

BEYOND THE KID'S ZONE:
DESIGNING WEBSITES FOR CHILDREN'S USABILITY

by

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ABSTRACT

Websites designed for children often suffer from problems specific to children in addition to the same usability problems that plague adult websites. The results from this project demonstrate that designers can greatly improve the usability of their websites by incorporating children throughout the design process. The project also reveals the expectations children have about the areas designed for them and how they search for information.

I created a website with an area specifically for children (age 11-13) with the purpose of teaching them about wildlife and conservation. Most website designers and developers do not have the time, budgets or resources to conduct elaborate testing and development with children. Therefore I developed a situated methodology that includes a contextual inquiry, children as design partners and usability testing with children users. This methodology demonstrates that important results can be generated with limited time and resources.

I outline the current literature that helped me develop this methodology and make both design and developmental decisions. I also discuss the entire project process including my experience working with children as design partners, design compromises, problems encountered, recommendations from the usability test, areas of future study and tips for others considering creating websites for children.

For my dad,
who helped foster my love of animals and the environment.

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LIST OF ACRONYMS/ABBREVIATIONS

STWP	Safari Todd Wildlife Productions
KZ	Kid's Zone

CHAPTER ONE: INTRODUCTION

Technical communicators should always strive to produce user-centered products, but that can prove to be particularly challenging when those users are children. Websites designed for children are plentiful and range from high concept, professionally designed to bare bones sites with little more than lists of games. In addition to these primarily kid-centered sites are areas dedicated to children within general websites. These “Kid’s Zones” and websites designed for children often suffer from problems specific to children as well as the same usability problems that plague websites for adults (Nielsen 2004). Currently there is little research published regarding how to best develop websites or areas for children (Druin 1999). Designers end up creating sites they think kids will like based on their own experiences, knowledge from educators, or testing the site with users (Schriver 1997). While usability testing is a proven method for correcting some usability problems, it usually comes near the end of the development process after large design decisions have been made and it is too late to make major changes to those designs. As I worked on this project, and it became clear to me that the best way to produce a user-centered web design for children was to involve children right from the beginning. In this thesis I will describe my process of doing so.

There are several methods for incorporating children into the website development process. How a designer chooses to do so will depend on factors like time, funds and access to children. Alison Druin recommends a methodology she calls cooperative inquiry. The cooperative inquiry consists of contextual inquiry of children, technology immersion with children and participatory design with children (Druin 1999). Her research focuses primarily on multimedia programs but the same methodologies can extend to website design. Unfortunately

most web developers do not have the time or resources to conduct the type of extensive development Druin illustrates.

This project proves that even with a limited amount of involvement with children, the usability of a site can increase significantly. I chose to:

- conduct a contextual inquiry of children using the internet at school
- include children as design partners in two areas of the Kid's Zone section of the Safari Todd Wildlife Productions' website
- have children participate in a usability test of the entire website early in the development process.

From the results of this method I developed an entire site that is usable by both children and adults.

Project Description

The Florida wildlife conservation group, Safari Todd Wildlife Productions (STWP), focuses on bringing conservation into the classroom through on-site school visits. They conduct presentations at school locations with live endangered animals. These presentations plant the seed of conservation in children by providing hands-on experience. STWP needed a website developed for several basic reasons; together we established three main objectives for the website:

- To promote conservation
- To raise awareness of STWP and its programs
- To solicit donations

Most of STWP's communication challenges are solved by having a website. The website raises awareness of their programs and provides information on how to arrange and book presentations. In addition to this information the site also promotes conservation and solicits donations to help keep the organization running.

Beyond these basic needs was the desire to reach and educate children about conservation. SWTP strongly believes that the future survival of many of Florida's animals relies on the impact their group can make on children now. By providing an area on their website devoted to continuing the education of the children they visit, they will create an even greater opportunity to promote education and conservation.

Since conservation is a primary goal of the organization and the website, STWP and I decided they would also benefit from supplementing the school presentations with a web area specifically for children. This Kid's Zone (KZ) area would be directed at children who have participated in STWP presentations and/or children who are interested in Florida wildlife and conservation. The project for my thesis was to just include the KZ area and the navigation to the KZ; however due the results of the usability test conducted, it was apparent that the entire site should be included in the scope of the project.

Although STWP presents its program to all types of audiences, its primary audience is school children. I chose a group of sixth and eighth graders from Lakeview Middle School in Winter Garden, Florida, to participate in all three areas of the research. These children have access to computers and the internet either at home or at school and have basic skills with both. For this project they needed to be able to use the computer's keyboard and mouse and have a basic understanding of internet navigation. The student body at this school consists of 2% Asian and Indian, 13% Black, 15% Hispanic, and 70% White.

For the contextual inquiry, I observed and interacted with approximately 50 students during the course of one school day. Six students were selected to participate as design partners. These students made up two teams that worked on one specific page of the KZ area. Team One consisted of two sixth grade boys and one eighth boy. This team's job was to design one "Animal Facts" page. Team Two consisted of three eighth grade girls; their job was to design an "Eco-Saving Tips" page. I met with each design team twice, for a total of four hours. I conducted the usability test with six sixth graders. This test took place a little over halfway through the development process. Based on the results from the usability test, I made several changes to the project.

One significant change was to include the entire STWP site in my thesis project. I made this decision when I discovered the children, used to navigating adult sites for information, constantly referred back to the main portion of the site even when the KZ area clearly had the information they were looking for. This discovery led me to believe that development of a site that includes a KZ area should expect children who visit the website to go beyond the KZ into the main site. Therefore, not only the KZ area should be developed for children's usability, so should the entire site.

The number of children on the internet will continue to grow and with it so will the number of websites directed at children. If websites like this one improve their users' experience on the internet, they have a better chance of getting their message across and establishing a positive relationship with their users.

The remainder of this paper includes a literature review, project overview, appendix and bibliography. My literature review for this project will discuss the current published literature as it relates to my design and development decisions. I have mapped out each level of the project

and the theories behind my choices for that level. The project overview describes each stage of the project, problems encountered and results from the usability test.

CHAPTER TWO: LITERATURE REVIEW

With the number of children on the internet and the volume of websites dedicated to them, I expected to find quite bit of research about designing sites for children. I was surprised to find little directly related to website design. The literature available that specifically addresses website design is limited to some reports on specific educational projects or the results from usability testing of children on existing websites. While extremely useful to this project, these studies did not illustrate a method that involved children in the development process.

