

Readability of Scanned Books in Digital Libraries

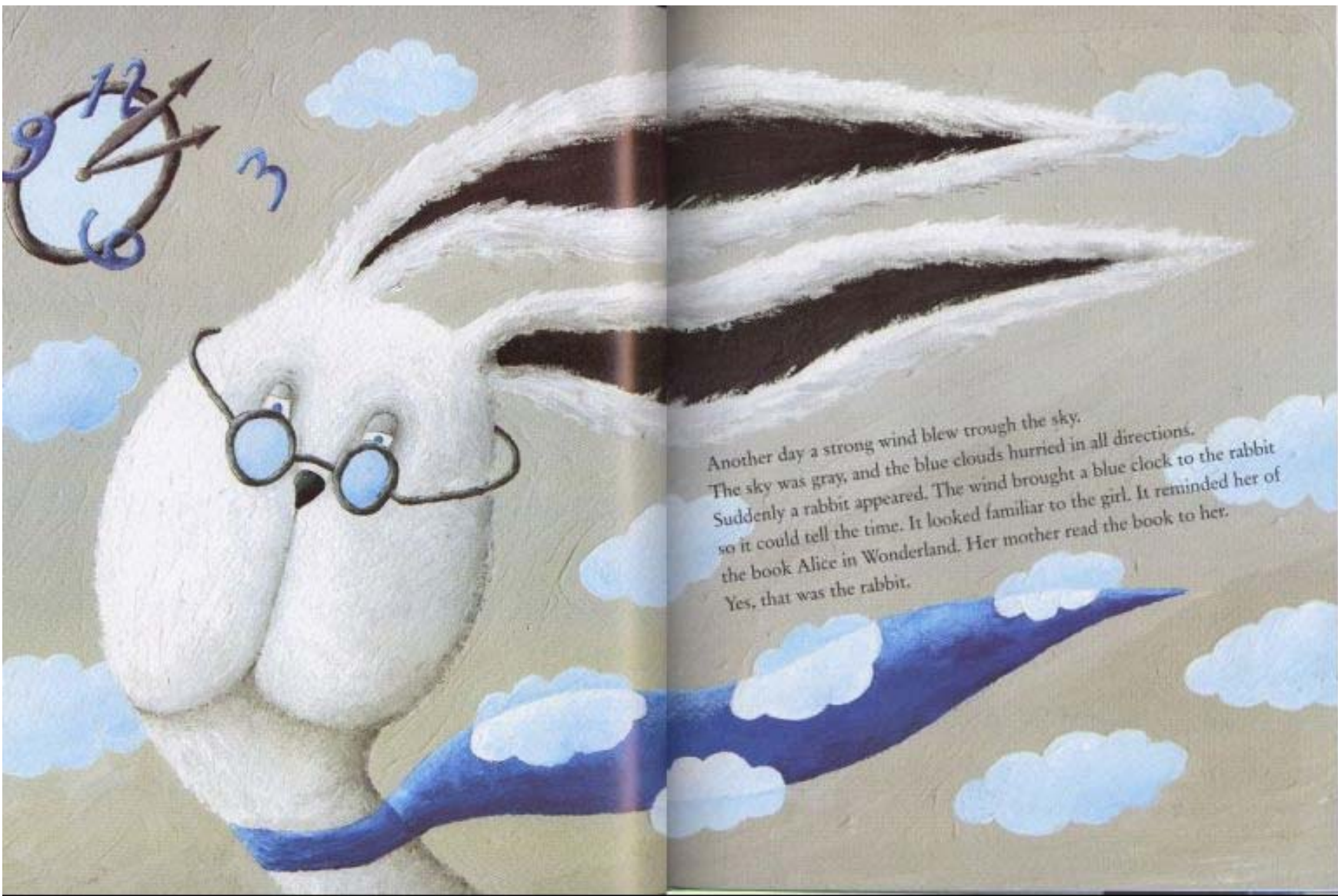
Alex Quinn, Chang Hu, Takeshi Arisaka, Anne Rose, Ben Bederson
University of Maryland, College Park
Human Computer Interaction Lab



