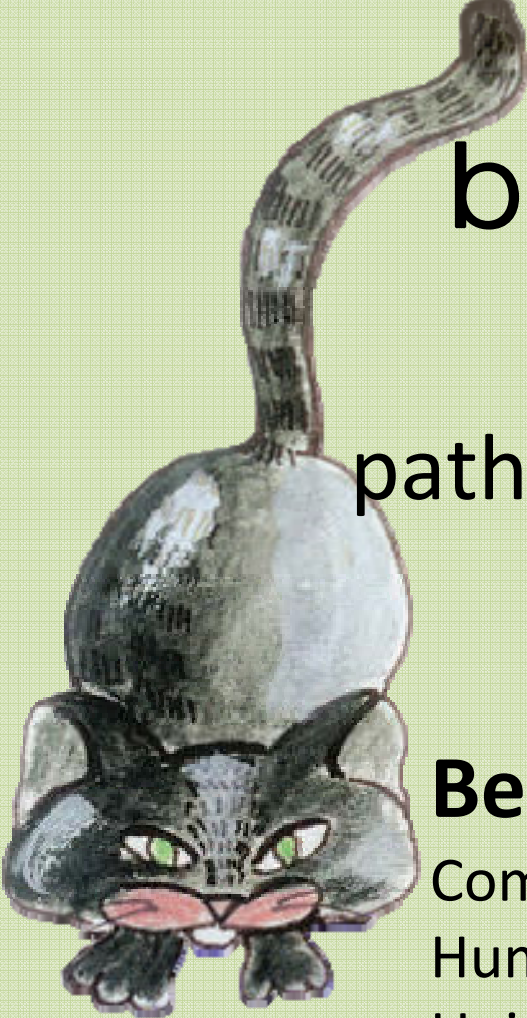


black ears to
blonde cats:
paths for designing change

Ben Bederson & Allison Druin

Computer Science Dept. & iSchool
Human-Computer Interaction Lab
University of Maryland

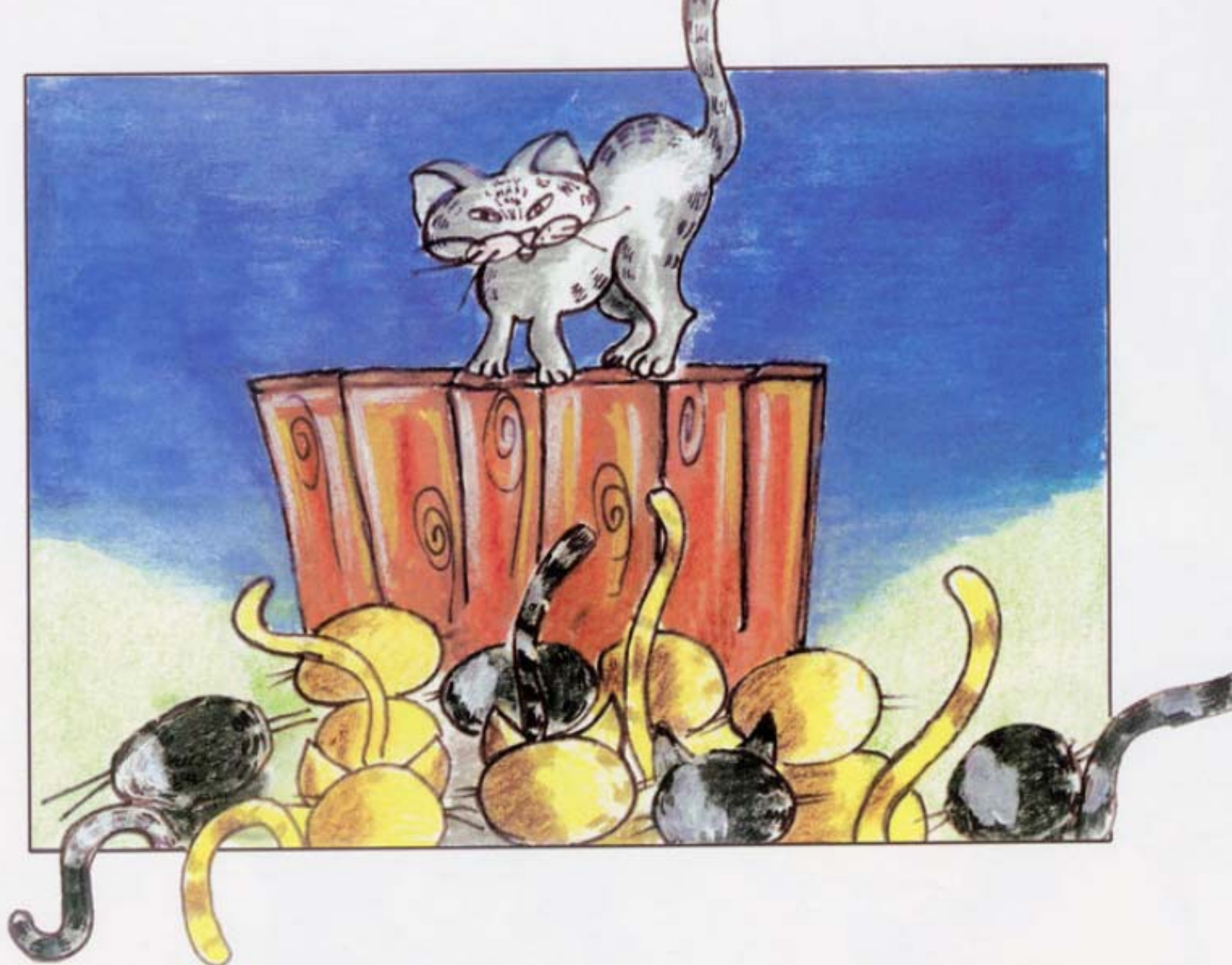


"Once upon a time a huge tribe of cats lived in a remote village. A river divided the village in two. Black cats lived on one bank and blonde cats lived on the other... In summer and autumn, a black cat ruled the village and in spring and winter, a blonde cat ruled the village."