For this project, my research of web design had to be expanded to include the larger and more general topic of technology. There are more publications in the area of multimedia and software design for children, in addition to articles about statistics on children on the internet. Since the development of software applications has many similarities to website design, I chose to base my research and analysis on the literature pertaining to web usability and the use of children in the technology design process.

There are two prominent leaders in each of these areas: Jakob Nielsen and Alison Druin respectively. Nielsen is well known for his work in web usability. His book, Designing Web Usability and specifically two recent usability tests involving children and teens contributed greatly to the design decisions of this project. The results from these usability tests expose that children's sites or areas suffer from the same usability problems that adult sites do, but in addition to these problems designers have to understand the differences among adult users, children users and teen users.

The involvement of children in the design process of this project is taken from the methodologies of Alison Druin. Druin and her colleagues have published many articles and

several books on the role of children in the development of new technology. I have reviewed other articles and books, but very little comes close to the depth of research in these two areas than the work of Nielsen and Druin.

The remainder of this literature review maps out the course this project took in relation to the literature available on this subject. I have structured it in this way to best illustrate how research shaped the design and development decision making on this project.

Initial Website Research

At this beginning stage, my first course of action was to establish the content and structure STWP wished their site to include. In addition to this input I researched several sites that were similar in content to the STWP site. These sites included The Florida Panther Net, The Florida Panther Society, Florida Conservation Alliance, The Wildlife Foundation of Florida, Natureworks, The Central Florida Zoo, The U.S. Fish and Wildlife Service, National Wildlife Federation, The Friends of the Florida Panther Refuge, National Geographic Kids and many others. Most of these sites included a KZ area, but to get a real feel for children's websites I also researched some of the more popular sites like NASA, Cartoon Network, Disney, Discovery Channel, and Animal Planet.

There are almost as many variations of design as there are websites for children. From a design stand point, I have observed that most sites for kids fall into four design categories:

- High concept, non-commercial/educational (example: New York Philharmonic <http://www.nyphilkids.org>, McGruff <http://www.mcgruff.org>)

- High concept, commercial (example: Nickelodeon <http://www.nick.com>, Evergirl <http://www.evergirl.com/>)
- Medium to Low concept, non-commercial/educational (example: Healthy Teeth <http://healthyteeth.org/>, The Wild Habitat <http://library.thinkquest.org/11234/index.html>)
- Games, Animations and Communities (example: Neopets www.neopets.com, Candystand <http://candystand.com>, Addicting Games <http://addictinggames.com>)

I defined and located these sites during my contextual inquiry of sixth graders surfing the web, from reviewing 101 Best Web Sites for Kids, Yahooligans! The Ultimate Kids Guide to the Web 2003 and by conducting a search for “kidzone” on Google. I’ve broken them down into these categories based on content and design choices. There is very little difference between the high concept commercial and non-commercial sites as far as design choices, but there is a great deal of difference in content. There are some medium to low commercial sites, but they seem to fall into the category of games. These sites are sometimes no more than a textual listing of links to games.

The STWP website will fall into the medium to low concept, non-commercial/educational category due to its content, audience expectations and technical specifications.

Website Usability Guidelines

Before the actual designing of the site began, I reviewed Nielsen's "The Ten Most Violated Homepage Design Guidelines" and "Top Ten Guidelines for Homepage Usability" to set up very basic homepage and site guidelines that were appropriate for this site.

These included:

- the organization's logo in the upper left corner
- use of a tagline to describe what the organization is all about
- omit link to the homepage on the homepage
- use meaningful graphics
- use color to distinguish visited links
- include a site map

Developing Websites for Children

I continued to look at Nielsen as I designed the KZ area. Nielsen's "Usability of Websites for Children" and his recent "Teenagers on the Web" studies demonstrated the fact that children and teens are affected by usability problems as much as adults. They encounter similar problems but also have issues with usability unique to their age. Children and teens differ from each other as much as they do from adult users.

Because the age group I looked at (11-13) fell somewhere between Nielsen's two studies, I had to include elements from both studies. A good example is my choice to use more graphics in the KZ than I would have in a site that was not for children. I chose to use some multimedia

in order to increase the interactivity that both children and teens like. The following are some guidelines I tried to adhere to for both age groups:

1. **Limited scrolling:** I made sure that at the very least the main menu bar appears above the cutoff point of the screen.
2. **Instructions on the screen:** there are only a few instances of this, but I made sure that instructions are there and visible.
3. **Use icons and symbols in familiar ways:** this was particularly important with the “Animal Facts” area. I wasn’t sure some children would know what the word “habitat” meant, so I included a picture of a house on the habitat button.
4. **No pop-ups.**
5. **Simple, large fonts:** Nielsen notes that it seems everyone except web designers prefer larger type. Children prefer Comic Sans and Ariel. I chose to use both. (Bernard 2003)
6. **Use standard navigation schemes:** I kept the menu bar to the left and also included a plain text menu at the bottom of each page.
7. **Design text buttons to look pushable and clickable items to look clickable:** Every menu item indicates that it is clickable. I chose to keep the item the same and then add an outer glow when the mouse passes over it that indicates it is clickable.
8. **The design should be visually attractive, but not deter usability.**
9. **Balance the use of text and graphics.**
10. **Present the breadth of the website’s content on the homepage:** I have done this with both the main homepage and the KZ homepage. Both homepages contain information about each area within that site and links to those areas.

11. **Research your target user:** As you will see in the next section of this paper, I followed a method that included the user in a contextual inquiry, design partnership and usability test.

Developing Websites with Children

I chose to involve children in the development process of my KZ based on my lack of exposure to kids of this age group and what they want from a website. Researching current sites provided me with an overview of what kids are presented with, but it was difficult to tell from looking at these sites which ones worked the best for kids.

Alison Druin has developed a methodology called cooperative inquiry. This model is based on a combination of research techniques that have been used in the past, but needed to be adapted for children and used together in order to obtain the best results. This combination includes the contextual inquiry, participatory design, and technology immersion. Druin explains in her article “Cooperative Inquiry: Developing New Technologies for Children with Children” that no one technique will provide all the answers. She believes children should be partners in the creation of children’s technologies and are capable of contributing throughout the research and development process.

