Computers and Young Children

The Outstanding Developmental Software and Web Sites for 2001

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INTRODUCTION

It is becoming apparent that how children use computers is more important than if they use them at all. Computers can have a significant impact on learning when children use developmental software. In contrast, when children use nondevelopmental software computers have no positive impact on learning and appear to cause significant losses in children's creativity (Haugland, 1992).

During the past year a controversial study was published by the Alliance for Childhood (2000) entitled, *Fool's Gold: A Critical Look at Children and Computers*. The study focused on the negative impact technology can have on young children. All of the dangers cited in the study are true, if computers are used in developmentally inappropriate ways with young children. The study emphasizes to all of us the importance of using computers in developmentally appropriate ways.

What makes computer experiences developmentally appropriate? The most important factor is the software and web sites children utilize. Developmentally appropriate software and web sites facilitate children's learning and growth in diverse areas. Children are active learners, discoverers of knowledge. Children have opportunities to build knowledge and skills. The computer serves as a scaffold assisting children to accomplish a skill or task and then allowing the children to become more and more independent and proficient. Developmentally appropriate computer experiences allow children to have the opportunities to explore, experiment, and reflect on their experiences and collaborate with others. In addition, developmentally appropriate software and web sites spark children's curiosity and provide an exciting tool that facilitates learning. The chal-

lenge is finding developmentally appropriate software and web sites that meet children's interest and needs.

This article focuses on the best developmentally appropriate software and web sites that have been published during the past year. Publishers from across the United States were invited to participate in the yearly developmental software awards. They sent as many products as they desired and then the review process began. The software and web sites were evaluated using the Haugland Developmental Software Scale (1999) and the Haugland/Gerzog Developmental Scale for Web Sites (1999). All software and web sites that score 7 and above are considered developmentally appropriate. Software and web sites that scored 7 and above on a scale of 10 were field-tested in classrooms and homes. Teachers completed a 1-page questionnaire providing feedback on how children responded to the products. Scores were adjusted based on field-testing. Awards were then selected for the software in two age groups, 3–7 and 8–12, and in seven curricular areas. Children's web sites were selected for four categories. Descriptions of the 2001 Developmental Software and Web Site Awards follow.

DEVELOPMENTAL SOFTWARE AWARDS AGES 3–8

Creativity

Bear's Imagine That (see Fig. 1)

Software: Bear's Imagine That
Publisher: Jim Henson Interactive/Knowledge Adventure
Developmental Rating: 7.5
Cost: $19.99   **Ages:** 3–6
Platforms: WIN CD-ROM
Description: Children join Ojo the bear in five creative learning activities: story maker, crafts, sundae cre-

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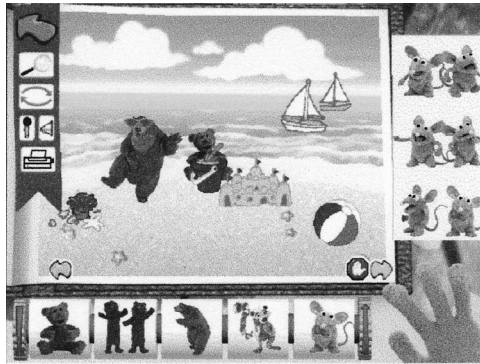[1]E-mail: baileym@pacificu.edu
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Fig. 1. Bear's Imagine That

Fig. 2. I Spy Junior: Puppet Playhouse

ation, video jam, and puppet theatre. Children can also explore the forest and by clicking on a yellow paw discover facts about nature. In addition, children explore five rooms in a house, using the yellow paw again to discover information about items in each room. The strengths of this software are in the activities, which provide children opportunities to explore and create. Capability to input written text into story maker would be a nice addition. The puppet theatre gives children wonderful opportunities to change the direction of classic fairy tales. Verbal instructions are extensive and cannot be turned off making the program slow for proficient users. A real strength of this software is that children are given many opportunities to work cooperatively with the characters in Bear's Imagine That.