-Black ears ... blonde ears (2002)





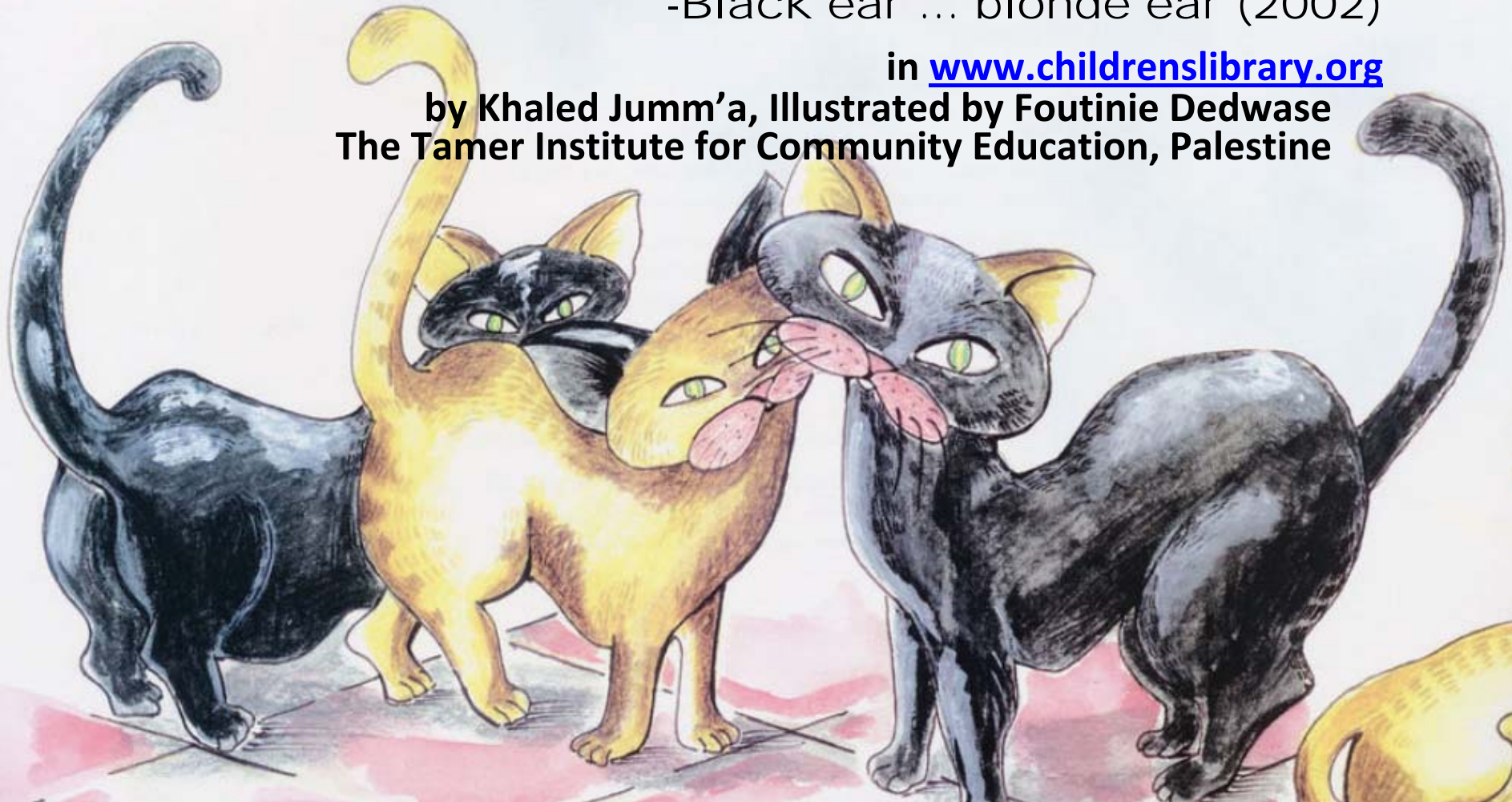


"I think you can hear me now. If you are all willing to listen to each other, we will be able to solve our problems. Only when you can do that will we be happy and able to live in peace."

-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

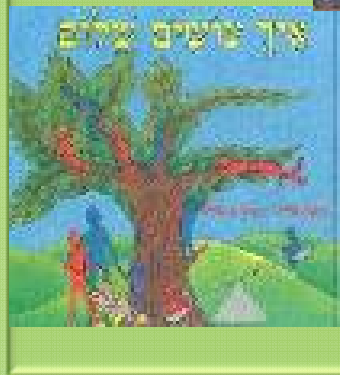
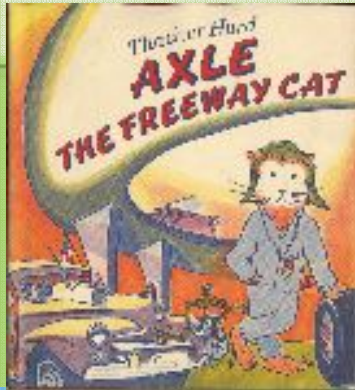
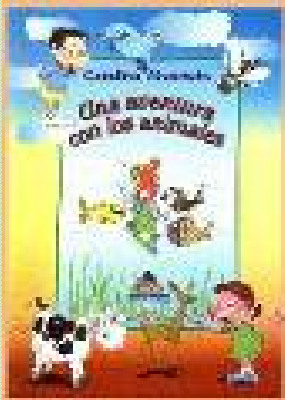
books in **48** languages
website in **16** languages



users in **200+** countries

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

Canadian retired teacher leads non-profit group to teach in South African rural communities

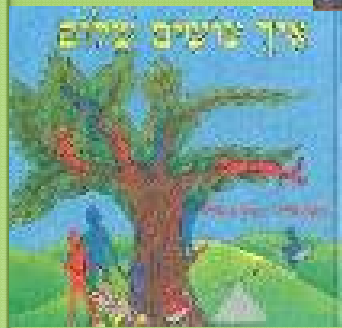
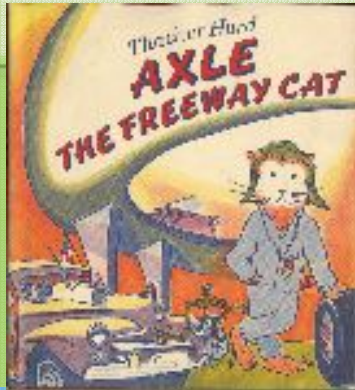
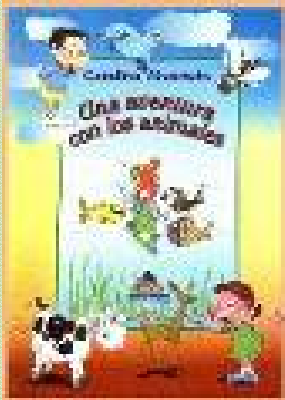


supports **pre-school children**

uses
electronic & physical materials

ICDL contributes
to this initiative

Taiwan Teachers **support** working mothers & their **children...**

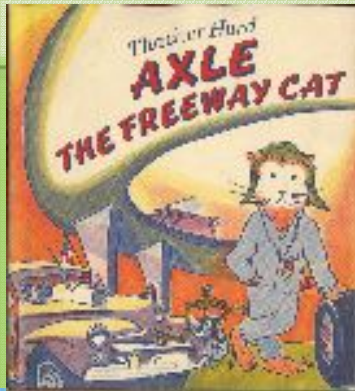
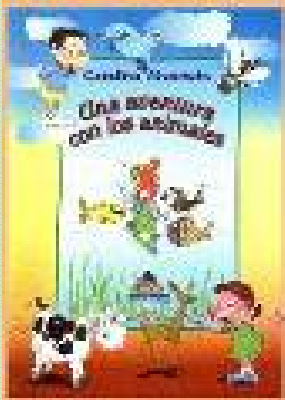