I have created a modified version of her model that can be used on projects with limited time and resources while achieving similar results. Druin herself admits that her approach requires time, resources and a desire to work with children, I believe a scaled down or “situated” version of the cooperative inquiry can yield important results. I chose not to include the technology immersion based on time. The contextual inquiry satisfied most of what I would

have expected from a technology immersion. A good technology immersion for this project would have included observing children as they designed their own webpage for fun with a simple HTML editor.

The contextual inquiry allowed the children to play on the computer for a full class period and it was very helpful for me to see their skill level. I limited the amount of participatory design time for the same reasons. I feel that the experiences I gain from working with children on one area of the website can contribute to the rest of the site. Understanding what children want and how they use navigation can universally be applied to an entire site.

Contextual Inquiry

I chose to observe the children surfing the internet in the library of their school over the course of one day. During each period a class would come to the library and I would observe them for approximately 50 minutes. The students were asked to look up certain topics related to STWP (Florida panthers, conservation, fossils) and show me what they found. Once the initial research topic was exhausted I had them play and show me their favorite sites. Druin's adapted contextual inquiry involves one interactor and two note-takers. For my method, I chose to be the interactor and took notes after each session, not in front of the children. This was effective in capturing the larger, more important observations.

I followed these contextual inquiry techniques set up by Druin:

- Got to "their territory"
- Wear informal clothing
- Do not stand with children
- Ask about opinions and feelings

- Interactor must not take notes

Children as Design Partners

For this portion of the project I chose to work with the children on one area of the site instead of working with them on the entire KZ area. I selected two areas that, once developed, could be replicated in other areas of the site. I formed two teams of three each and used their teacher as an adult participant with one team. This helped the children open up a little bit more as they were comfortable with their teacher. The team that did not have an additional adult was made up of older children; I don't feel the absence of another adult participant prevented us from reaching our goals.

Druin also recommends a low-tech prototyping approach, especially early in the development process. I chose not to work on the computer or produce any materials on the computer that represented any kind of web layout for these sessions. I worked strictly with paper, pens and markers. Team One worked with a photograph of a scorpion and typed out "animal facts," while Team Two worked from just from a typed list of "eco-saving tips." This method conveyed that there were no boundaries set in place and that the web page they were working on could take any shape.

Usability Testing with Children

For my usability test I knew that I would be lucky to get a desk and chair at the school for my usability test, let alone a computer, so I made the decision to use Nielsen's discounted usability testing concept. Nielsen's "Rule of 5" states that using five test participants can reveal 80% of the errors on a website. This is extremely useful when projects do not have the budget or

timeframe for a large usability test. There are some drawbacks to Nielsen's testing concept. Barnum advises against the "Rule of 5" if the website will have a diversified user group. She does concede that if the website's users are "homogeneous and share a common goal," the rule of 5 applies. I decided to test six users over the course of one school day with the hope of finding as many errors as possible. I chose six because the school schedule of six periods allowed an equal time with each user with a little left over after each session to compile my findings, reset the computer and take a short break. Prior to the test I established a usability test plan, task list and test script based on the model from Barnum's book "Usability Testing and Research." (See Appendix)

Usability engineers from Microsoft, Libby Hanna, Kirsten Risdien, Mary Czerwinski and Kristin Alexander have written the article "Guidelines for Usability Testing with Children" and a chapter in Druin's book "The Design of Children's Technology." These two publications were helpful when it came time to run the usability test with children. They point out that in general, "The same rules about planning, lab arrangement and interactions with participants that are used in usability testing with adults also apply to usability testing with children." The main considerations that were different between adults and children for this particular test were:

- **Make the lab a little more child friendly.** For this test I was in the school library, but in a very sterile room, so I used a Spongebob mouse pad.
- **Schedule children for an hour of lab time.** Each session was scheduled for 50 minutes which was more than enough time.
- **Screen children for testing that have at least some experience on a computer.** The children were screened by their teacher. Each child had a

basic knowledge of computers, could operate the mouse and keyboard and had a basic understand of the internet and it's navigation.

- **Parental Consent form (See Appendix).**
- **Explain the testing procedure.** I had to emphasize that they were testing the website, I wasn't testing them.
- **Break down task into smaller units.** Each scenario included two small tasks that related to each other.
- **Keep children feeling encouraged.** I made sure to let them know when they succeeded at a task and tried to encourage them to try a little harder when they had trouble.
- **Involve an equal number of boys and girls test participants.** Nielsen advices that when testing children you should make a substantial effort to include the same number of boys and girls due to the findings in "Usability of Websites for Children." They discovered significant gender differences in reading levels and experience on the computer. Girls were more apt to use the computer with an adult while boys were more apt to use the computer independently. Boys were less likely to read long text passages and girls, who statistically read better than boys at this age, paid more attention to written instructions.

This usability test came a little over half way through the development of the KZ area. The main site area was almost complete, but due to the results of the test will undergo some changes as well. I decided to test early enough to catch problems, but also to test the sections

that are being designed by kids. If these areas proved successful I would only have to continue in the direction the project was already taking, instead of going back and making numerous changes to large areas of the website.

CHAPTER THREE: PROJECT OVERVIEW

This project came first out of my desire to help conservation efforts. It is sometimes difficult to find money to donate or time to volunteer, so with this website I feel I am helping an organization whose mission I support to achieve its goals.

I was asked by a friend to talk with STWP about helping them with their website. They had countless problems with their former web designer and were frustrated by the lack of communication. They were looking for someone to start the process over from scratch and they were open to new ideas. I volunteered to help them and soon discovered that I could incorporate at least part of this project into a thesis. When I asked them who they expected to use the site, I was surprised to learn that, in addition to educators, they hoped to attract children who had participated in their presentations. Initial research into web design for children revealed there was little published in this area, so I was excited about the Kid's Zone idea and thought it would make a good research subject.

STWP came to the project with established content and structure. This was helpful, but some of that structure needed to be adjusted to draw young users to the site and keep them. What follows is an overview of the process I went through to complete this project.

Contextual Inquiry & Results

The contextual inquiry took place in the library of Lakeview Middle School in Winter Garden, Florida. Students came to the library as part of their regular scheduled class period, so there were six observations over the course of one day. Each period was observed as a separate session and each session contained approximately 15-25 children, all of whom were sixth

graders. It was challenging to observe so many students at once. I grouped a few children together and they searched as partners or teams. This prompted more vocalization of what they were doing as they discussed how to find something. I also singled out and interacted quite heavily with several children a session. After each session I took notes. The goal of this contextual inquiry was to observe how kids use the internet for both research and fun. I wanted to see how they moved on the screen, what they clicked on, what they missed, how much they read and how high their experience levels were with the computer.