Language

I Spy Junior: Puppet Playhouse (*see Fig. 2*)

> **Software:** I Spy Junior: Puppet Playhouse
> **Publisher:** Edmark
> **Developmental Rating:** 9.0
> **Cost:** $19.95   **Ages:** 5–7
> **Platforms:** MAC/WIN CD-ROM
> **Description:** New in the I Spy series is I Spy Junior Puppet Playhouse. Designed for children 3 to 5 years of age, the program consists of seven play areas. Riddles abound in the Princess and the Dragon, the Little Lost Whale, the Bouncing Ball, and the Changing Tree. In the Prop Box children classify objects and in Puppet Maker, bring puppets to life. The Prop Box designed around four boxes is much easier for young children to manipulate than the hoops used in other versions. The strongest component of Puppet Playhouse is the simplified Make Your Own I Spy. Children add objects to scenes with riddles or create their own I Spy pictures using graphics and backgrounds. Children 3 to

5 spend hours engaged in this software and, in the process, learn about the association between objects and words.

Stories and More: Animal Friends (*see Fig. 3*)

> **Software:** Stories and More: Animal Friends
> **Publisher:** Edmark Corporation
> **Developmental Rating:** 9.0
> **Cost:** $79.95   **Ages:** 5–7
> **Platforms:** MAC/WIN CD-ROM
> **Description:** Animal Friends revolves around three books The Gunnywolf, The Trek, and Owl and Moon. Seven activities are available as children explore each book beginning with prereading, story prediction, reading, story sequencing, reflection activities, and then extension activities. While activities vary by story, they each proceed from prereading to reading, then memory, reflection, and extension activities. A microphone provides important support for children who are not yet ready to input text. The program includes excellent word
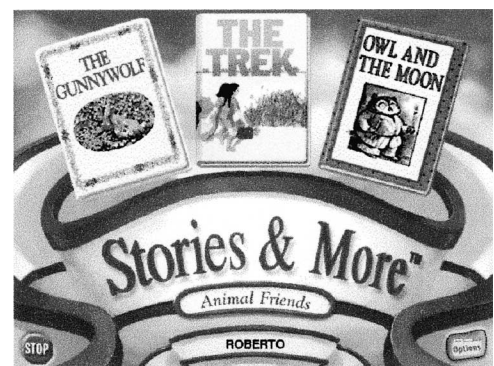

Fig. 3. Stories and More: Animal Friends

Fig. 4. LEGOLAND

Fig. 5. Scholastic's The Magic School Bus Explores Bugs

object association, if/then predictions, and integration of feelings into the activities. A second product, Time and Place, is available for 8–9-year-olds.

Problem Solving

LEGOLAND (*see Fig. 4*)

> **Software:** LEGOLAND
> **Publisher:** LEGO Media
> **Developmental Rating:** 8.0
> **Cost:** $29.95   **Ages:** 6+
> **Platforms:** WIN CD-ROM

Description: LEGOLAND provides children not only an opportunity to design and build an amusement park but also to adapt decisions based on customer satisfaction, the budget, and power supply. Five LEGO characters are available to assist in the process: Jonathan (provides tutorial), a mechanic, a gardener, a professor (creates new rides) and a cook. The software can be utilized in the free play or game mode. The game mode challenges children to manage their park successfully as well as design a creative environment. Directions are challenging for most six year olds. While it will never replace manipulating with LEGOs, it provides children a rich world to enhance not only their creativity, but also problem solving and organizational skills.

Math and Science

Scholastic's The Magic School Bus Explores Bugs (*see Fig. 5*)

> **Software:** Scholastic's The Magic School Bus Explores Bugs
> **Publisher:** Scholastic
> **Developmental Rating:** 8.5
> **Cost:** $19.95   **Ages:** 6+

> **Platforms:** WIN CD-ROM

Description: Ms. Frizzle's classroom is full of a wide variety of science resources and experiments. Yet, each terrarium in Ms. Frizzle's classroom is missing one of its bugs. Children enter the Magic School bus and travel to the forest, pond, jungle, and meadow to find these missing bugs. A lunch box provides the children all the tools they need including a magnifying glass, net, and a scrap book to collect their bugs. The software includes striking realistic photographs and sounds of bugs. Science reports are available to provide facts on the different environments and bugs. At the back of the bus a variety of interactive activities engage children's minds. This is a sound product in the Scholastic Magic School Bus series.