English taught as a 2nd language

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



Phase I Urban
Phase II Rural
Phase III Mobile

adding digital access
to traditional **literacy** project

partnering with Mongolian
Ministry of Education

funded by the World Bank

[Druin, Bederson et al., In Press]







INTERNATIONAL CHILDREN'S DIGITAL LIBRARY

Дэлхийн хүүхэд бүрт зориулагдсан номын сан



Бидний эрхэм зорилго

Манай номын сан хүүхдүүдийг Дэлхийн улс орон бүрийн хүүхдийн номын санд онлайн хэлбэрээр үнэгүй хандах боломж олгодог. Дэлхий дахины олон хэлээр бичигдсэн, олон улс үндэстний соёл иргэншлийг таниулсан сайхан номууд унших боломжийг ийнхүү олгосноор бид хүүхдүүдийг ном унших дуртай мөн шинэ зүйлсийг сурах сонирхолтой болгох бөгөөд энэ дэлхий дээр байгаа бичиг үсэг үл мэдэх байдлыг арилгахыг зорьж байна.

[Бид та бүхийг манай байнша өсөн нэмэгдэж буй номын санг үзэхийг урьж байна.](#)

[Хайлтын бусад сонголтууд](#)

[Book licensing](#)

Хөдөөгийн боловсролыг дэмжих төсөл

[ОХЦН –г Олон улсын Хүүхдийн Цахим Номын Сангийн Байгууллага удирддаг.](#)

www.read.mn







80
ХИЛ

Алтангүл аймгийн
Богдодорж сумын
Гүнжийн дэвсгэрийн
СЭРГЭЭГ







Mongolian
Education
Alliance



READ
Rural Education and
Development

ХӨДӨӨГИЙН СУМ, БАГИЙН
СУРГУУЛИУДЫН БАГААНГИЙН БАГШ
НАРЫН МЭРГЭЖИЙН ХЭЗШЛҮҮЛЭХ
ЭГ БЭ





One Laptop per Child & ICDL



First pilot^{now}

400 laptops in **2** schools

ICDL_{on} every laptop

Goal: **200,000** laptops to **all**





4 country, 4 year study

Honduras



Germany



New Zealand



USA



children
used the ICDL **monthly**

children, teachers, librarians, parents
yearly in-person **interviews**

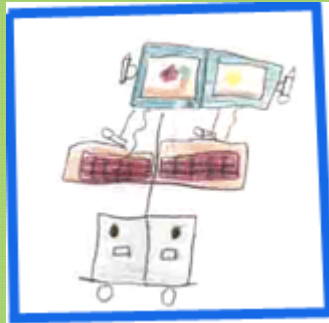
children
emailed **book reviews, drawings,
& likes/dislikes matrix**

understand how children changed
in their attitudes towards
books, technology & world views

[Druin et al., 2007]

4 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



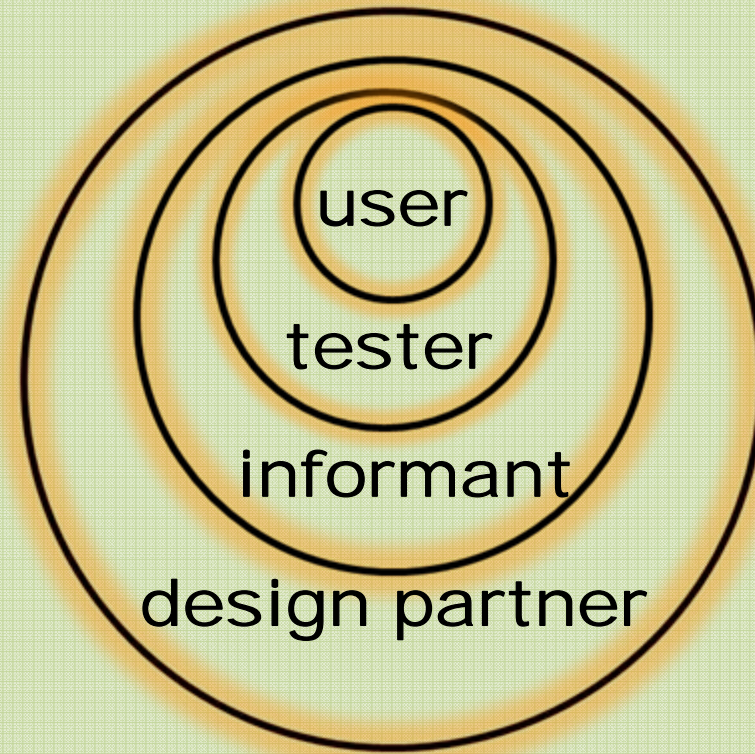
supports collaboration
goes **where** children are
enables **access**



Partners for Change

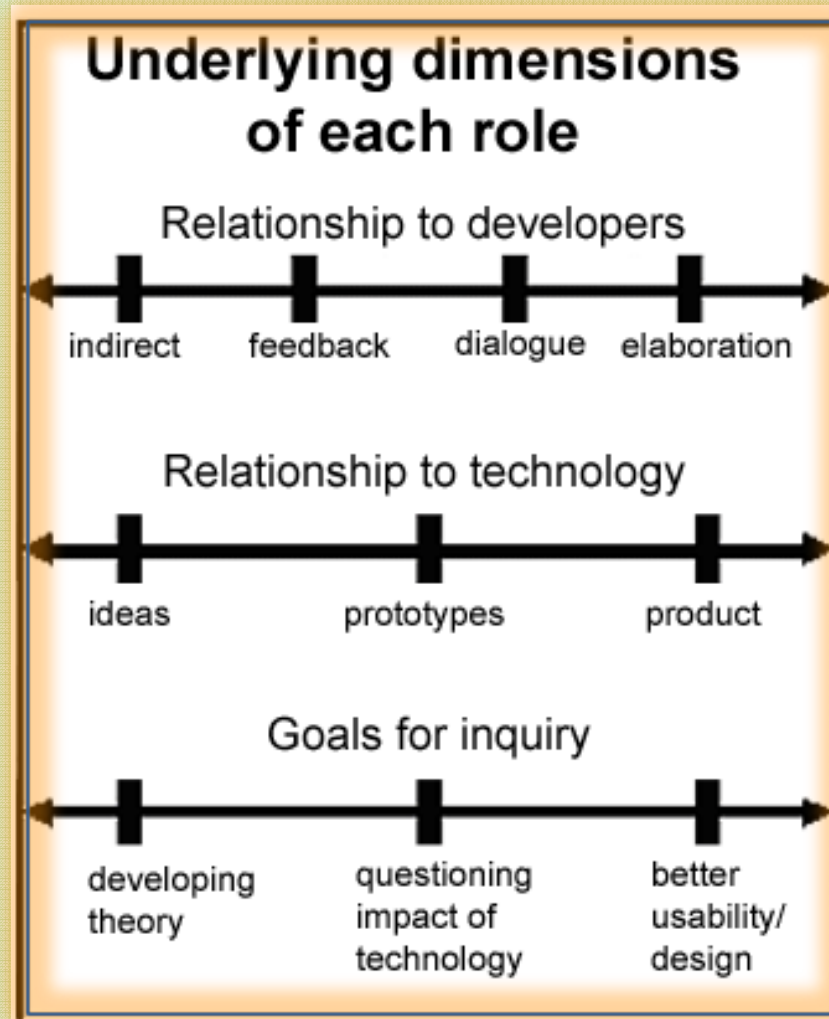
elders families
USERS
children developing countries
voters Chevron
Discovery Channel
Intel **Google**
Zumobi **Industry**
Microsoft LeapFrog
Fisher Price
NASA U.S. National Park Service
Gov/Non-Profits
One Laptop per Child **World Bank**
UNICEF **Sesame Workshop**
PBS
Mongolian Ministry of Education