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UNIVERSITY OF MARYLAND INSTITUTE FOR ADVANCED COMPUTER STUDIES

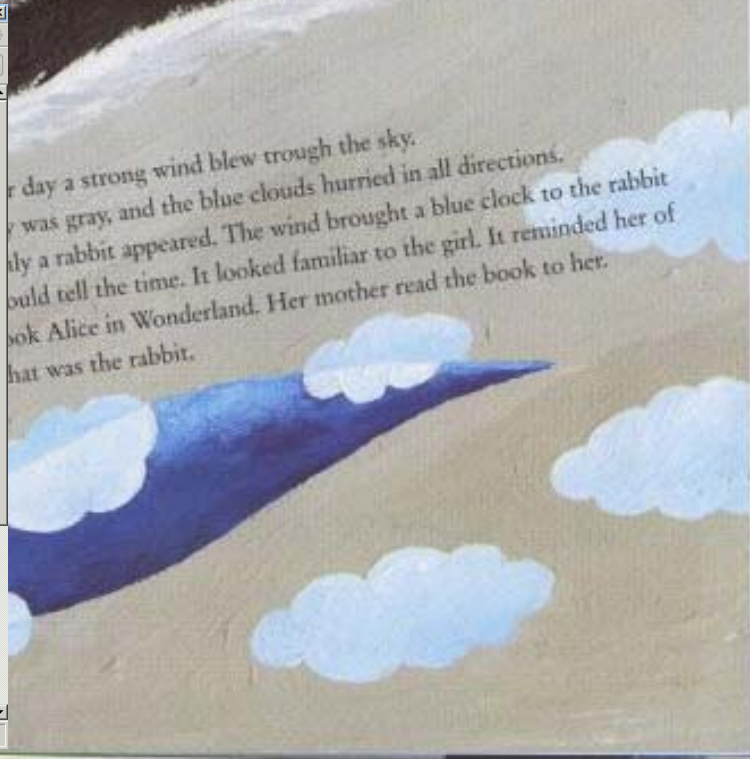
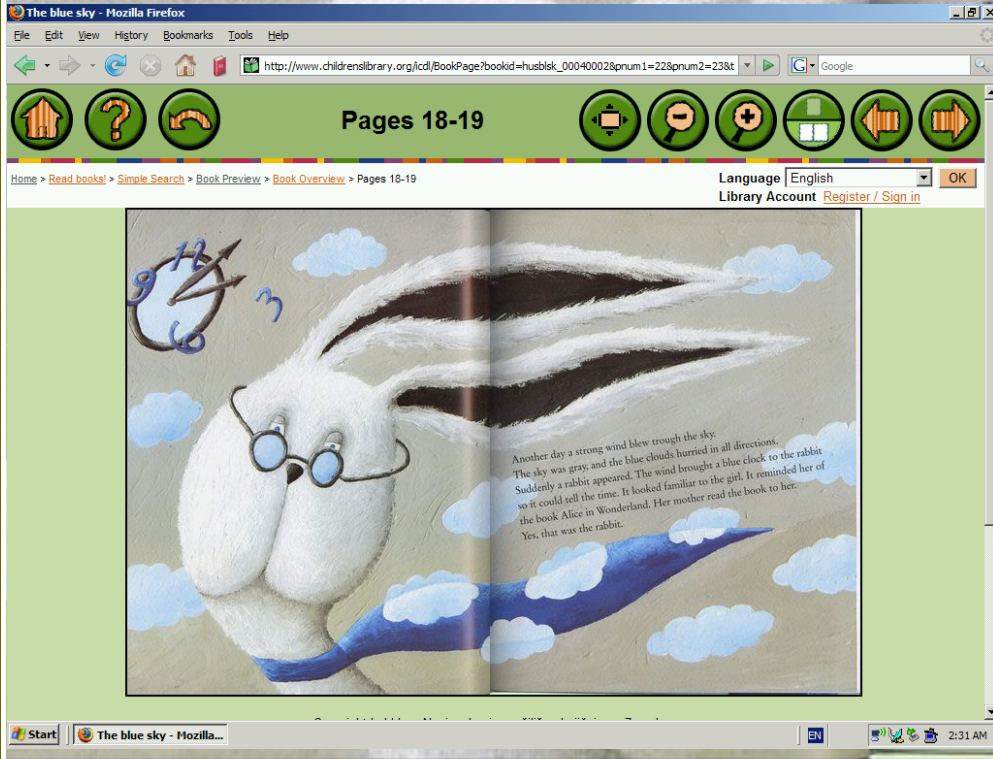