Multipurpose

Ani's Rocket Ride (*see Fig. 6*)

> **Software:** Ani's Rocket Ride
> **Publisher:** APTE
> **Developmental Rating:** 9.0
> **Cost:** $49.95   **Ages:** 3–6
> **Platforms:** MAC/WIN CD-ROM

Description: Ani's Rocket Ride was created at the Erikson Institute and inspired by the Reggio Emilia philosophy of early childhood education. Sixteen objects are hidden outside of the classroom. Children click on these objects, place them in a treasure chest, and then explore with these items at a balancing scale, light table, water table, art center, drama center, e-mail center, and Internet Browsing Center (computer with books). During children's interactions with the software, Ani videos children's experiences, which provide excellent documentation as well as opportunities for reflection. The software encourages examining the world from multiple perspectives, project related learning, collaborative learning, uti-
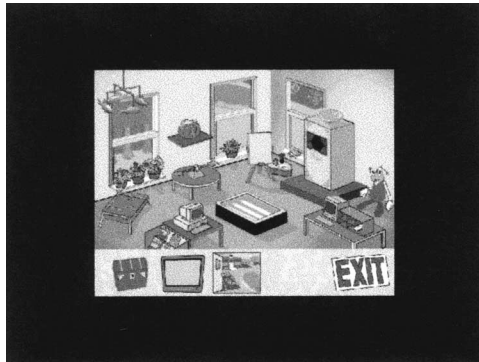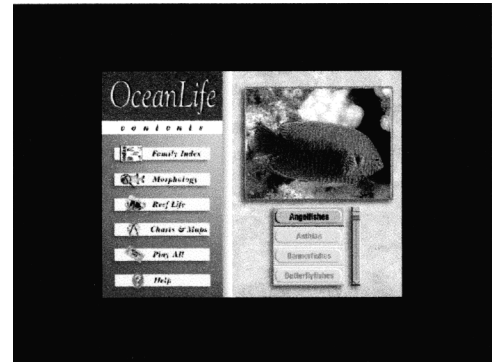
Fig. 6. Ani's Rocket Ride

Fig. 8. Hawaii Ocean Life

lizing multiple intelligences, and fosters creativity, curiosity, and love for learning.

Thematic

Theme Weaver: Nature, *Theme Weaver: Animals* (*see Fig. 7*)

Software: Theme Weaver: Nature
Theme Weaver: Animals
Publisher: Edmark Corporation
Developmental Rating: 8.5
Cost: $59.95   **Ages:** 4–8
Platforms: MAC/WIN CD-ROM
Description: Integrates technology into two popular early childhood themes: nature and animals. Math, language, social studies, science, and Internet units are all included in the diverse activities available in the software. Children have two options in each program: play and create. Play provides more structured, directed experiences while create enables students and/or teachers to design their own stories, picture games and/or activities. A wealth of tools make the activities easily accessible
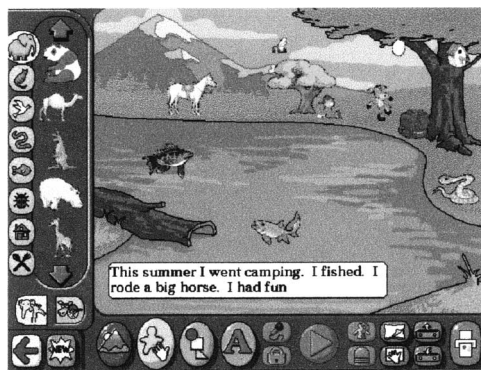

This summer I went camping. I fished. I rode a big horse. I had fun

Fig. 7. Theme Weaver: Nature, Theme Weaver: Animals

to the children, yet provide for tremendous expanding complexity challenging to the most advanced learners. The quality, number and breadth of on and off computer activities make this software a strong addition to any early childhood software library.

Teacher Resource

Hawaii Ocean Life (*see Fig. 8*)

Software: Hawaii Ocean Life
Publisher: Sumeria, Inc.
Developmental Rating: 7.5
Cost: $49.95   **Ages:** 6+
Platforms: WIN CD-ROM
Description: Ocean Life is a tremendous resource tool full of incredible graphics/animation. The software is organized around four themes: family index, morphology, reef life, and chart/maps. Spoken text provides a wealth of information about the ocean, fish, and geography. A motion picture brings the children to the ocean floor, to experience life in a different world. While not interactive, this reference tool provides an intensive view of ocean life.