Roles for the Design Process



[Druin, 2002]

Roles for the Design Process



Partnering Methods with Children



Sticky Note Critique

[Druin, 2002]

Low-tech Prototyping

[Druin, et al., In press]



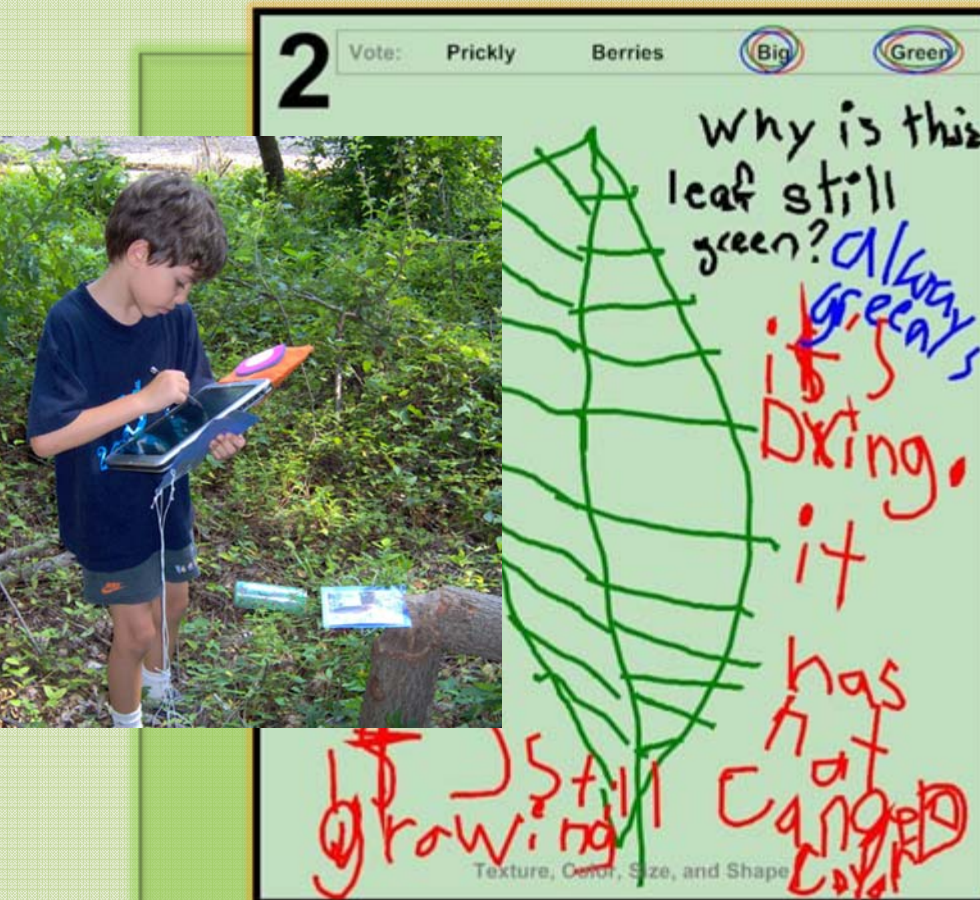
Mixing ideas

[Guha et al., 2004]

Iterative Design



National Park Service



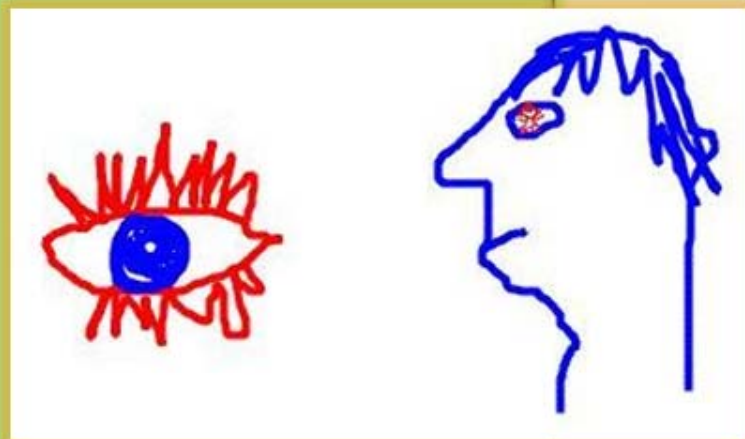
share ideas about
the outdoors

nature walks with
National Park visitors

in-context technology
collaboration
enhanced park experience

[Chipman et al., 2006]