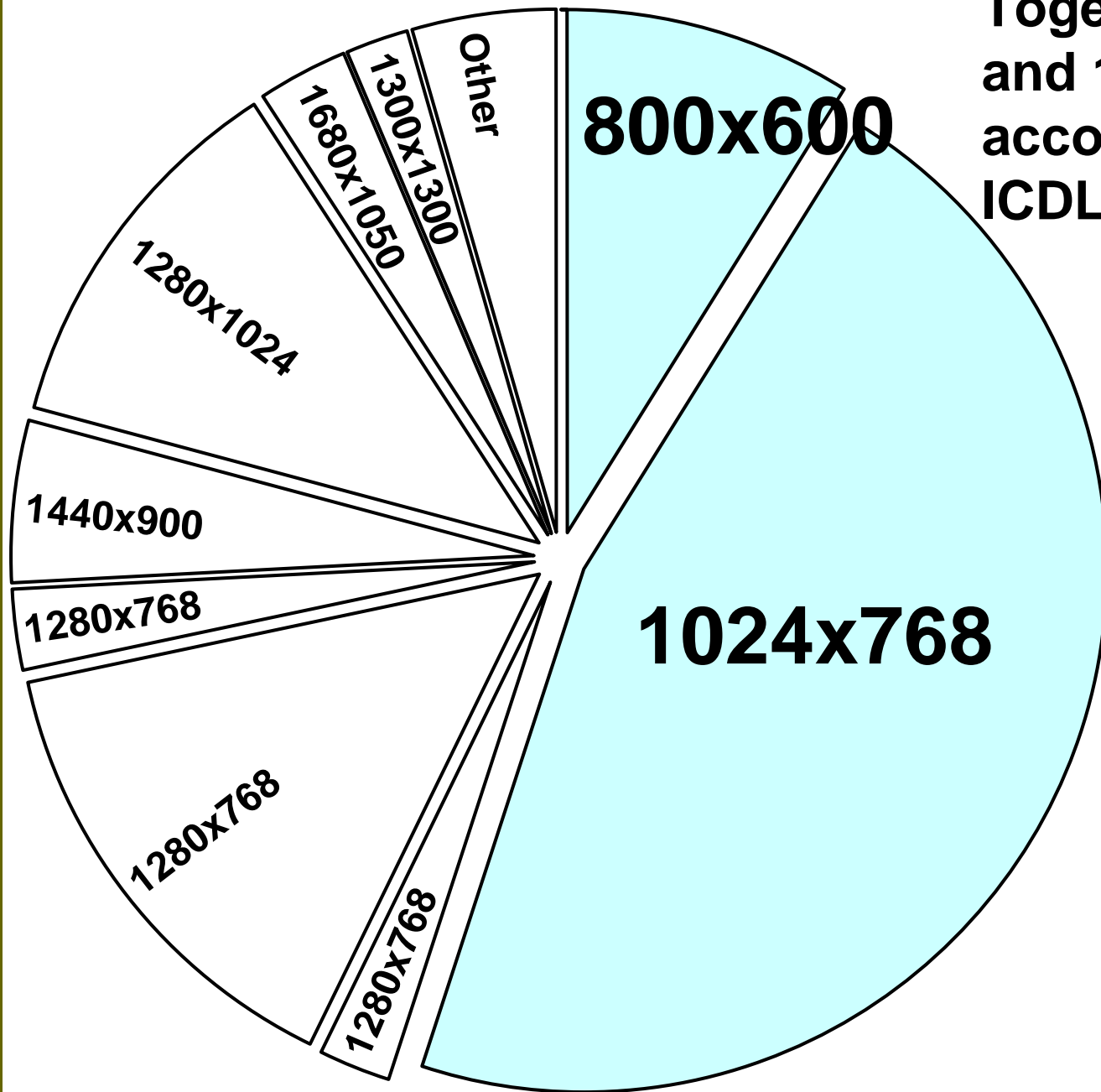
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The sky was gray, and the blue clouds hurried in all directions.
Suddenly a rabbit appeared. The wind brought a blue clock to the rabbit
so it could tell the time. It looked familiar to the girl. It reminded her of
the book Alice in Wonderland. Her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