AGES 8–12

Creativity

Music Maker—Generation 5 (*see Fig. 9*)

Software: Music Maker—Generation 5
Publisher: Magix
Developmental Rating: 8.0
Cost: $49.99   **Ages:** 10 and up
Platforms: WIN CD-ROM
Description: This is a wonderful program that opens up the world of composing music to children. It
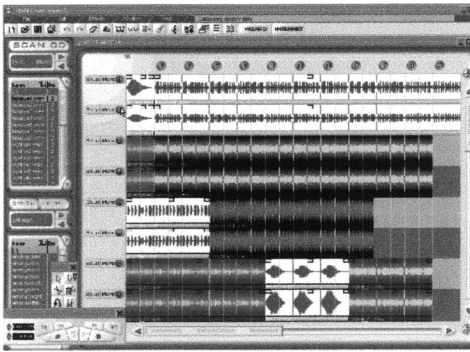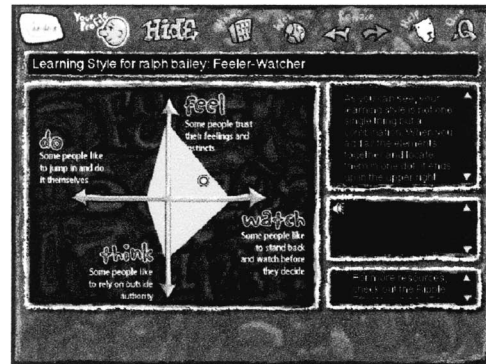
Fig. 9. Music Maker—Generation 5

Fig. 10. Learning Styles Profiler

is a rather busy interface that is not very graphical; however, this design still allows children to easily compose music by dragging and dropping tracks onto a framework of measures. This software is loaded with an impressive array of preprogrammed sounds and effects, as well as the capacity to add your own. An added feature is the capacity to select and mix video clips that can play along with the music. Music Maker's very high ceiling makes it quite attractive to older users (and it was a favorite of all adult reviewers), but it was also easy enough to use that a savvy 6-year-old was creating musical pieces in a matter of minutes. Because of some complicated elements, it would benefit from better instructions if younger children were to use it independently, and it could really use improved help files. It should also be noted that there are some mature lyrics available in the hip hop style. Music Maker was a program that seemed to inspire everyone who used it, and no one wanted to quit once they had started.

Problem Solving

Learning Styles Profiler (See Fig. 10)

>**Software:** Learning Styles Profiler
>**Publisher:** Ripple Effects
>**Developmental Rating:** 9.5
>**Cost:** $199   **Ages:** 10 and up
>**Platforms:** Mac/WIN CD-ROM
>**Description:** Learning Styles Profiler presents children with a number of questions and generates a learning profile based on their answers. It also contains a number of vignettes designed to help children think about their learning style and how it affects how they live and learn. The strength of this program is the suggestions that it provides for children and teachers about learning styles, and their real world implications. Designed for teens and older, this software oversimplifies

this rather complex construct; however, it is a program that appears to help foster self-reflection and could promote higher-level problem solving.

Math and Science

Journey Into the Brain (see Fig. 11)

>**Software:** Journey Into the Brain
>**Publisher:** Morphonix
>**Developmental Rating:** 8.5
>**Cost:** $34   **Ages:** 6–12+
>**Platforms:** Mac/WIN CD-ROM
>**Description:** This is a thoroughly enjoyable format for learning about the components of the brain and how they operate. One element of the software is the "Brainarium" providing terms, definitions, and an overview of the functioning of the brain. Child reviewers really liked the game where their job is to investigate a malfunction with Celeste's brain. This adventure leads them into a deeper exploration of the working of the brain and of the relation between brain and body. While there are a number of fantasy elements portrayed, there are also ac-
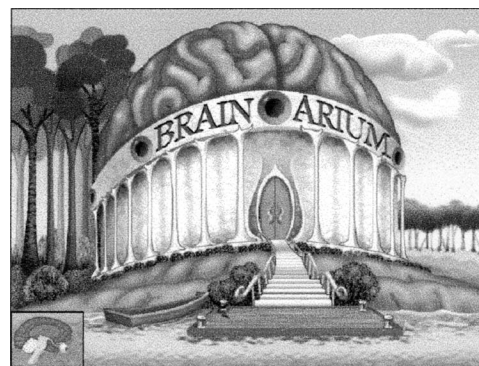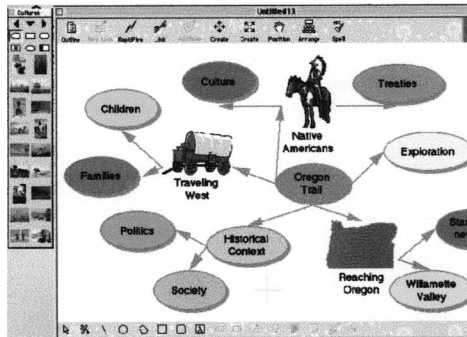