Almost all the children worked well enough with the mouse and keyboard, but there was a wide range of experiences with using the internet. This was most prevalent with searches. Some didn't know how to begin a search when just given the instructions to look for "Florida panthers." Some used Google for their search while quite a few used the browser's designated "search" button. Those less familiar with the internet would type in a search word in the URL address area, which became very frustrating to them. When they encountered difficulties, they were unable to narrow the search to find what they were looking for. When I asked a boy to find me a "picture of a cool fossil" he went to the search engine and typed in "cool fossil," which did in fact bring up some cool fossils. But this made me aware of their literal interpretation of search words and their difficulty with coming up with search words on their own.

An important observation I made was the trouble kids had finding the kid's area of a website when it was marked like the other menu items on the navigation bar. They would scan quickly and completely miss it; game areas that had similar navigation were also missed. Sometimes kids would click without really looking around and end up being taken far away from their beginning point; other times they would stay forever on one page scanning it over and over again. I sensed their frustration at becoming lost and boredom once they grew tired of looking.

Overall it was an excellent observation for me on two counts: one, I was able to get a really good idea of my audience's abilities and interests and two, I had met the sixth grader and he/she proved they would be interesting partner to work with. From this contextual inquiry I made initial design decisions regarding the look of my KZ menu button.

Safari Todd Presentation Observation

In addition to the contextual inquiry, I observed STWP's presentation at the school. This was extremely helpful because not only did I get a first hand look at how STWP puts on its presentation, but I got a good sense of how the children feel about the presentation. I was able to see first hand what animals excited them and what their range of emotions were after holding a alligator and I was able to take pictures of them for the website they were helping create.

Development Teams

The development teams for this project were selected by their teacher to participate based on their creativity, academic standing and interest in the project. The teams included three children each: Team One was made up of two sixth grade boys and one eighth grade boy. Team Two was made up of three eighth grade girls. I did not select one team of boys and one of girls on purpose. The teams were put together based on class period availability and that randomly separated the two teams by gender. Based on this set up I decided to give the animal facts to the boys and the more sophisticated project to the older girls.

Team One

Team One's job was to come up with a way to display written animal facts with pictures of that animal on a web page. I provided them with a list of facts given to me by STWP and a picture of a scorpion. I took the scorpion at their school's presentation. I then edited to omit the entire background so only a close up of the scorpion remained on the page. The team came in with lots of ideas about the entire site and it was a challenge to get them to focus on this one area. Once we began to do that it became very clear that these children wanted to use quite a bit of animation. Every idea involved movement of some kind. They really liked the idea of the scorpion moving when the mouse would pass over one of its parts.

Before continuing with more scorpion ideas, I had them take a look at the written animal facts. They were very serious about including only the information kids their age would care about and simplifying the categories that were written on the page. They narrowed down the categories to include "the boring stuff", but we decided to include it under a "history" category. The other categories include: physical characteristics, habitat, diet, conservation and pictures. The pictures and history section were added to the original list that STWP gave me.

We then decided where we could put the information from each category. I had originally planned to include the text information on the same page as the main scorpion with links from the top to the information further down on the page or to have a smaller window pop-up with just that category's information included. Pop-ups were immediately rejected by the team and the idea of having to jump up and down on the page didn't appeal to them either. "Just put it on another webpage," we decided.

We then moved on to navigation; I wanted to establish two navigation areas on the animal page. The first was the fact categories and the second was the animal menu, which

allowed the user to select the animal they wanted to learn more about. There would be a main page with all the animal pictures, but I thought it would be a good idea to allow the user to jump from one animal to another without having to go back to the main page. The kids came up with a creative idea for the animal menu. It would be a snake at the bottom of the page with the different animal names written on its side within the bands on its skin. The categories menu would be buttons surrounding the animal on the main page. Overall the team came up with some creative ideas, but I knew that a lot of the animation and multimedia they really wanted would not be possible.

Team Two

Team Two's job was a little more challenging because we started with just a long text list of eco-saving tips provided by STWP and ones I found on the internet. Their job was to take this list, edit the tips that didn't seem right for their age group, think of tips that weren't on the list and then figure out an interesting way to display the information. The eco-saving tips will appear in the "Smart Safari Kids" area of the site. This is an area dedicated to learning about the environment and how to help take care of it.

Again this team came in with loads of ideas for the entire website. I didn't want to immediately stop them because they had some very good ideas that I ended up incorporating into the site. An immediate incorporation was the "Ask Safari Todd" section of the KZ. This is a place where kids can email Safari Todd himself and ask questions about animals or anything else they would like information on. My favorite idea Team Two came up with was to have the members of STWP tell their stories of personal experiences with the animals they handle. I would have thought that kids wouldn't be interested in doing more reading online, but perhaps

the girls in this user group would. This took up more time than I had planned, but seemed productive none the less.

We edited the eco tips by selecting the ones that kids their age could do. We agreed that some of the facts could be included under a “share with adults” area. The team came up with the idea to use STWP’s panthers as hosts for the eco tips section. We also agreed that if we showed the panthers as kittens this could illustrate that these tips are for kids. The final decision was that each fact would be a cartoon with the panther kittens doing the tip they were suggesting. Text would also be included to keep things clear. Team Two were also adamant about not using pop-ups. They were perfectly fine with a new web page for each tip.

The major difference between the two teams came down to games and interaction; the boys wanted games, games and more games, while the girls wanted stories and more community type functions like postings and email sections. Ideally this KZ will contain both and appeal to both boys and girls.

I was pleasantly surprised that the ideas I was considering for each area were very similar to what we ultimately came up with. The other ideas about the entire site that the children volunteered also seemed in line with what I was planning. This experience gave me confidence that what we were doing would work for others. I did discover how much these kids expected from a website. They wanted lots of moving parts and video. They also wanted the scorpion to drip venom from its stinger and then display information about it. It was a challenging when it came time to put our ideas into a working website.