KidPad: **zooming** storytelling



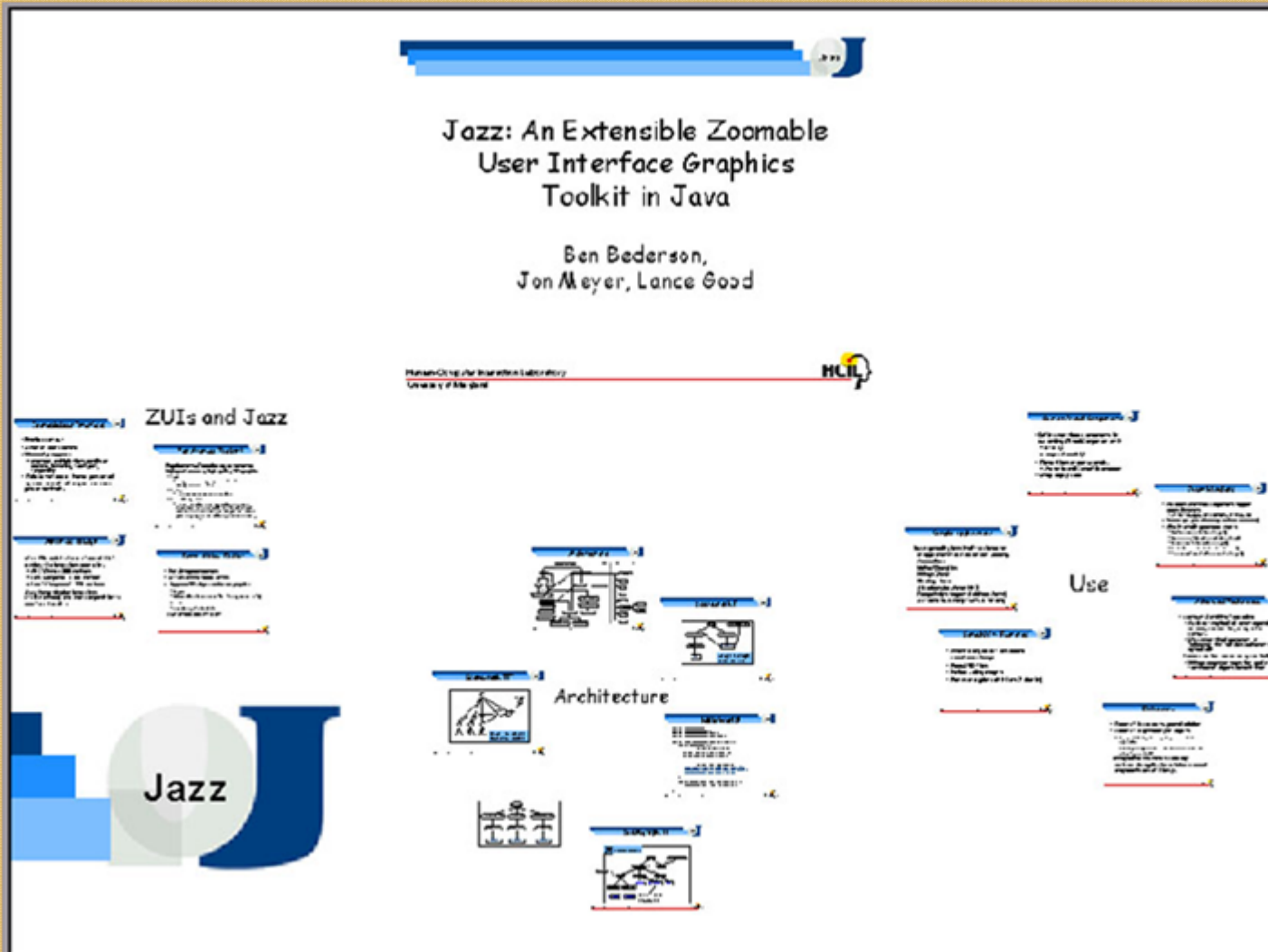
Developed by 106 children
& 24 adults from
Sweden, England, & US

Supported by **EU, i³**
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



[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]

social web scale

distributed human computation

facebook Ben Bederson Friends Applications Inbox

What are you doing right now?

News Feed Top Stories Status Updates Photos Posted Items Live Feed

- Sheri Massey is getting another late start. Late start = late night. 4:31pm - Comment
- Cameron Wilson is done writing and is going to play Spore to see if it lives up to the hype. 4:02pm - Comment
- Susan Dray is taking the cat who weighs ~30 lbs to the vet. It's my exercise for the day! 3:42pm - 1 Comment

Write

Rank: 17
48 Pro Peptide
Group Competition

Group Name	Score
1 The Love Editor	9092
2 Master's Secrets	9082
3 Master's	9081
4 Bachelor	9080

Player Competition

Player	Score
10. jason	9082
11. jason2	9081
12. jason3	9080
13. jason4	9079
14. jason5	9078
15. jason6	9077
16. jason7	9076
17. jason8	9075
18. jason9	9074
19. jason10	9073

Shake screenshot to improve the protein.
Rank: 17

Shake Screenshot Wiggle Randomize Clear Locks Reset Puzzle Mouse Help

Full Text

2:05 Time Left

The ESP Game

0090 score

Taboo Words

- USO
- BANNER
- PEOPLE

Your Guesses

- CROWD
- STAR
- STARS
- BLUE
- WHITE
- BLACK

Type your next guess:

Pass

Flag

Your partner has entered a guess

© 2002-2003 Carnegie Mellon University, all rights reserved. Patent Pending.

If **google** could **giigle**...



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

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**

use data to **develop prototype**
to support children's search

If **google** could **giigle**...

Pre-CHI-Paper trends...