Challenge: proportions

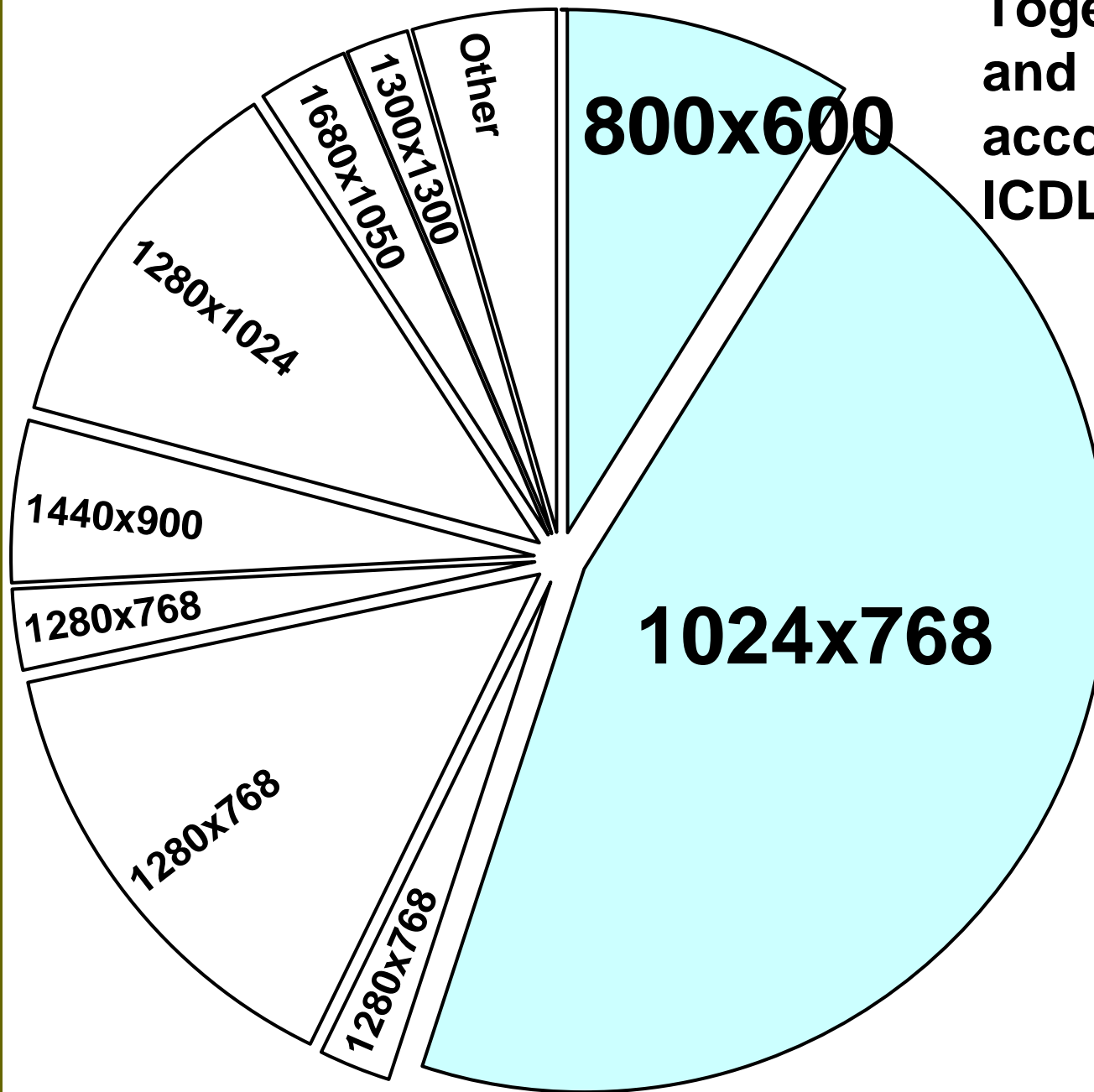


ICDL visitors' screen resolutions



Together, 800x600 and 1024x768 account for 55% of ICDL visitors

Data based on data pulled in March 2008 using Google Analytics



Together, 800x600 and 1024x768 account for 55% of ICDL visitors



800x600 (mono)
1200x900 (color)

Demos

- If network connection working:
 - [ClearText demo](#)
 - [PopoutText demo](#)
 - [Skip backup slides](#)
- Else:
 - [Proceed to backup slides](#)