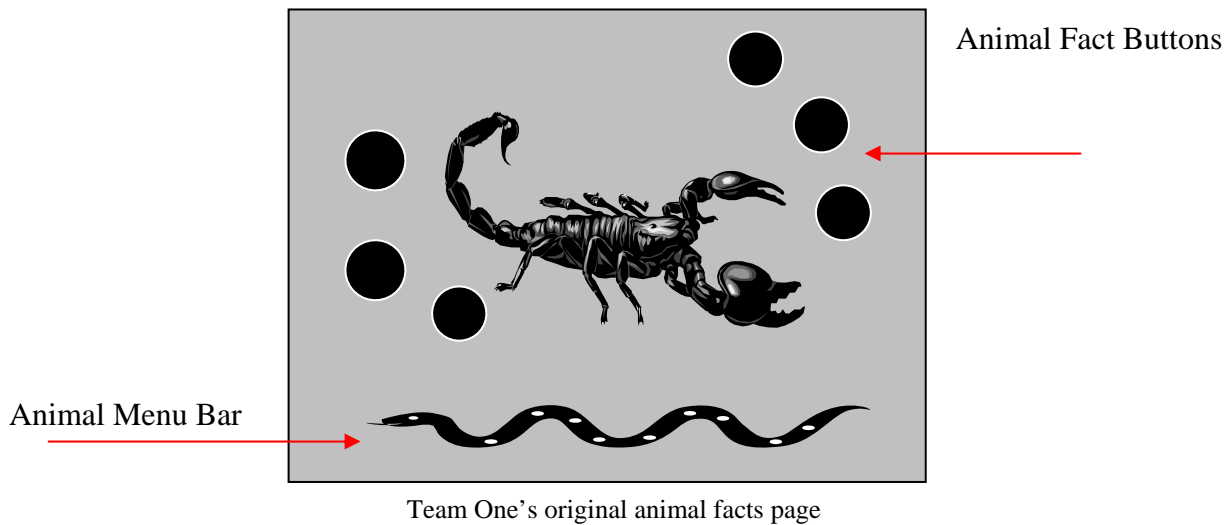
Design Decisions & Compromises

After looking at children’s websites on my own and completing the contextual inquiry, I knew the KZ area had to be exciting visually. This meant more than just adding more pictures; I had to seriously consider the use of Macromedia’s Flash animation program. I had used it some in the past for small animations. It seemed that all the commercial and non-commercial high concept websites and even a few medium-low sites used Flash. I hesitated to use this time to learn another program when I could probably produce something not as animated in another program and have time for other things.

I first had to solve the problem of using so many web pages to display both the “animal facts” and “eco-saving” information. I wanted the site to start off with nine animals in the facts area. That would mean seven web pages for each animal and 63 pages total just for the initial “animal facts” area, not to mention an additional ten pages for the “eco-tips.” This was just too many pages for a small website. I chose to take some extra time and create both areas in Flash. Each animal page and the eco-tips would appear in one web page as a slideshow. This way the user could flip through the information and stay on the same web page.



Slideshow within regular web page

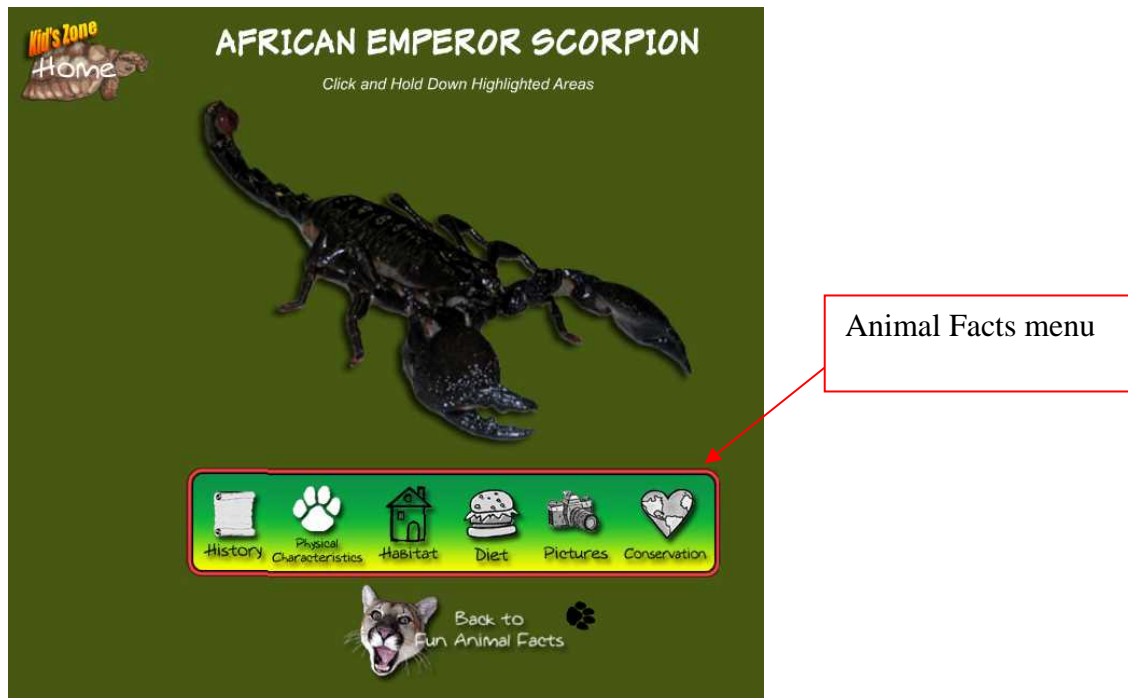


The “animal facts” area Team One came up with had two problems. First, the snake animal menu bar was a great idea, but it would end up costing valuable time when it was time to edit the menu to add more animals. We were starting off with nine animals, but I will need to add a lot more as the site grows. That would mean changing the snake menu every time an animal was added or removed. If the menu bar had animation like rollovers this would mean several hours of work to make the changes to the menu and even more time updating every page that contained that menu. This option, although creative, was not practical.

Instead I chose to use the snake menu idea for the main navigator menu bar in the KZ. This would need updating occasionally, but not nearly as much. This would also mean giving up on the idea of users moving from one animal to the next without having to go back to the main “animal facts” page.

My second problem was with the placement of the animal fact buttons. Not every animal has the same shape; this meant the placement of the buttons would be different for each animal. And where would the buttons go on the page with mostly text? I wanted to keep a standard

location for these menu items to avoid confusing the user. I decided since there would be no snake menu bar at the bottom, I would set a standard “facts” menu bar there.