Fig. 11. Journey Into the Brain

Fig. 12. Inspiration v. 6

Fig. 13. The Middle Ages

tual MRI scans from the UCLA Human Brain project. This is engaging software that could benefit students of almost any age studying the brain.

Multipurpose

Inspiration v. 6 (see Fig. 12)

> **Software:** Inspiration v. 6
> **Publisher:** Inspiration
> **Developmental Rating:** 9.0
> **Cost:** $69   **Ages:** 8+
> **Platforms:** MAC/WIN CD-ROM

Description: Inspiration is a visual mapping and outlining program. While educators in particular have used this software for years, this latest edition includes a large number of excellent new features. Typing URLs creates instant hyperlinks, you can create and export web pages that also contain hyperlinks, and the expanded number of symbols and help files has transformed this into a program that is now accessible for children. Children particularly enjoyed the animated GIFs that added movement to their creations. Inspiration has a bit of a learning curve and the help files were better suited to older learners. However, even given these limitations, it has become a very useful tool for diagramming and fostering the construction of ideas for upper elementary aged children.

Thematic

The Middle Ages (see Fig. 13)

> **Software:** The Middle Ages
> **Publisher:** Entrex
> **Developmental Rating:** 9.0
> **Cost:** $89.95   **Ages:** 10+
> **Platforms:** MAC/WIN CD-ROM

Description: Through the use of intriguing video vignettes, we are taken into the virtual world of a young

peasant boy struggling to live during the Middle Ages. Containing seven different activity centers this is a lush and interesting program that provides a compelling learning environment. It contains features that allow children to keep notes in a journal and to connect to many other resources on the Internet. There are also well-designed help files and spoken instructions that guide learners through the program. The CD includes a helpful teacher's guide linked to national history standards and containing project-based learning activities. The puzzles, a wealth of maps, timelines, and other reference materials make this an excellent resource for anyone interested in history.

Reference

Field Trip to the Desert (see Fig. 14)

> **Software:** Field Trip to the Desert
> **Publisher:** Digital Frog
> **Developmental Rating:** 9.0
> **Cost:** $45   **Ages:** 6 +
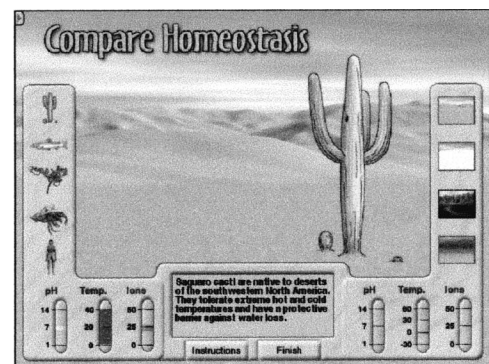> **Platforms:** Mac/WIN CD-ROM

Fig. 14. Field Trip to the Desert

Description: Explore the deserts of the American southwest through dozens of 360-degree virtual reality panoramas. This powerful reference tool includes materials on desert types, mechanisms, landscape formation, organisms, human impact, and much more. The interactive features that allow children to build a desert, examine homeostasis, and explore human impact on deserts are well designed to make these ideas concrete and relevant. A variety of maps on the world's deserts, great textual materials, and hyperlinks to define (and pronounce) almost every term in this program, make it a wonderful addition to the reference library.

