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Determining the Usability of eBooks Using the Think-Aloud Method

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2009 OLA Super Conference: Session 1802
“Determining the Usability of eBooks using the Think-Aloud Method”
Diane (DeDe) Dawson, Selinda Berg, Kristin Hoffmann

Determining the Usability of eBooks Using the “Think-Aloud” Method

Saturday January 31, 2009
OLA Super Conference

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Presentation Outline

- Background
- Objectives/Hypotheses
- Methodology
- Findings
- Limitations
- Future Directions

Background

- eJournals wildly successful... but what about eBooks?
- Most literature on eBooks =
 - Opinion pieces
 - Research based on surveys of various user groups, or librarians
 - Few usability studies

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Objectives

1. To gain an understanding of user experiences in accessing information via electronic and print books.
2. To help Western Libraries librarians make informed decisions about electronic books.

Hypotheses

1. Information retrieval behaviours will differ between print and electronic books.
2. There will be variations in information retrieval, independent of format.

Methodology Outline

- Participant selection
- Books & tasks
- Why EBL?
- Think-aloud method
- Data collection & analysis

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Participant Selection

- 20 undergraduate Science students
 - Primary user group of Taylor Library
 - Undergraduates a good place to begin
 - 20 is a manageable number for a qualitative study
- Recruitment:
 - Pamphlets and posters
 - Announcements in classes

Books & Tasks

- 8 titles selected
 - Currently available in Taylor Library's collections in both print and electronic format
 - Represent a range of Taylor's subject areas
- Each participant looked at 4 titles in print, and 4 titles in electronic format

Books & Tasks

- One information-retrieval task was developed for each title
 - Involved searching for discrete pieces of information or general sections in the resource
 - Can be achieved via several different conceivable methods

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Books & Tasks

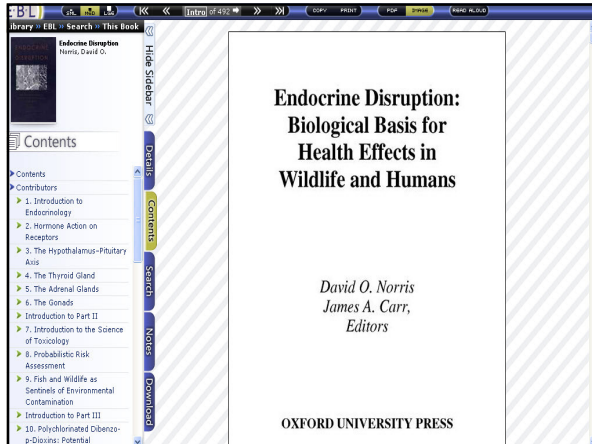
- Task example:
 - What are the effects of Dichloro-Diphenyl-Trichloroethane (DDT) on eggshell formation in birds?
 - *“Endocrine disruption: Biological bases for health effects in wildlife and humans” Norris & Carr, 2006*

Why EBL?

- Electronic Book Library (EBL)
 - Focus on one platform
 - Currently available to users of Western Libraries
 - Provider used by Taylor Library for individual eBook purchases

The screenshot shows the EBL website interface. At the top, there is a navigation bar with links for Home, Help, Support, Feedback, and Get Adobe Reader. Below this is a search bar and a 'Full Record' section for the book 'Endocrine Disruption: Biological Bases for Health Effects in Wildlife and Humans'. The record includes details such as the publisher (Oxford University Press), author (Norris, David G.), ISBN (978-0-19-512949-1), and a table of contents with seven chapters: 1. Introduction to Endocrinology, 2. Hormone Action on Receptors, 3. The Hypothalamus-Pituitary Axis, 4. The Thyroid Gland, 5. The Adrenal Glands, 6. The Gonads, and 7. Introduction to Part II. There is also a 'Table of Contents' section and a 'Summary' section visible.

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Think-Aloud Method

- “Concurrent verbal protocol”
 - Participants instructed to verbalize all thoughts while completing tasks
 - Allows immediate access to thought processes, decision-making, short-term memory etc

Data Collection & Analysis

- 3 researchers in room with participant
 - Prompter/facilitator
 - Note-taker
 - Video-taker (of print book and laptop screen)
- Each researcher independently reviewed the notes and videos at the end of the study
 - Identify emergent themes

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Findings

- 7 main themes:
 1. Physicality
 2. Certainty
 3. Information Gathering
 4. Learned Methods
 5. Expectations
 6. Navigation
 7. Transferability

I. Physicality

*“Keep [my] finger where the index is because it's easy to go back to”
(participant using Print book)*

- Print Books:
 - Easy to know location within text
 - Use of finger as placeholder, or tracker
 - Rapidly flip pages (back & forth)

I. Physicality

- eBooks:
 - Use of cursors to track text mimics finger in print
 - Moving through eBooks much slower, more cumbersome
 - Convenience of access, portability

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I. Physicality

“I would always choose the electronic version unless I needed to look at a large amount of text as I was writing or flip back and forth between several pages... [Electronic books overcome] space and portability issues”

2. Certainty

“So, I am just going to go there and hopefully find something because I do not see any subtitles related”
(participant using eBook)

- Print Books:
 - High degree of certainty in finding methods
 - Pursued a strategy to completion
- eBooks:
 - Hope for serendipity, less certainty
 - More likely to abandon search strategies early

2. Certainty

- eBook example:

Participant looking at the table of contents, clicks on the chapter on DDT,
“There is a chapter on DDT right here”
Does not continue to explore the chapter, but instead uses search function.