Currently analyzing results
using **qualitative** methods

if the children **don't find it**,
it's not there

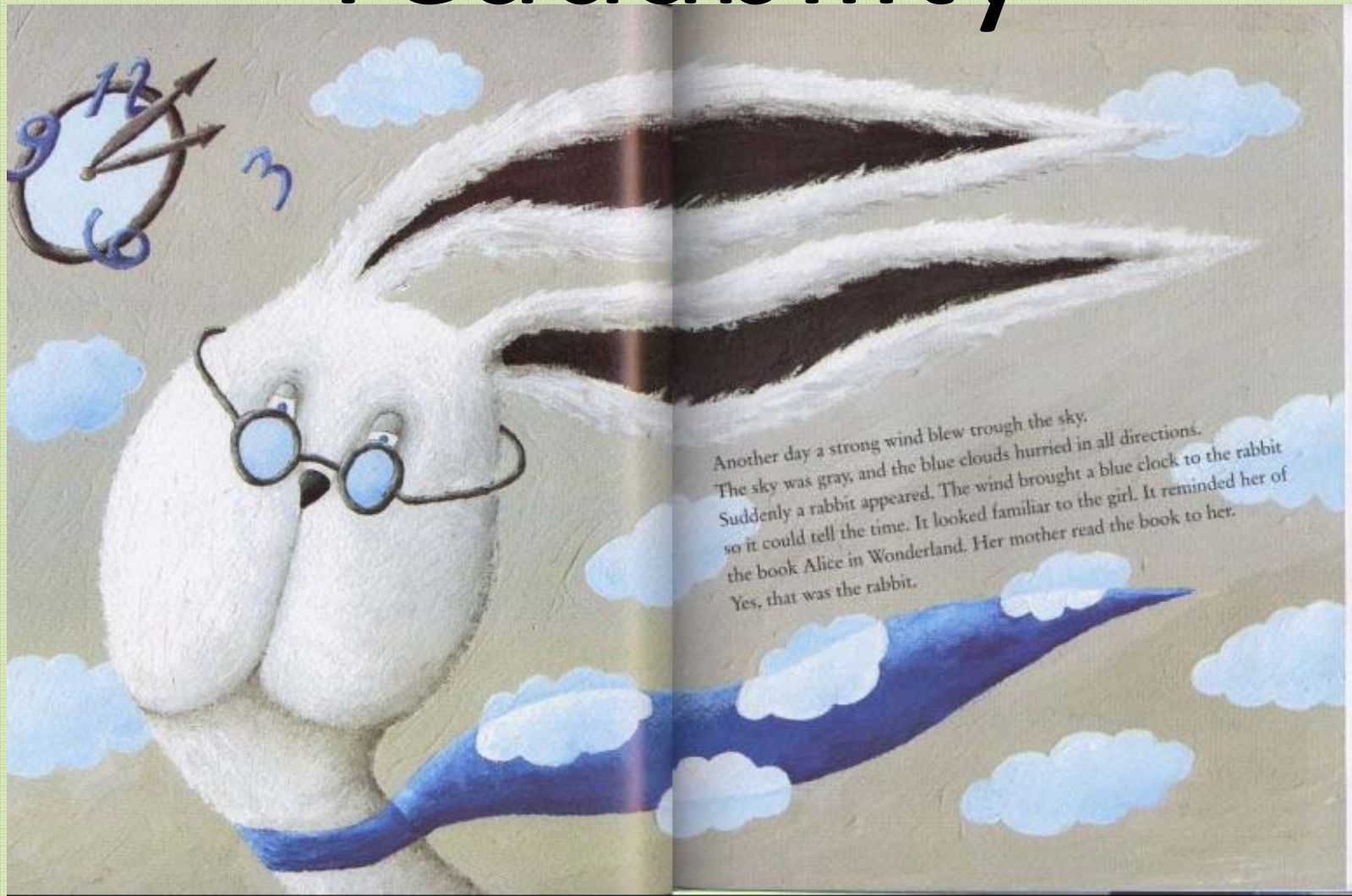
confusion over **where to type**

challenges with typing
challenges **to see screen**
make

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

results pages: no need for
more than 4 results

readability

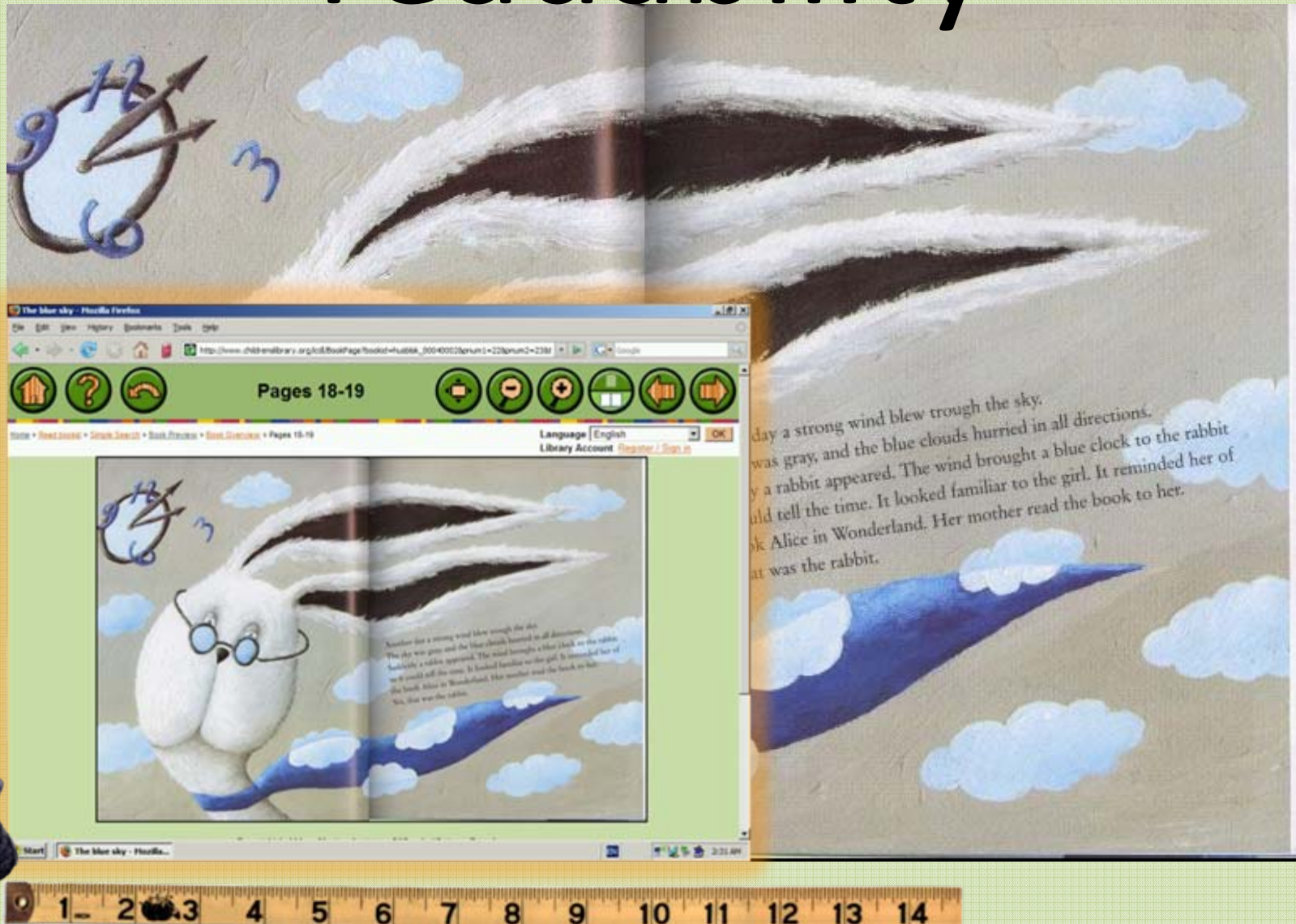


Another day a strong wind blew trough the sky.
The sky was gray, and the blue clouds hurried in all directions.
Suddenly a rabbit appeared. The wind brought a blue clock to the rabbit
so it could tell the time. It looked familiar to the girl. It reminded her of
the book Alice in Wonderland. Her mother 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

[Quinn et al., 2008]

experiment

read ½ book each with...