Multicultural

People of the Forest (see Fig. 15)

Software: People of the Forest
Publisher: Rainbow Educational Media
Developmental Rating: 8.0
Cost: $89   **Ages:** 8–13
Platforms: Mac/WIN CD-ROM
Description: This software employs video and audio clips, photographs, paintings, and extensive text materials to foster an historical examination of woodland Native Americans. Seven different elements engage children in activities and provide reference materials. One of the elements that children will find engaging is video vignettes of a 12-year-old Ojibwa girl living in the early 1600s explaining about and demonstrating the details of her life. Two more nice features are the authentic pronunciations of words and the hyperlinked definitions of important terms. Teachers should note that there is some discussion and portrayal of violence with regards to warfare. It comes with a teacher's manual

containing a number of support resources. This is a very easy to use program that provides a moving look at this aboriginal culture.

DEVELOPMENTAL WEB SITE AWARDS

Informational Resources

StarChild: A Learning Center for Young Astronomers (see Fig. 16)

Website: StarChild: A Learning Center for Young Astronomers
Publisher: NASA
Developmental Rating: 8.5
Ages: 6–13
URL: http://starchild.gsfc.nasa.gov/docs/StarChild
Description: This site provides extensive information and a wide variety of activities on space. Produced by NASA, the site has two levels of difficulty, as well as allowing children to connect to a more advanced site designed for children 14 years of age and older. Expanding complexity is apparent from activities such as singing songs about space to calculating your age and weight for a variety of solar system destinations. The verbal text and glossary make this site particularly useful for younger children.

A Science Odyssey (see Fig. 17)

Website: A Science Odyssey
Publisher: WGBH
Developmental Rating: 9.0
Ages: 8+
URL: http://www.pbs.org/wgbh/aso/
Description: This is a cleverly designed and thoroughly intriguing site designed to encourage students to

Fig. 15. People of the Forest
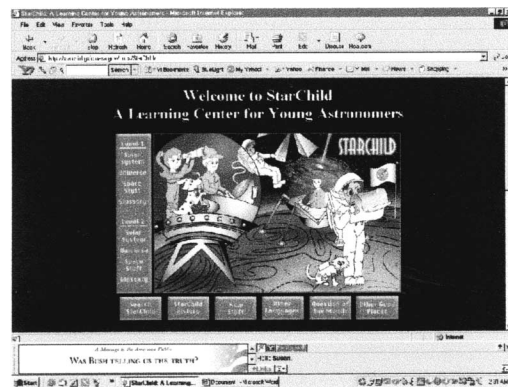
Fig. 16. StarChild: A Learning Center for Young Astronomers

Fig. 17. A Science Odyssey

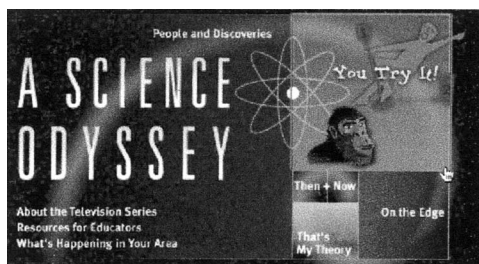**Fig. 19.** Word Central

explore science. It contains many interactive activities such as probing the brain or manipulating plate tectonics, as well as amusing comic-based stories about scientists such as Rachel Carson. Two other components are a clever game show and a time line of science history. Designed for upper elementary to middle school students, a Science Odyssey is lush environment filled with resources and devoid of any advertising. It is an ideal spot to begin an investigation of scientific questions or to come to as the final authority for questions about science.

Interactive Activities

Switcheroo Zoo (*see Fig. 18*)