The blue sky - Mozilla Firefox

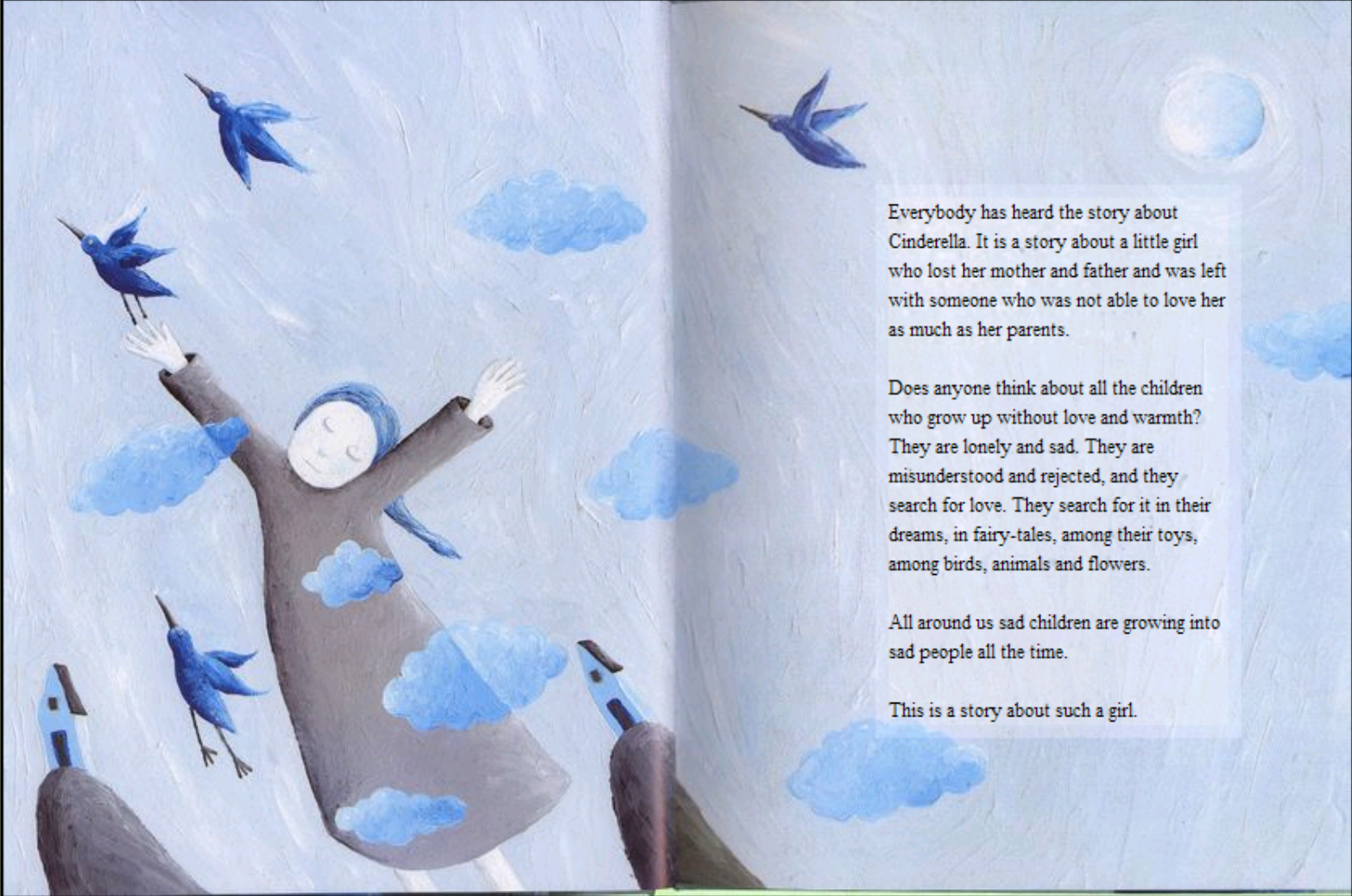
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Pages 4-5

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Everybody has heard the story about Cinderella. It is a story about a little girl who lost her mother and father and was left with someone who was not able to love her as much as her parents.

Does anyone think about all the children who grow up without love and warmth? They are lonely and sad. They are misunderstood and rejected, and they search for love. They search for it in their dreams, in fairy-tales, among their toys, among birds, animals and flowers.

All around us sad children are growing into sad people all the time.

This is a story about such a girl.