physical book

standard

ClearText

PopoutText

27 adults

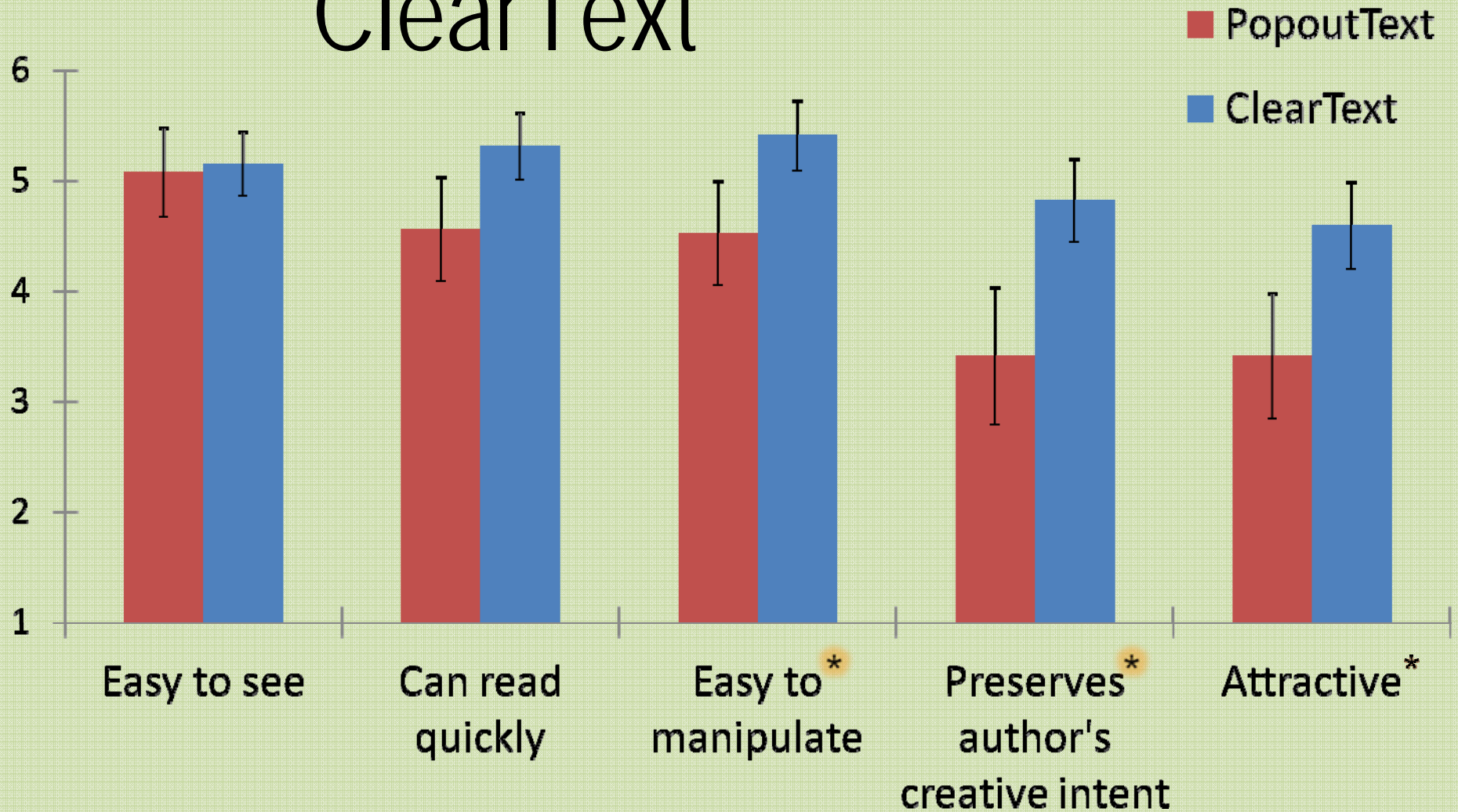
The Blue Sky

Ciconia Ciconia

same author

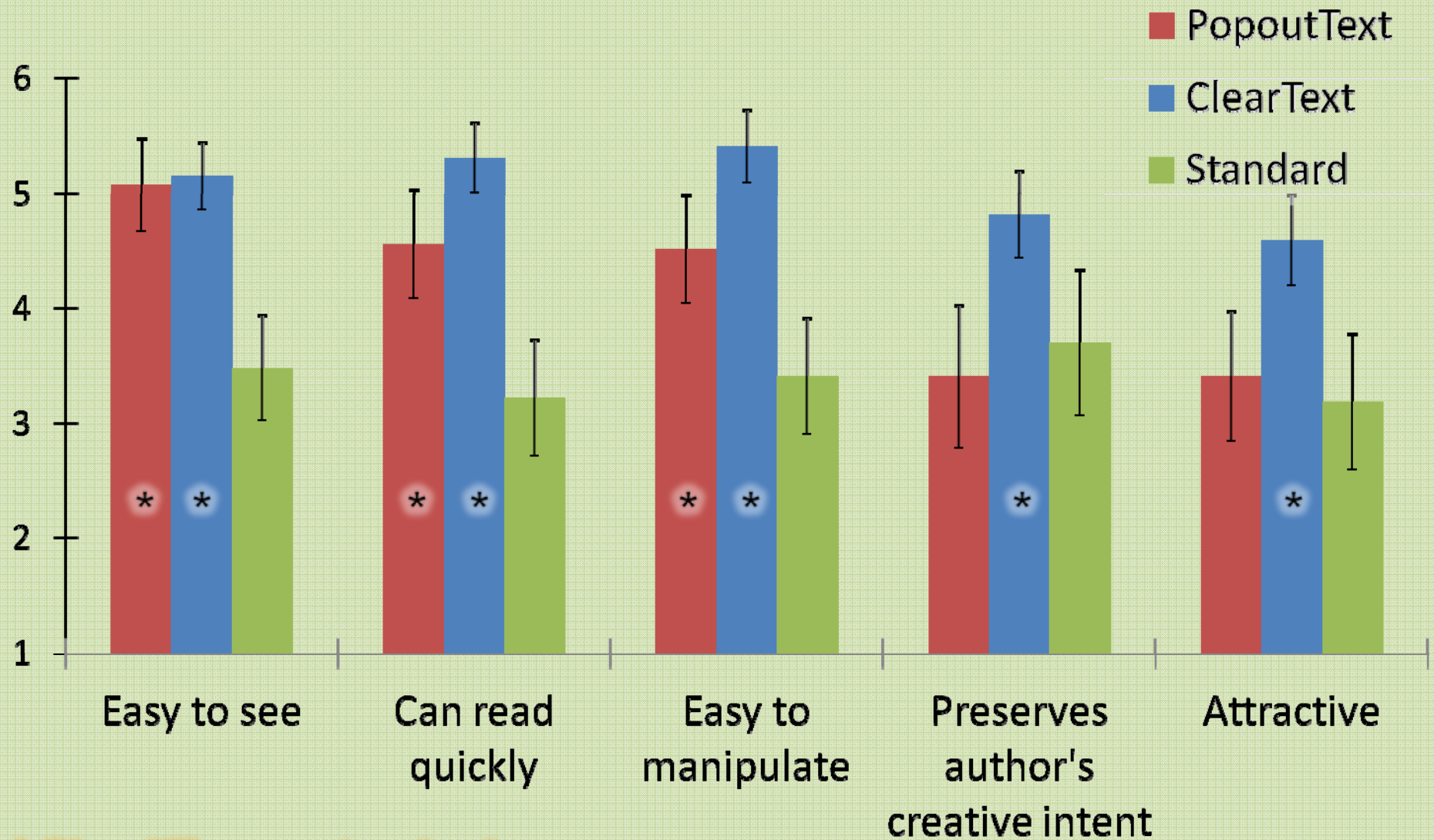
similar style

PopoutText vs. ClearText



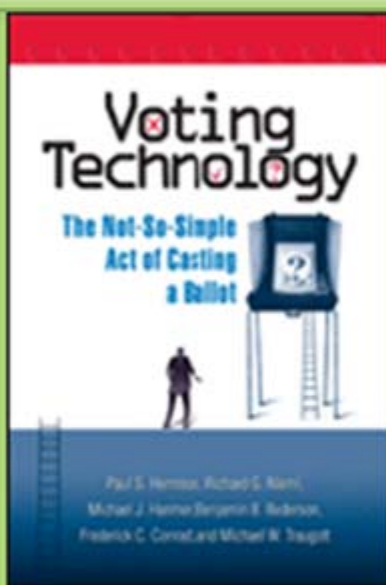
* Sig. diff.