Website: Switcheroo Zoo
Publisher: Tubehead
Developmental Rating: 7.5
Ages: 5–12
URL: http://www.switcheroozoo.com/
Description: Striking state of the art graphics feature animals in their natural habitats. Sounds of the animals are also very realistic. Reference information is available about every animal. The fun begins as children magically morph the animals selecting body parts from
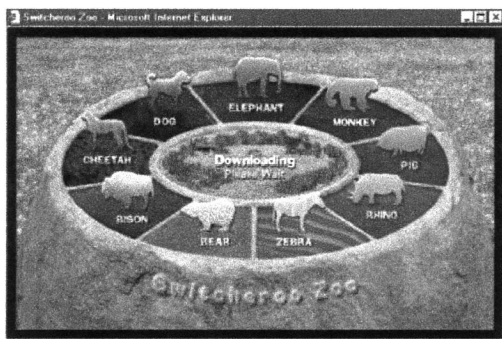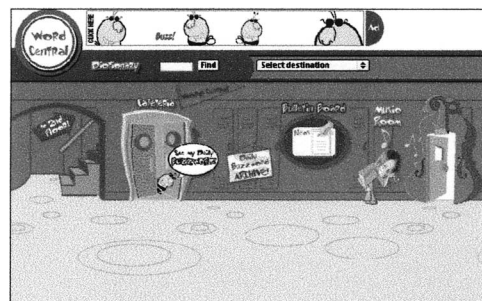
other animals and seeing how the animal would appear with, for example, the trunk of an elephant or the legs of a giraffe. Guiding questions enhance discovery, encouraging children to use critical thinking skills to determine whether animals could survive within their habitat with the selected body parts from other animals.

Word Central (*see Fig. 19*)

Website: Word Central
Publisher: Merriam Webster
Developmental Rating: 9.0
Ages: 3–6
URL: http://www.wordcentral.com/
Description: Word Central is an attractive and user-friendly forum for exploring language. It has a clever interface designed to resemble school hallways, and utilizes easy to recognize graphics. Its well-designed pull-down menu and help features were excellent. There were many features that made this outstanding including the ability to hear words pronounced, a "science" chamber that allowed for some fun word manipulation, and different coding engines. There was some advertising from Merriam Webster, but for the most part this was not heavily commercial. For learning new words, pronouncing old words, or building your own dictionary, this is an entertaining and instructive site.

Publishing

Web Kids' Village (*see Fig. 20*)

Website: Web Kids' Village
Publisher: Kids' Space Connection
Developmental Rating: 8.5
Ages: 5–12
URL: www.ks-connection.org/village/village.html
Description: A directory of web pages created and maintained by children from throughout the world. Topics include: art, computer, literature, nature, people, rec-

Fig. 18. Switcheroo Zoo

Fig. 20. Web Kids' Village

reation, science, and sports. Children may visit other children's sites and/or submit a web site of their own. The main objective of village pages is to showcase the work of children throughout the world and to connect children from throughout the world. Most sites encourage children to connect to a pen pal as well as children sharing their favorite web sites. Through exploring this web site children are naturally exposed to the diversity and richness of our world, an excellent multicultural site.

Poetry Pals (*see Fig. 21*)

> **Website:** Poetry Pals
> **Publisher:** Santa Clara Teachers
> **Developmental Rating:** 8.5
> **Ages:** 5–18
> **URL:** http://www.geocities.com/EnchantedForest/5165/index1.html
> **Description:** Poetry Pals is a delightful site developed by educators to teach poetry and to provide a place for children of the world to publish the poetry that they
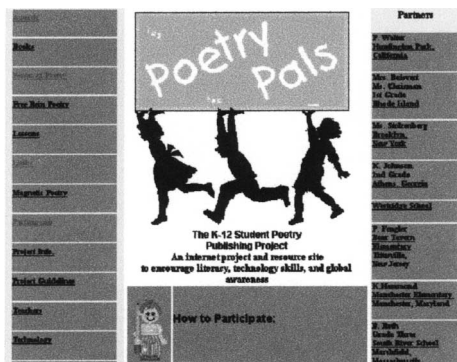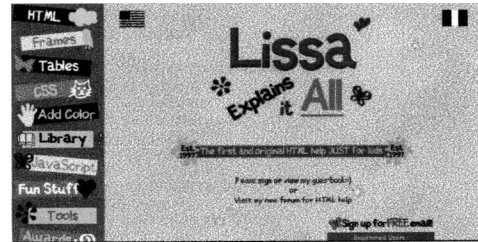

Fig. 21. Poetry Pals

Fig. 22. Lissa Explains

have written. There are pages describing traditional poetic structures as well as free rein poetry, but by far the greatest amount of space is devoted to the writing of young children from over two dozen countries. Any class can submit poetry for publication and there are themes for various months. Containing only a modicum of advertising, this site is easy to navigate. This is a place where hundreds of children proudly display their writing and sometimes a graphic or two, and it feels rather cozy.

