Kids and Computers

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Interest Group:
Young children, 2-6 years of age

The Design:
A system of interventions designed to make computer use easier, more enjoyable, and safer for young children

Implementation:
A number of design interventions are proposed and evaluated, while one concept, namely the KidDraw collaborative drawing application, is prototyped

A System of Interactions

The Issue:
Children are not miniature Adults—they require different computing paradigms

The Concept:
A system of interactions that cater to the unique needs of children

Ergonomically Correct Devices

The Issue:

Most computer input devices are not designed with the young child in mind. Mainstream input devices are generally too big and require fine muscle control or a cognitive model that is not consistent with a child's experience. In particular, a mouse generally has multiple buttons that can create added confusion and lengthen the learning curve for the child.

concept: mini-mouse

A half-sized version of a USB optical mouse, this device requires less physical coordination on the part of its user. An additional USB connection allows a second mouse to be connected to the PC as well, while bundled driver software enables the second mouse to be programmed to take control of the interaction. The mini-mouse features only one button, which provides all the functionality needed by a young child while minimizing confusion.

concept: e-crayon pointing device

Drawing is a skill that practically all children learn early in life, and almost all children understand how to color by the time they are 2 years old. The e-crayon is a brightly colored crayon-shaped pointing device that replaces a mouse and shifts the child's interaction with a computer into the familiar paradigm of drawing on paper. The child does not have to learn the difficult cognitive model and develop the motor skills required for mouse use.

Safety and Security

The Issue:

As a mostly unregulated environment, the virtual world can be a dangerous place for young children to visit. Allowing a child wander through cyberspace unattended can be the virtual equivalent of sending them on a scavenger hunt through the back streets of Tijuana. Predators exist online, and web content varies from the innocuous to the pornographic and horrific.

concept: safety campaign

Advertising campaign designed to make parents aware of the potential dangers the online world can hold for children. Banner advertisements would be placed on popular web sites and print ads would be placed in parenting-focused magazines. At the same time, television ads would be aired on Nickelodeon, Disney Channel, and Cartoon Network encouraging kids to ask their parents for permission to surf the Web and to be careful when interacting with anyone online.

concept: child-friendly search engine

This search engine is designed for children who have developed reading skills and who want to find interesting readings online. A friendly interface allows children to enter search terms which are then matched against a database of web pages that have been screened for appropriate content. Optional registration functionality stores details about the child and provides search results according to the skill and age level of the child.
This system would limit search results to pages that are appropriate for viewing by children. Web page content can be matched to the reading skill level of the child, limiting the frustration of picking through pages that are too advanced for the user.

Interface Issues

The Issue:

Many web pages designed for young children do not lend themselves well to quality interaction. Most contain text that young children cannot read, ads targeted toward their parents, and links to pages that are not child-friendly.
A common action observed in children is the random movement of the cursor around the page to find "hot spots" that can be clicked to generate an action. Combine this behavior with web pages that contain non-child content and the result is a "broken" interaction, generally requiring an adult to reorient the child's browser on child-appropriate content.

concept: kiddraw

This collaborative drawing program is designed to provide quality interactions in a robust environment that will not "break". There is no text in the interface—all functionality is intuitive due to the use of discrete sounds and images. Advanced functionality such as saving and printing is organized together into a separate, modular interface for the parents that can be opened when needed.