promoted visitor action were the selection of words, phrases, and pictures about animals to create a poem or poster that visitors were excited about and emailed to themselves or others.

Phase II: Participants are motivated by a wide variety of activities and the types of things that motivate parents might not motivate their children. However, because parents are the gate keepers of Internet access during leisure time, it is important to consider their need for incentives alongside incentives for members of the target audience of 7-14 year olds. In general, parents liked ideas that were more educational in nature, such as hearing from a scientist, or that would engage their children in a short amount of time, such as sending a photo of themselves or their children with the Manatees or Wild Cats. Parents were wary of anything that sounded like it would be time consuming, such as the web store or campaign Actions that were described.

Phase III: The co-design sessions revealed a wide array of activities and information the young people might be interested in with regard to conservation action. The following is a list of things to keep in mind when designing conservation activities for youth between the ages of 7-12 based on a review of all of the design artifacts they created:

- Consider the affordances of mobile devices for shaking, gliding, and tapping
- Balance high-quality conservation information with fantasy and imagination
- Allow for creation, experimentation, and personalization whenever possible
- Take advantage of the variety of information types available and serve them up to kids through games, interactives, community connections, and through 'earned' points or leveling up to keep them coming back

RQ3. What does extended participation and engagement look like with regard to existing tools in the iSaveSpecies system? What are the levels/range of participation? Where does participation happen? (on-exhibit, off-exhibit, at home, at school)

Phase I: Extended engagement starts in the exhibits at the zoo. Participants noted that sending their poster/poem via email allowed them to have it as a memento of their visit or to share with others who

were not with them at the zoo that day. Participants described ways in which that follow-up email could be used to encourage them to post their posters/poems to social network sites.

Phase II: The interviews revealed that the poster email could be most effectively improved through personalization (indicating a sender and receiver) and through the addition of some of the Actions that were described in the interviews. Zoo members who use the kiosks frequently are less likely to do anything additional with the poster once they email it, but could be encouraged through messaging or changing up the poster email periodically. Extended engagement happens immediately via mobile phones and at home through laptops and desktop computers. Parents typically filter emails for their children under 13 years old through their own personal email accounts to protect their children.

RQ4. How do the different interactives, visitor group types, and location of use impact the continued engagement through iSaveSpecies Extended Conservation Interactives?

Phase I: Zoo visitors are time constrained. The conservation stations currently offer the right balance of extended time in an exhibit playing on a computer without losing site of the primary purpose for the visit - seeing the animals. Participants mentioned concerns about the amount of time children spend on computers at the zoo implying that there might be similar concerns at home.

Phase II: Follow-up interviews indicated a wide range in parenting practices related to Internet use. Although children in the target audience are likely to use the computer by themselves, they are often placed on time limits by their parents and limited to a specific set of websites that they can visit. Websites like PBS Kids and Webkinz were popular sites among the individuals who were interviewed.

Phase III: The co-design sessions revealed that kids continually found ways to mix the online with the offline and the virtual with the physical. These are not separate platforms for youth – they are all a part of their everyday experiences.

RQ5. Does the concept of a Conservation Campaign fit with the ways in which visitors think about conservation and the ways that they wish to and are motivated to participate?

Phase I: Participants were able to articulate what they thought conservation action meant, but the interviews did not investigate the concept of a campaign.

Phase II: Follow-up interviews indicated that the idea of conservation campaign fits with the ways in which visitors think about conservation, but the concept of a campaign was more focused on money in the minds of the participants. Even though this may have been related to the 2012 election campaign, election campaigns occur frequently across state and federal levels, so the word should be reconsidered during the branding phase. It is a useful tool conceptually, however, and can be maintained for the purposes of thinking through the many activities that the iSaveSpecies system might support and what that looks like over time and use.

Next Steps

Next steps for the iSaveSpecies project should work towards identifying one or two extended engagement activities to develop into prototypes among the options explored throughout this study. The team should spend time articulating the specific learning and engagement goals for the activities and match those goals to systems features and functions. They should combine data presented in this report from parents and kids with that of any other critical stakeholders (e.g. Miami University, NSF, others) and begin to develop additional design requirements. As the prototypes take shape, the team should continue to partner with youth ensure the activities are designed with the target audience in mind.