The blue sky - Mozilla Firefox


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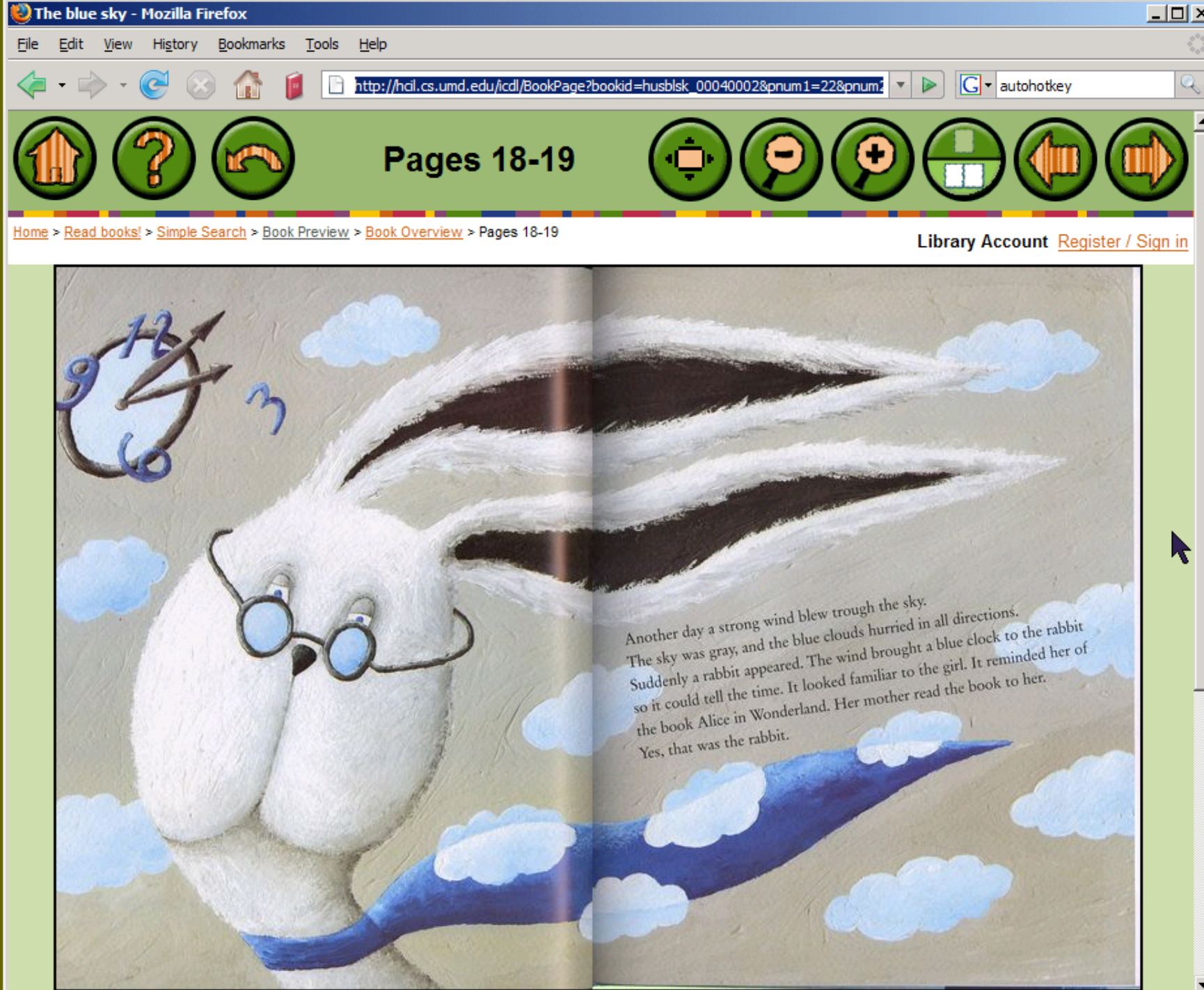