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2. Certainty

- eBook example:
“I am just browsing through the contents and I see that there is a chapter on Garlic, Chapter 12”
Does not view Chapter 12.
“I will go to the search again”
Searches for garlic heart disease.

3. Information Gathering

- First approach to each task: select keywords
- Print Books:
 - Then scan index &/or TOC for keywords
 - Word recognition more effective
 - Linear, confident progression

3. Information Gathering

- eBooks:
 - Non-linear, unsure what to do with keywords
 - Miss keywords more often
 - Additional tool in eBooks: the search function
 - Less lateral/creative thinking

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4. Learned Methods

"From the previous one I have learned that I should likely just use the search function"
(participant using eBook)

- 8 tasks in total for each participant
- Successful strategies from previous task adopted for next task
- Search times progressively decrease

5. Expectations

"I can't click it" (participant using eBook)

- Participants' expectations of eBooks generally **not** met

5. Expectations

"I can't click it" (participant using eBook)

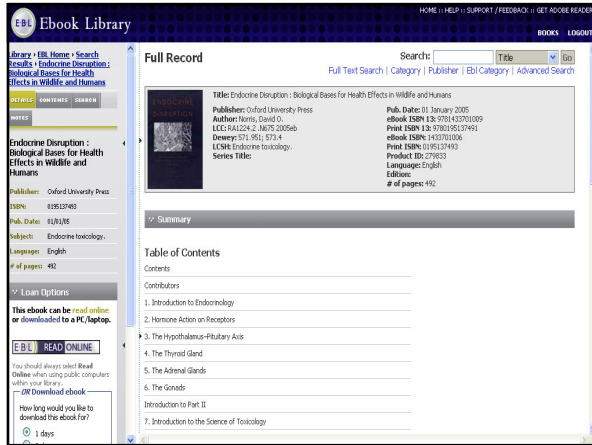
- Participants expected eBooks to match website functionality:
 - Control F
 - Scrolling
 - Search function should work like Google
 - Search terms should be highlighted
 - Index should be hyperlinked

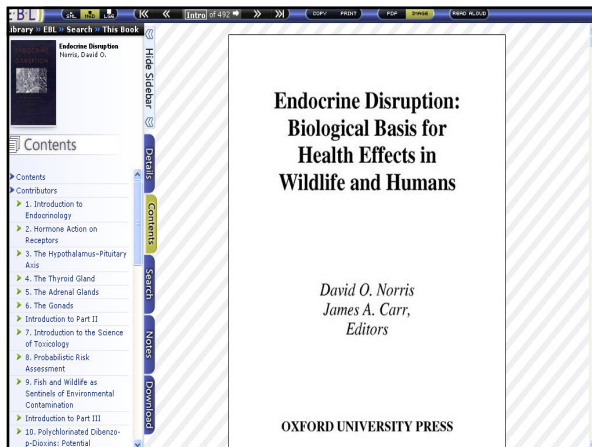
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6. Navigation

“How am I going to access this thing?”
 (participant using eBook)

- Participants did not intuitively know how to navigate eBooks
- Affected info-retrieval strategies





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6. Navigation

*“Actually now I am going to go back to the index, now that I know how to flip a page”
(participant using eBook)*

- Considerable time spent orienting, learning to navigate
- Likely to continue until:
 - Universal platform
 - Familiarity with platform

7. Transferability

*“I like the table of contents because I think it, like, orients you to the book”
(participant using Print Book)*

- 2 strategies in Print Books:
 1. TOC – for general info
 2. Index – for specific info

7. Transferability

- eBooks:
 - Additional strategy available: search function
 - But no single/clear strategy
- Most noticeable shift: less use of index in eBooks
 - Use of index least likely to be transferred

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Hypotheses

1. Information retrieval behaviours will differ between print and electronic books.
2. There will be variations in information retrieval, independent of format.

Limitations of Study

- Only one eBook platform
- Searching for discrete facts, not assimilating content
- Contrived/artificial setting
- Participants had no stake in the situation

Implications for Libraries

- Students do not know intuitively how to use eBooks
- eBooks need to be promoted
- More research is needed in order to better understand our users

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Future Directions

- Explore other eBook formats/providers
- Expand study to include other user groups (graduate students, faculty, librarians)
- Examine how eBooks are used for varying information needs

Exit Survey

- In which situations would you prefer to use an eBook?
“I would always prefer to use eBooks because they are digital, highly-searchable, indexed, pdf format, & very portable.”
“I’d use an eBook if my legs were broken or the library was closed/out of reach.”

Questions?