Lissa Explains (*see Fig. 22*)

> **Website:** Lissa Explains
> **Publisher:** Lissa
> **Developmental Rating:** 8.5
> **Ages:** 10+
> **URL:** http://www.lissaexplains.com/
> **Description:** Lissa is a 13-year-old girl who has designed a web site to explain HTML programming and web page publishing to the rest of us. Backed by a fair amount of commercial support, this site is replete with basic information on HTML programming and resources to make the job of web publishing easy and fun for children of all ages. Lissa has a wonderful ability to translate complex concepts in an easy to understand language. This site is an absolute necessity for anyone attempting to help children learn about the fundamentals of HTML.

Virtual Field Trips

National Gallery of Art for Kids (*See Fig. 23*)

> **Website:** National Gallery of Art for Kids
> **Publisher:** National Gallery of Art
> **Developmental Rating:** 8.0
> **Ages:** 5–14
> **URL:** http://www.nga.gov/kids/
> **Description:** An interactive art museum that provides children opportunities to experience diverse activities and projects. Many of the activities are based on the
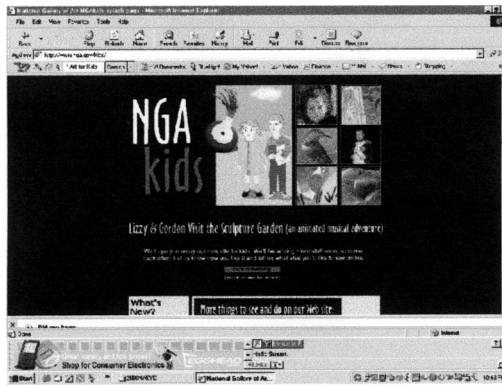
Fig. 23. National Gallery of Art for Kids

National Gallery of Art book: *25 Adventures in Art* by Maure Clarken. Currently the site provides an animated musical and art projects focusing on the works of Tissot, Catlin, Heade, David, Kandlinsky, and Copley. Projects change on a regular basis.

ArtsEdNet (*see Fig. 24*)

    Website: ArtsEdNet
    Publisher: Getty Museum
    Developmental Rating: 8.0
    Ages: 8+
    URL: http://www.artsednet.getty.edu/ArtsEdNet/ home.html
    Description: One of the premiere art galleries in America has developed a web site designed to expose children to a great art and to teach them about artists and their craft. This site contains collections that range from classical museum pieces to some spectacular photographic works by young children. While this site is
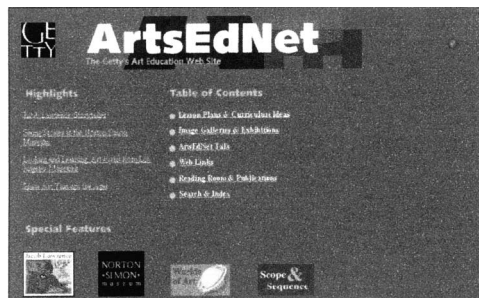

Fig. 24. ArtsEdNet

not specifically designed for children, it was not hard to navigate through the menu that contained a number of very enjoyable sections. Teachers will find the K–12 curricular materials invaluable, but children enjoyed browsing the many collections and reading about the artists and their work. Treat your eyes to a visual feast and visit the ArtsEdNet.

FOR MORE INFORMATION

    A variety of resources to help parents and teachers utilize computers effectively with young children are found at the Children and Computers web site. *http:// www.childrenandcomputers.com.* In addition a book by Susan Haugland and June Wright, *Young Children and Technology: A World of Discovery* provides detailed suggestions on how to use computers effectively with young children. The book can be ordered through the web site or by calling (800) 666-9433.

    For more information contact: Susan W. Haugland, President, K.I.D.S. & Computers, Inc., 22714 E. Ridge Trail Drive, Aurora, CO 80016; Phone: (303) 537-6017; E-mail: *childrenandcomputers@home.com*; Fax: (303) 537-6017

    K.I.D.S. & Computers, Inc. provides teacher training, evaluates software and children's web sites', publishes the children and computers.com web site, and sponsors the Developmental Software Awards yearly.
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