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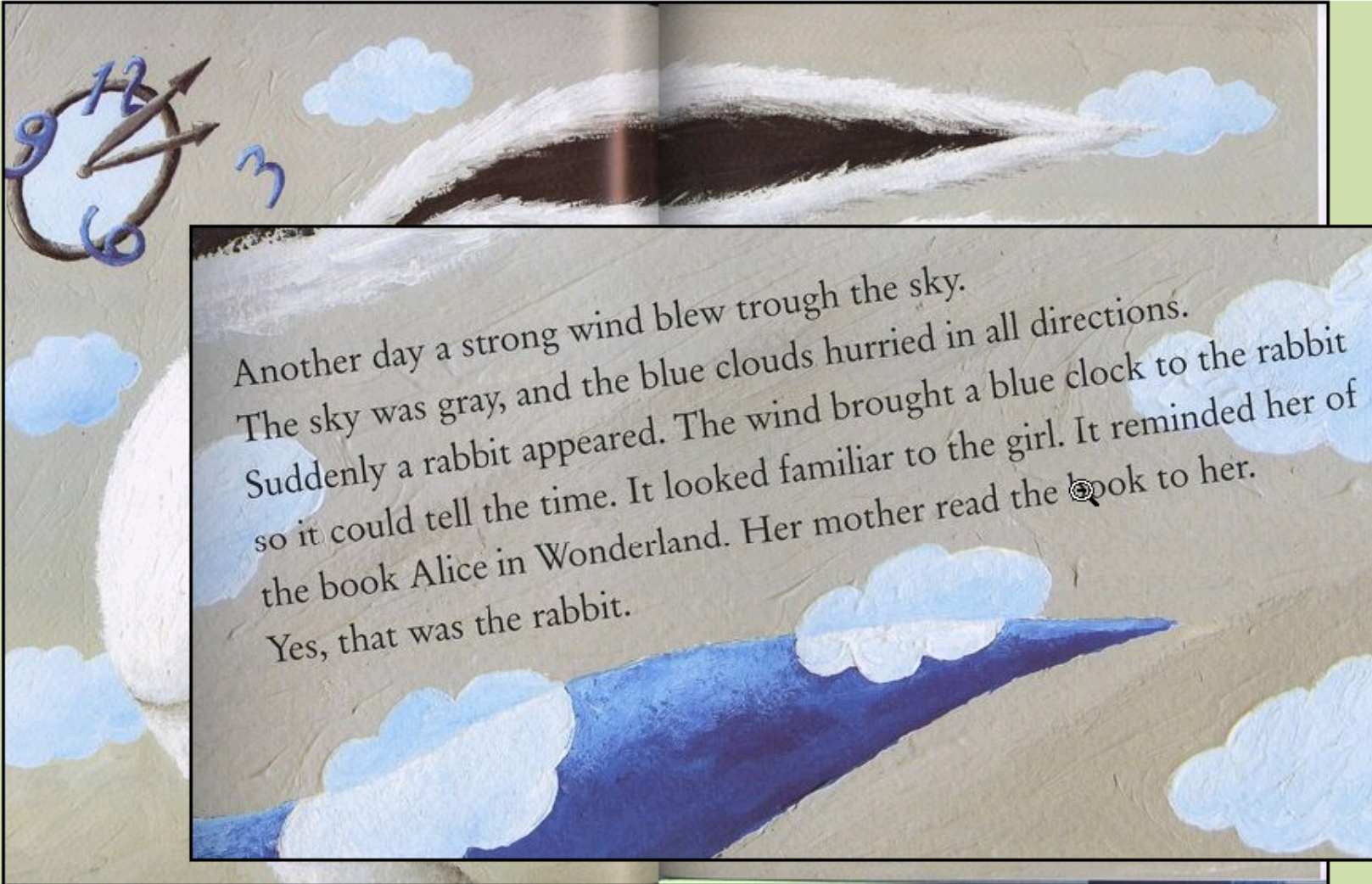
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And then, just when she remembered the turtle to whom she and her mother had fed lettuce, a turtle appeared in the sky. Its long leg protruded under the shell where it sheltered. There was no one else in the sky but soft clouds, and it could walk freely. The girl asked where it went. The turtle was not scared because the girl seemed tender and somehow lonely.

"I am looking for the lady who used to feed me a long time ago. She always fed me well. I have heard that she lives somewhere among the clouds. I am looking for her," the turtle said.

The blue sky - Mozilla Firefox

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Pages 22-23

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The next day a blue bird came. It was strange. It looked as if it were made of clouds. And just when the girl asked herself what connection it could have with her mother, the bird said:

“I am a heavenly bird. A long time ago when I lived on Earth I hurt my wing. I could not fly. A woman took me tenderly, and fed me and took a good care of me until I was healed. There was a little girl with her. I have heard from some birds that the woman became a heavenly creature, just like me. I have been looking for her for days. I would like to thank her,” the blue bird said.

“That is my mother. Where could I find her?” asked the girl. But the bird was not there. It had disappeared in the clouds.

