black ears to blonde cats: paths for designing change

Ben Bederson & Allison Druin
Computer Science Dept. & iSchool
Human-Computer Interaction Lab
University of Maryland
“Once upon a time a huge tribe of cats lived in a remote village. A river divided the village in two. Black cats lived on one bank and blonde cats lived on the other... In summer and autumn, a black cat ruled the village and in spring and winter, a blonde cat ruled the village.”

-Black ears ... blonde ears (2002)
“I think you can hear me now. If you are all willing to listen to each other, we will be able to solve our problems. Only when you can do that will we be happy and able to live in peace.”

-Black ear ... blonde ear (2002)

in www.childrenslibrary.org
by Khaled Jumm’a, Illustrated by Foutinie Dedwase
The Tamer Institute for Community Education, Palestine
future of HCI

mobile

natural language (and vision)

huge

social networks

user-generated content

physical computing

context awareness

privacy awareness
the needs of the world have never been greater...

children are impacted by...
poverty
conflict
disease
school resources

20th century models of shipping books are difficult & expensive

access to educational services & materials has declined

intolerance & prejudice continues...
International Children’s Digital Library

research led by the UMD now a non-profit foundation

2,000,000 unique visitors
150,000 pages of digitized books
100,000 visitors per month

books in 48 languages
website in 16 languages

users in 200+ countries

[Druin et al., 2001; Hourcade et al., 2002; Druin, 2005; Hutchinson, 2007; Druin et al., 2007; Massey et al., 2006]

[1 Design for the World] 2 3 4 5
Canadian retired teacher leads non-profit group to teach in South African rural communities.

- Supports pre-school children
- Uses electronic & physical materials
- ICDL contributes to this initiative

[1 Design for the World]
Taiwan Teachers support working mothers & their children...

English taught as a 2nd language

ICDL books used to read/write their own stories

ICDL is tool for 2nd language acquisition
Romanian class translates books on bullies

half the class translates a book

the other half reviews translations

ICDL supports translation work & language acquisition
International Children’s Digital Library

Mongolia

adding **digital access** to traditional **literacy** project

partnering with Mongolian **Ministry of Education**

funded by the World Bank

[Druin, Bederson et al., In Press]

Phase I Urban
Phase II Rural
Phase III Mobile
INTERNATIONAL CHILDREN’S DIGITAL LIBRARY
Дэлхийн хүүхдийн бүт эрхүүлэгдсэн номын сан

Бидний эрхэм зорилго
Манай номын сан хууцдуудийг Дэлхийн улс орон сууриний хуучин номын сандаа онлайн халээрээр уг нугийг хандаж боломж олгогдоно. Дэлхийн даярын олон халээр бичигдсэн, олон улсын улсар тэнцүү соёл үргэлжлүүдийн танилцуулган сайтын номууд уг нутаг боломжийг өнгөрсөн тодорхой байгууламжийн дагуу хэрэгтей орж ирсэн дүрмийг бичиж яваа арга уг мэдээлэл байдлыг арилгахыг зорьж байна.

Бид та бүхийг манай байгшаа осон нэмэлэж буй номын санг урьдчилан урьж байна.

Халээр олбогдож буй

Book licensing

Хөдөөлүүн болборолтой дэмжих тесэл
ОХУН - Орсон улсын Хуучин Цахим Номын Салвин Баянтуулага уулзах.
One Laptop per Child & ICDL

First pilot now

400 laptops in 2 schools

ICDL on every laptop

Goal: 200,000 laptops to all
Me gusta

JUGAR CON LOS LIBROS

Me gustan todos los libros,
porque puedo leerlos
y jugar con ellos.
A four-country, four-year study was conducted where children used the ICDL monthly. Children, teachers, librarians, and parents participated in yearly in-person interviews. Children emailed book reviews, drawings, and likes/dislikes matrix to understand how children changed in their attitudes towards books, technology, and world views. [Druin et al., 2007]
country, 4 year study
content analysis used to understand children when using the ICDL...

increased motivation to read
more diverse books read
confidence with technology increased
world view expanded

[Druin et al., 2007]
A Mobile library supports collaboration where children are. It enables access.
Roles for the Design Process

[Druin, 2002]
Roles for the Design Process

Underlying dimensions of each role

Relationship to developers
- indirect
- feedback
- dialogue
- elaboration

Relationship to technology
- ideas
- prototypes
- product

Goals for inquiry
- developing theory
- questioning impact of technology
- better usability/design