First Draft of Animal Facts page.

Instead of animating the scorpion I chose to create rollovers on different parts of his body. For example, when the mouse passes over its stinger, the stinger is highlighted. And when the user clicks and holds down on the area, a fact comes up. I knew ahead of time that expecting the user to hold down the mouse button might not work, but it was a design choice that was interactive and interesting. I was confident that I would learn if this interactive concept worked because I was conducting a usability test early enough to see if users could do this task. If they couldn't I would find another way to display the information.

The “eco-tips” area was much simpler to create as it did not require as much navigation. It turned out very close to what the team had originally envisioned.

A few compromises needed to be made on the development team's ideas, but I feel these were done for the benefit of the user. At the pilot test of the site, a few members of both teams looked at the site and gave me their feedback. Overall they were happy with the results and excited about seeing their ideas take shape. One boy is still requesting that the scorpion's stinger squirt venom, so I will continue to work on that.

Usability Test, Results & Recommendations

The purpose of the STWP usability test was to collect information about how middle school age children use the KZ area of the STWP website. The KZ was still in the developmental stage when this test took place. This test helped determine both successful and problematic elements of the site so that improvements in usability could be made prior to the site's launch.

The usability test was held on March 17th from 9:30 a.m. to 3:30 p.m. at the media center in the library at Lakeview Middle School. I tested a total of six children, three boys and three girls. Five participants were 11 years old and one was 12. Each test lasted approximately 30 minutes. The participants were given four scenarios that included eight tasks. (See Appendix)

The usability goal for the entire website is for users to find the information they are looking for as quickly as possible. The secondary goal is that the user satisfaction with the aesthetics of the site is high enough to keep them interested in remaining at the site for as long as possible, and returning to it.

The usability evaluation produced evidence of some navigation and subject terminology confusion as well as a few layout problems. The most serious issue discovered was the users' preconceived ideas about KZ areas. The following are the findings of this usability test:

- **General Findings:** All the participants use the internet either at home or school. They use it mostly for research, keeping in touch with friends and for games. None knew for sure what kind of internet connection they had at home, but several mentioned slow downloading when asked about what they hate about the internet. I concluded that most of the participants had a dial-up connection at home. Each participant spends at least 30 minutes a day on the internet.

All participants liked the site overall, but found finding information on animals to be one of the hardest tasks, although they liked that area the best. The easiest task for all participants was finding the games section of the site. All said that visiting the site reminded them of the STWP presentation and that they would visit the site again once it was complete. Some suggestions for improvement included adding more animals and more games.

- **Finding 1: User was confused by navigation menu bar subjects.** When given the task of finding information on what scorpions eat, each user, starting at the STWP homepage, went directly to the menu subject labeled "Eco-Education Programs." When asked why they chose this menu item, they responded that information would be found under "education." Even after spending a few minutes scanning the "Eco-Education Programs"

page, and not finding the information, they were very reluctant to leave that page. Most users, after failing to find the information, went on the “Photo Gallery” menu subject, hoping a photograph of a scorpion would be good enough. None of the users read the information further down on the homepage which describe each page of the website. Most found the scorpion page after exhausting all other options. When asked to find information on what they could do for the environment, most users went to the “Get Involved” menu subject.

This problem occurred with every task when the user started from the STWP homepage and this occurred even after the user had been to the KZ previously and had seen other subject headings. When I asked some users what they thought was in the KZ area, all replied “games.”

Recommendation: This was a serious finding. Children associate KZs with games and will not look for information there first. When I asked the users where they would go from the homepage if they didn’t have a task, all said either the KZ or the “Photo Gallery.” My recommendation is to rethink the subject labels for the main menu bar, especially the “Get Involved” and “Eco-Education,” and consider either changing the labels to more adequately describe what that page contains or add a pop-up menu that includes links to the KZ.



Addition of pop-up menu

- **Finding 2: Animal Facts menu too low on screen:** The placement of the animal facts menu can be cut off below the fold of the screen if users have their resolution set smaller than 1024 x 768.



Animal page with usability test recommendations

Recommendation: Move the animal facts menu from its horizontal position across the bottom of the page to a vertical menu on the left side of the page.

- **Finding 3: Users do not read text on homepage:** I purposely added text information about each area of the STWP and KZ on the homepage of both sections. Only one test participant read the text, she was also the participant to find the animal information on the first try. All of the other participants went first to the menu bar, when they couldn't find

the information went back to the homepage and scrolled down through the information, but did not read it or read it carefully.

Recommendation: Keep the information on the homepages, but add pictures that supplement the text. The pictures should draw the attention of the users and hopefully help focus their attention to the content next to them.

- **Finding 4: There are at least two types of users, scanners and readers:** The majority of test participants scanned text information quickly; they also missed information and had difficulty locating information. One participant took the time to read information and was more successful in completing the test's tasks.

Recommendation: While the majority of test participants were “scanners,” a good number of users (17%) will be “readers.” I recommend designing for both types of users. The homepages should still contain text that can help users find information for readers, while navigation buttons should be clear and pictures included to supplement text.

Problems Encountered & Recommendations for Others

This project required much more coordination than any other I have worked on previously. I was relying on several people for their help in order to get information, access to the children and also consent to work with them. The major problem was the limited amount of time I had with the development teams. I would have preferred twice as much time with them to

develop not only the pages they worked on for this project, but other areas of the KZ. This was compounded by the time of year this project took place. I would advise others who work with children to check their school schedules carefully, not only for vacations but also for testing times. I had to deal with scheduling around the FCAT and spring break. I would also recommend doubling the time you think things will take. Children seem to operate on a different set of priorities; your project will not be one of them. I had to make an effort to keep them interested and focused, but also allow them time to work up to things. The girls on Team Two had wonderful ideas, but took their time talking about them. If given more time they would have come up with even more contributions to the site.

CHAPTER FIVE: CONCLUSION

The involvement of children in this project was crucial for its success. I foresee the site growing as it needs to over the next few years as the organizations grows. I would like to continue to work with some of the children on future areas of the KZ. STWP also has plans to expand the site to include e-commerce and an educational option such as video downloads for teachers. Overall I am very satisfied with the look of the site. I am happy to have solved the “Animal Facts” multiple page issue by using Flash. I did however make the assumption that children users would go to their area of a website automatically to look for information as well as for fun. I did not foresee a navigation problem that would affect the entire site, but by administering a usability test early in the project development process I was able to correct this problem before the site’s launch.