The blue sky - Mozilla Firefox

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Study

Experiment

- ❑ Read ½ book with...
 - Physical book
 - Standard
 - ClearText
 - PopoutText
- ❑ Same author
- ❑ Similar style
- ❑ 27 adults

Evaluate

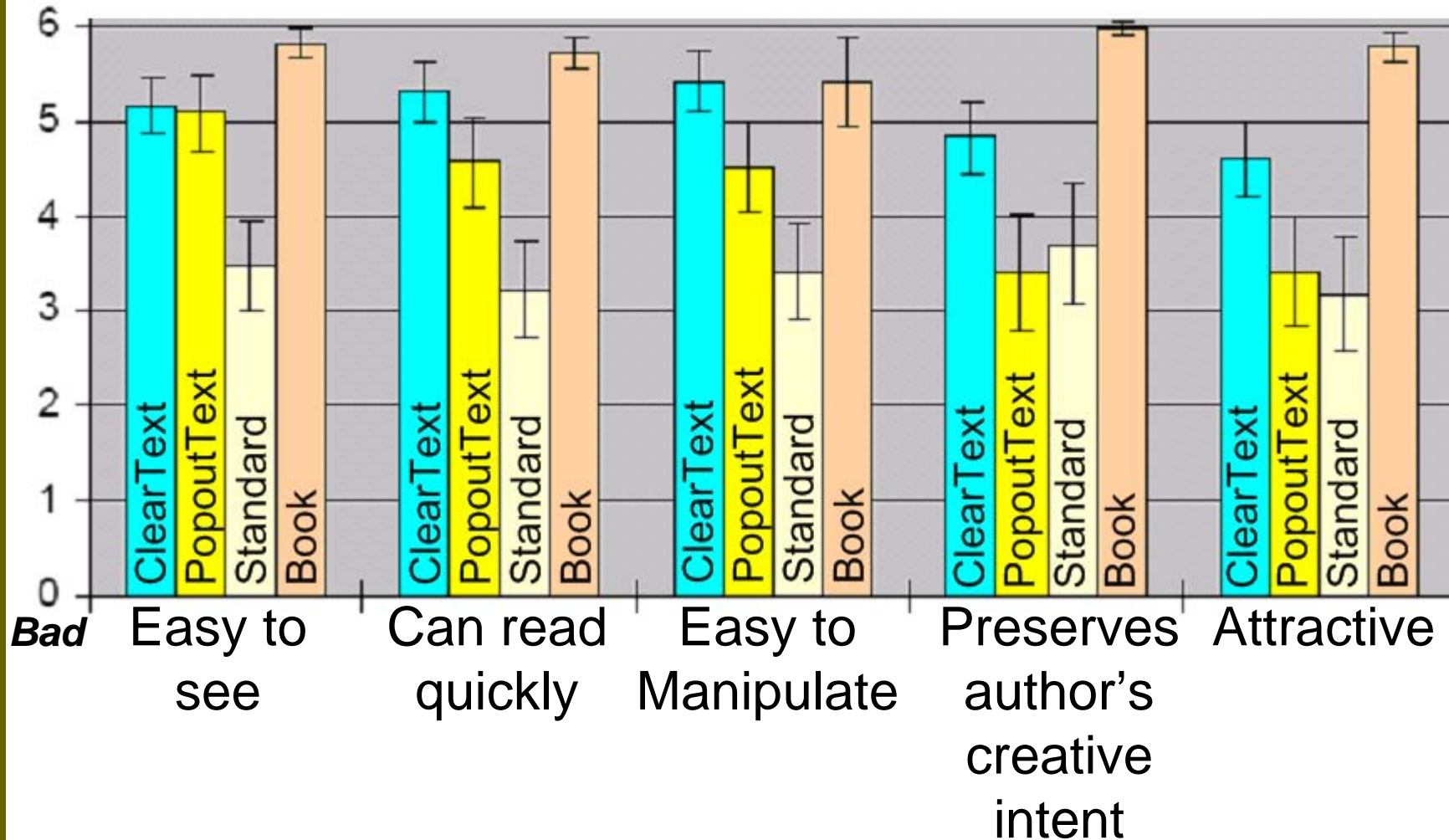
- ❑ Rate (after each)
 - Easy to see
 - Can read quickly
 - Easy to manipulate
 - Keeps author's intent
 - Attractive
- ❑ Rank (at end)
 - same

Surprises

- 61% preferred ≥ 1 of the new methods over the physical book for ≥ 1 measure
 - 37% for ease of manipulation
 - 33% for legibility
- Cited inherent limitations in books
 - Pages flop around
 - Inconvenient “zoom” capability

Subjective ratings

Good



Error bars show 5% confidence intervals

All five measures had main effects with $p \leq 0.01$ in RM-ANOVA

Practical Issues

- Rights
- Transcription
- Limitations of image processing
 - Slow
 - Requires some human correction
- Very difficult text examples

International Children's Digital Library



www.childrenslibrary.org

*Human Computer Interaction Lab
University of Maryland, College Park*

www.cs.umd.edu/hcil

Alex Quinn

aq@cs.umd.edu



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