[2 Partner ...]
Partnering Methods with Children

**Sticky Note Critique**
[Druin, 2002]

**Low-tech Prototyping**
[Druin, et al., In press]

**Mixing ideas**
[Guha et al., 2004]

**Iterative Design**
National Park Service

share ideas about the outdoors

nature walks with National Park visitors

in-context technology collaboration enhanced park experience

[Chipman et al., 2006]
KidPad: zooming storytelling

Developed by 106 children & 24 adults from Sweden, England, & US

Supported by EU, i^3 Experimental Schools Environment

[Boltman et al., 2002; Hourcade et al., 2002; Druin, 2001; Stanton et al., 2001; Benford et al., 2000; Druin et al., 1997]
CounterPoint

Jazz: An Extensible Zoomable User Interface Graphics Toolkit in Java

Ben Bederson,
Jon Meyer, Lance Good

[Good & Bederson, 2002]
P.E.T.S.
Personal Electronic Teller of Stories

[Druin, 1999; Druin et al., 2000]
StoryRooms

[Montemayor et al., 2002; Montemayor et al., 2004] [3 Creative Expression]
balance understanding innovation & real world
social web scale
distributed human computation
If google could giigle...

 interviewed local maryland children & parents
(12 in pilot study / 120 in the main study)

goal: to understand how
the Google search UI
is used by children

how children (7, 9, & 11)
search on the open web

use data to develop prototype
to support children’s search
If google could giigle…

Pre-CHI-Paper trends…

if the children don’t find it, it’s not there

confusion over where to type

challenges with typing

challenges to see screen

2-step queries not done even by 11-year olds

results pages: no need for more than 4 results

Currently analyzing results using qualitative methods
Another day a strong wind blew through the sky. The sky was gray, and the blue clouds hurried in all directions. Suddenly a rabbit appeared. The wind brought a blue clock to the rabbit so it could tell the time. It looked familiar to the girl. It reminded her of the book Alice in Wonderland. Her mother read the book to her. Yes, that was the rabbit.
55% of ICDL users have screens 1024x768 or smaller

readability
...are these any good?

**evaluate**
- rate (after each)
  - easy to see
  - can read quickly
  - easy to manipulate
  - keeps author's intent
  - attractive
- rank (at end)
  - same

**experiment**
- read ½ book each with...
  - physical book
  - standard
  - ClearText
  - PopoutText

27 adults

*The Blue Sky*

*Ciconia Ciconia*
- same author
- similar style

[Quinn et al., 2008]
PopoutText VS. ClearText

- Easy to see: PopoutText 5, ClearText 5
- Can read quickly: PopoutText 5, ClearText 5
- Easy to manipulate: PopoutText 5, ClearText 5
- Preserves author's creative intent: PopoutText 4, ClearText 4
- Attractive: PopoutText 4, ClearText 4

* Sig. diff.
voting systems

accessibility
accuracy
complexity
cost
reliability
security
security perception
size
speed
usability

[Brookings Press, 2008]

butterfly ballot

hanging chad

[5 Leading with HCI]
voting systems

accessibility
accuracy
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cost
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security perception
size
speed

[Brookings Press, 2008]

butterfly ballot

hanging chad

usability
...but the focus is on security
so we did a study...

- **expert review** (10 experts)
- **field study** (1,500 participants in 3 states)
- **lab study** (42 participants)

looked at

**accuracy** ... **preference**

on **6 voting machines**
4 verification systems
the machines

ES&S
Model 100

Diebold
AccuVote-TS

Avante
Vote Trakker

UMD
Zoomable Prototype

Hart
InterCivic eSlate

Nedap
LibertyVote

[5 Leading with HCI]
research design

tasks:
18 offices & 4 ballot questions
office block & straight party
multi-candidate election
change a vote
cast a write-in vote

process:
pre-mark booklet
write-in matched voter with booklet
error rate – vote for president

Percent Error

- No vote cast
- Voted for another candidate
- Proximity error

ES&S  Diebold  Avante  Zoomable  Hart  Nedap

[5 Leading with HCI]
error rate – impact of task

Percent Error

- No special tasks
- Vote for two
- Change vote

ES&S, Diebold, Avante, Zoomable, Hart, Nedap

[5 Leading with HCI]
Once Upon a Time...

1. Design for the World
   - HCI Peace Corps

2. Partner for Deepest Change
   - HCI Partner Award

3. Support Creative Expression
   - HCI Stories

4. Balance Understanding Innovation & Real World
   - HCI Incubator

5. Lead with HCI
   - HCI Congress