This navigation discovery brought up a more serious issue of what children expect from a KZ and how they look for information. If a site includes a KZ that contains information the user is looking for, they may not go there first but may hunt around the main site for it. If a site bothers to include a KZ then they are acknowledging children visit their site. They should make the entire site usable for children if not in the content at least in the navigation. This will require adding children to the development and usability tests processes of many sites not specifically geared toward them.

Children spend a lot of time in the mainstream areas of the internet; they don’t assume information will be set aside for them in their own special areas. They do however, make up a large percentage of internet users and consumers. Developers should not be satisfied with their users eventually getting around to finding the information on their site; they should make sure

the site lends itself to the users finding what they are looking for on the first try, even if that user is a child.

While it has its challenges, working with children doesn't have to be difficult, expensive or time consuming. My situated methodology contained almost the same elements as Druin's, but was done by one person, over the course of a few days with very productive results. Limited time with children doesn't have to yield limited results. By combining the elements of contextual inquiry, design partnership, and usability testing a technical communicator can create a site that is usable by both children and adults.

APPENDIX

APPENDIX A: USABILITY TEST PLAN

Purpose of Usability Test

The purpose of the STWP usability test is to collect information about how middle school age children use the Kid's Zone area of the STWP website.

The Kid's Zone area will still be in the developmental stage when this test takes place. The test will help determine both successful and problematic elements of the site so that improvements in usability can be made prior to the site's launch.

This test plan describes:

- Test Objectives
- User profile
- Testing methods
- Tasks to be tested
- Facilitation
- Test environment
- Evaluation measures
- Final report contents

Test Objectives

This usability test focuses on gathering data about the usability of the STWP Kid's Zone web area. I will assess the ease or difficulty of the following tasks:

- Locate Kid's Zone main page
- Find information on the habitat of scorpions
- Find a picture of a Florida panther as a kitten
- Locate eco-saving information page
- Navigate the eco-saving tips slide show
- Locate puzzles
- Put together the alligator puzzle

In addition to obtaining information on the previous tasks, I am also interested in collecting information about the user's perception of the Kid's Zone, including:

- Satisfaction with the Kid's Zone overall
- Satisfaction with the Kid's Zone look: pictures, colors, logos, etc.
- Whether users would continue exploring the zone or visit again
- Difficulties or questions that the user experienced

- Comparison of the Kid's Zone with other, similar sites
- Is the area a good supplement to STWP's presentations? Should there be more, less or different information?

Participants will be asked a few questions prior to the test regarding their internet use and favorite sites. They will be given scenarios that direct them to perform specific tasks and post test questions to review the test experience overall and offer suggestions.

User Profile

The Kid's Zone area is being designed specifically for STWP's main audience, children age 11 to 14 years old. Areas of the site are being developed with the collaboration of five children from this age group. The area has the dual purpose of educating kids about wildlife and conservation and also serving as a supplement to STWP's presentations.

For this evaluation, six children (equal number of boys and girls) will be participating in the usability test. A majority of the participants will have seen a STWP's presentation.

Required Level of Computer Experience

The users participating in the test will have at least a basic knowledge of working with a computer. This includes using a mouse and keyboard. They will also have a basic knowledge of the internet. This includes navigating the web browser, clicking on links, and scrolling.

To screen test participants' skill levels, I am relying on their teacher who has observed them use the computer on a regular basis. She will select the six participants based on computer/internet skill level, academic standing (participants must be passing), and interest in participation.

Methodology & Test Plan

The test scenarios for all participants will concentrate on the usability of the Kid's Zone web area. I am especially interested in navigation and whether or not participants can locate the information they are looking for.

Test Design

Since STWP is an educational organization, the primary goal of the Kid's Zone is to educate children about wildlife and conservation. Therefore the main task of this test is finding information.

User Scenarios/Task List

Scenario 1: Allocated time, 15 minutes

You have to do a report for your science class about scorpions. You don't know where they live. When Safari Todd gave his presentation a few weeks ago he mentioned that if you wanted more information about the animals he showed you, you could go to his website.

Task 1:

Starting from the Safari Todd homepage try to find out where scorpions make their home.

(Only if user locates scorpion information)

While you were looking for information about the scorpion, you notice there is also stuff about Florida panthers. You wonder what they look like as kittens.

Task 2:

Try to find a picture of a Florida panther kitten.

Scenario 2: Allocated time, 15 minutes

You are interested in doing some stuff at home that could help out the environment.

Task 3:

From the Kid's Zone homepage, see if there is any information about what you can do for the environment.

(Only if user locates eco-saving page)

Task 4:

See if there are any tips you can tell to the grown-ups in your life about, so that they can help the environment too.

Scenario 3: Allocated time, 15 minutes

You have finished all your homework and are allowed to play some games on the internet.

Task 5:

See if you can find any puzzles in the Kid's Zone.

(Only if user locates puzzle page)

Task 6:

Select the alligator puzzle* and try to put it together.

If there is remaining time with the student, I will allow them to continue to look around the site.

**I did not design this puzzle program, it was created by www.jigzone.com. I would like to include it in the testing to see if it should become a part of the Kid's Zone.*

Pre-Test Questions

- Where do you use computers?
- How much time do you spend on the internet each day or week?
- What do you use the internet for?
- Have you ever seen the Safari Todd Wildlife Production's presentation?
- What is your favorite website?

Post-Test Questions

- What do you think of the Kid's Zone area?
- What task do you think was the hardest? Were any of the others hard?
- What was easy to do?
- Did visiting the site help you remember the information Safari Todd talked about?
- Would you visit the site again?
- What would you change about the site? Why?
- What was your favorite part of the site? Why?

Test Facilitation and Environment

This usability test will take place in the media room at Lakeview Middle School in Winter Garden, Florida. The media room is furnished with several computer workstations. There will be a faculty member present during the test to supervise as I am not allowed to be alone with the students.

Because I am working with children, I have elected not to videotape or record them in any way other than with notes. I will be both the facilitator and observer/recorder. As the designer and creator of the site I am very familiar with all its aspects and should be able to take notes and facilitate at the same time.