vs. standard



* Sig. diff. over standard

voting^{systems}



[Brookings Press, 2008]

accessibility
accuracy
complexity
cost
reliability
security
security perception
size
speed
usability

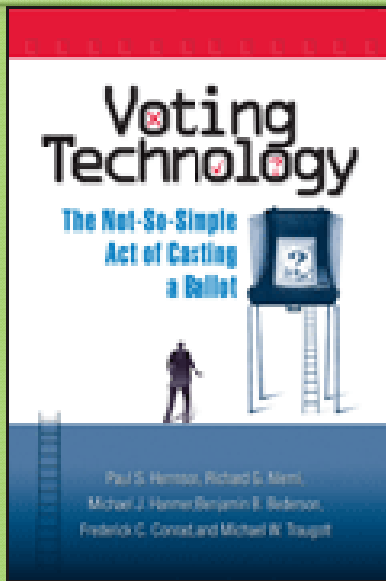


butterfly ballot



hanging chad

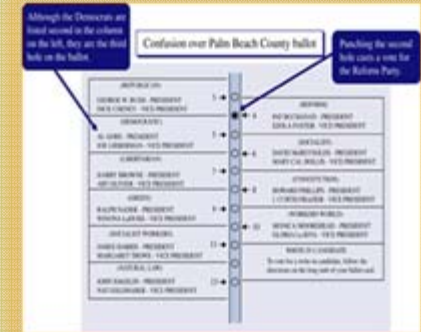
voting^{systems}



[Brookings Press, 2008]

accessibility
accuracy
complexity
cost
reliability
security
security perception
size
speed

usability



butterfly ballot



hanging chad

...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



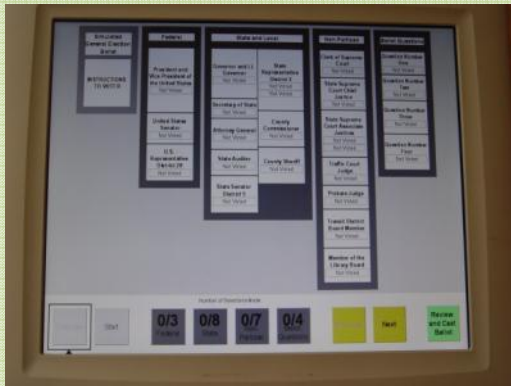
ES&S
Model 100



Diebold
AccuVote-TS



Avante
Vote Trakker



UMD
Zoomable Prototype



Hart
InterCivic eSlate



Nedap
LibertyVote

research design



tasks:

18 offices & 4 ballot questions

office block & straight party

multi-candidate election

change a vote

cast a write-in vote



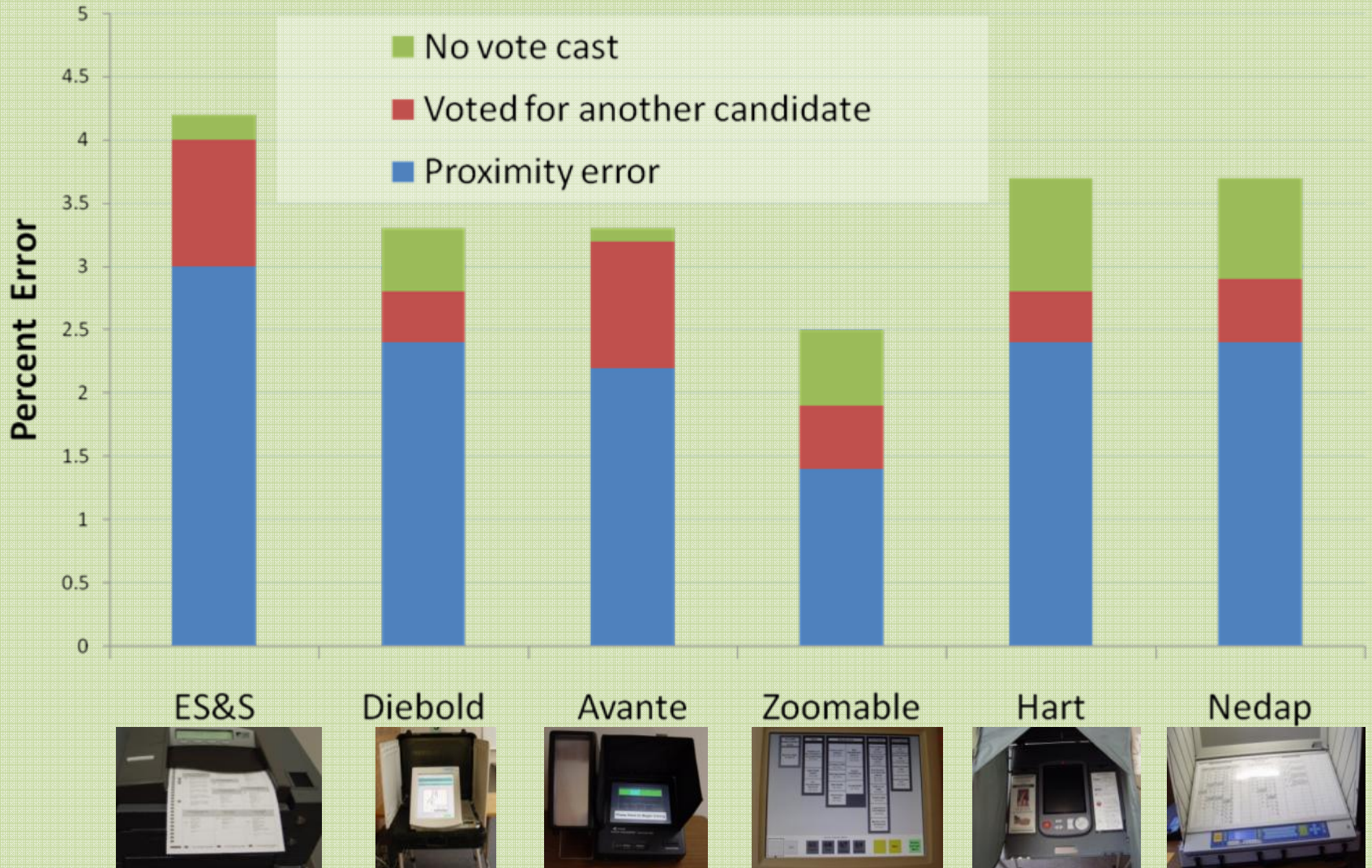
process:

pre-mark booklet

write-in matched voter with booklet



error rate – vote for president



error rate – impact of task