After four previous visits to the participant's school, I am a somewhat familiar face to them. I hope to establish a casual and fun atmosphere during the test. Instead of having them fill out a questionnaire, I will ask them the pre and post questions as part of casual conversation. I think this will reduce stress and encourage them to verbalize their thoughts and be honest about how they feel.

APPENDIX B: USABILITY TEST SCRIPT

Test Script

Hello, my name is Wendy and I would like thank you for helping me test the Safari Todd website. The website is still under construction, but I would like to test whether or not things are working they way they should be. And I would also like to hear what people think about before it is finished.

You will be using both the mouse and keyboard to move around the site. I am interested in seeing how you interact with the website. I am not testing your abilities; I am making sure the site is working properly and that you are able to find things easily.

I will be asking you questions and taking notes during this test. I am also here if you need help. This session will take approximately 45 minutes to complete. The session is completely confidential, and your name will not be published when I publish the results of your testing.

Do you have your parents consent form, so that you may participate in this test?

Take user consent form.

I am going to ask you some questions about how much experience you have working on computer and the internet

Ask Pre-Test Questions and take notes.

After seeing a presentation by Safari Todd you learned that he has a website where you can get more information about the animals you saw. I am going to give you some tasks to perform, and I will give you these tasks one at a time. While you are performing each task, please try to speak aloud and explain what you are doing and what you are thinking while you perform these actions.

Please remember that my goal is to test the strengths and weaknesses of this website and your satisfaction with it, not your performance.

Now we are going to go to Safari Todd's homepage.

Give user the scenario.

User Scenarios/Task List

Scenario 1: Allocated time, 15 minutes

You have to do a report for your science class about scorpions. You don't know what they eat. When Safari Todd gave his presentation a few weeks ago he mentioned that if you wanted more information about the animals he showed you, you could go to his website.

Task 1:

Starting from the Safari Todd homepage try to find out what scorpions eat.

(Only if user locates scorpion information)

While you were looking for information about the scorpion, you notice there is also stuff about Florida panthers. You wonder what they look like as kittens.

Task 2:

Try to find a picture of a Florida panther kitten.

Scenario 2: Allocated time, 15 minutes

You are interested in doing some stuff at home that could help out the environment.

Task 3:

From the Kid's Zone homepage, see if there is any information about what you can do for the environment.

(Only if user locates eco-saving page)

Task 4:

See if there are any tips you can tell to the grown-ups in your life about, so that they can help the environment too.

Scenario 3: Allocated time, 15 minutes

Task 5:

You want to thank Safari Todd for visiting your school and let him know what your favorite part of the presentation was. Try to find a way to contact him on the computer.

(Only if user locates Safari Todd's email)

Task 6:

Email Safari Todd

Bonus Scenario

You have finished all your homework and are allowed to play some games on the internet. See if you can find any puzzles in the Kid's Zone.

(Only if user locates puzzle page)

Select the alligator puzzle* and try to put it together.

If there is remaining time look around the site. You have successfully completed the test. Now I would like you to answer a few questions about the test. Please be honest and let me know what you think. Your help is very important to the success of this website.

Post Test Questions

Thank you so much for your time and your help. Your comments and suggestions are very important to me, and will greatly help me complete this project.

APPENDIX C: USABILITY TEST PRE & POST QUESTIONS

Pre-test Questions

Age
<input type="checkbox"/> Male <input type="checkbox"/> Female
Where do you use computers?
How much time to you spend on the internet each day or each week?
What do you use the internet for?
Do you know what kind of connect you have at home to the internet?
Have you ever seen Safari Todd's wildlife presentation?
What is your favorite website? Why?
What do you hate about the internet?

Post-Test Questions

What do you think about the Kid's Zone area of the website?
What task do you think was the hardest? Were any of the others hard?
What was easy to do?
Did visiting the site help you remember the information Safari Todd talked about?
Would you visit the site again?
What would you change about the site? Why?
What was your favorite part of the site? Why?

APPENDIX D: USABILITY TEST OBSERVATION FORM

Observation Form

Scenario 1:	Start:	End:	Total:
Task 1:			
Task 2:			

APPENDIX F: SITUATED METHODOLOGY TIPS

General Situated Methodology Tips

- Do not appear as an authority figure. Dress casual and try not to look like a teacher. Children will open up more and feel more comfortable.
- Sit with the children on their level. Do not stand.
- Do not use family members or friends as participants. Try to use children that you do not have a relationship with; this will effect their willingness to express ideas and/or give truthful feedback.

Contextual Inquiry

- At the very least, try to spend time with the type of children you will be designing for. It is also important to go to their environment. Schools are probably the best location but it should depend on the project.
- Do not take notes in front of the children. If you have a designated note taker, have them remain out of sight line and very still. If you are video taping, make sure the camera is not obvious as children tend to “perform” if they know they are on camera.
- Depending on the observation specifics, have children team up to promote vocalization.
- Allow enough time for children to complete assigned tasks and for note taking.

Children as Design Partners

- Allow sufficient time with children. Children tend to go at their own pace, so make sure to allow for time to explain the project to them and to listen to their thoughts even if they get a little off track. Try to allow for time to explore if additional ideas come up.
- Be encouraging. Again even if the children start to wonder off the main goal, allow them to feel comfortable expressing their ideas.
- Start with simple materials like markers and paper. This will allow the children to create themselves and be less influenced by established products.
- Try to keep design concepts within your skill level. Don’t encourage children to pursue interactive content with video if you can not produce it.
- If possible, try to initially include an adult the children feel comfortable with like a teacher. Once you have established a relationship with the participants you will not need the additional adult.

Usability Testing with Children Participants

- Run a pilot test with different children. You can use the children on your design team if necessary. This will help catch issues that may hurt the results of your usability test.
- Make testing area child friendly.

- Allow for sufficient time to complete testing tasks.
- Break down tasks into smaller units.
- Try to establish a rapport with the participants prior to beginning the test. Ask them questions about school or hobbies to help them open up and feel comfortable.
- Explain the testing procedure in words they will understand. Stress that they are helping you.
- Create ways to encourage “thinking aloud” from participants. Children can be more difficult to obtain feedback from (practice with your design team members). You may have to ask more questions about the reasoning behind the participant’s choices than you would with an adult.
- Be encouraging when participants complete a task.
- Emphasize that they are testing the website, you are not testing them.
- Thank them for their help.

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