Enrichment of eBook User Interfaces: A Skeuomorphic Approach

2013. 02. 11

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Reading a book is about

- **Well perceiving of the content**
  - Requires a good presentation (fonts, alignments, content layouts...)

- **Well manipulation of the pages**
  - Requires a good user interface which is also a type of presentation of the content
  - How the content changes according to the user's input

Reading strategy differs from each reading material

- **Novels**
  - Mainly composed of text centric
  - Read line by line, page by page in a sequence
  - *Formal reading*

- **Textbooks**
  - Composed of text, pictures, graphs...
  - Read page by page, but not always in a sequence
  - Review, preview, jump for references
  - *Semi-formal reading*

- **Newspapers & Magazines**
  - Composed of all sorts of content
  - Read without order
  - Selectively read the content of interest
  - *Informal, or casual reading*
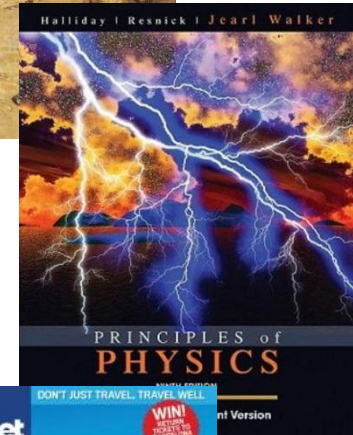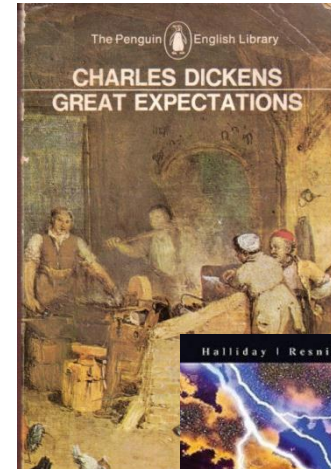
eBook contents are more than just texts

- eBooks are evolving into more interactive and diversified content mixture

- Requires more dynamic way of navigating through the content

- What navigating elements are we missing in eBooks?

- Conducted user research in search for the answer

Our design approach

- **Employed skeuomorphic design approach**
  - Not just an eye candy, nor rely on photo-realistic design
  - But FUNCTIONALLY contributing to user's book reading experience

- **Conducted reading task observation/analysis and attribution exploration**
  - Brought paper book's functional metaphor onto the touchscreen device

- **Two major features (which current eBooks are missing):**
  - Thumbing through pages
  - Temporal bookmarking

- **Prototyped using heuristic evaluations and iterative design process**

Thumbing through pages

- **Use of the fore edge to thumb through pages**
  - Able to perceive overall structure and content of the book
  - Find a piece of content (e.g. text, photo, video…) without knowing an explicit data (e.g. page number, keyword…)
  - Use of thumbing through gesture was more prominent in casual reading material (e.g. magazines) than textual documents (e.g. novels)
- **Applied on the eBook**
  - Fore edge UI rendered on the side
  - Touch dragging outward of the screen flips pages
  - Able to freely turn pages in a book holding position
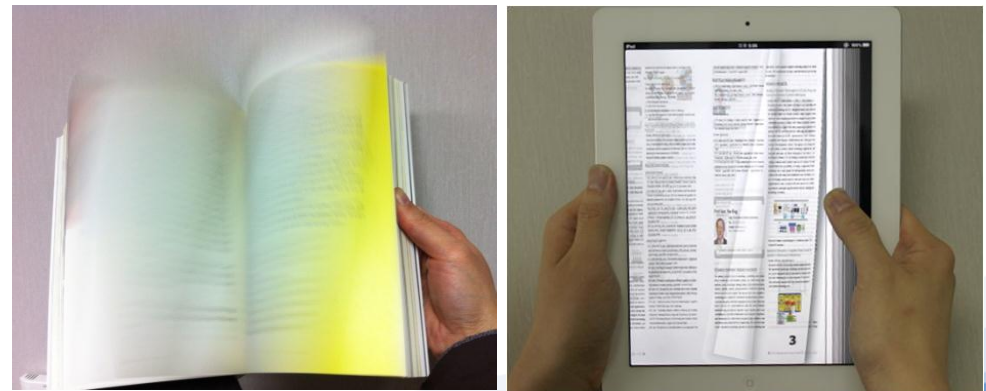

Figure 1. Fore edge (boxed area)

Figure 2. Thumbing through pages using the fore edge

Thumbing through pages

- **Additional role of the fore edge is**
  - Visual/tactile cue for current page location, amount of pages left...
  - Tagging a flag for annotating information/location
- **Applied on the eBook**
  - Horizontal dragging flips pages
  - Vertical dragging or direct touch relocates view page to the hyperlinked locations (e.g. bookmarks, chapters) information/location
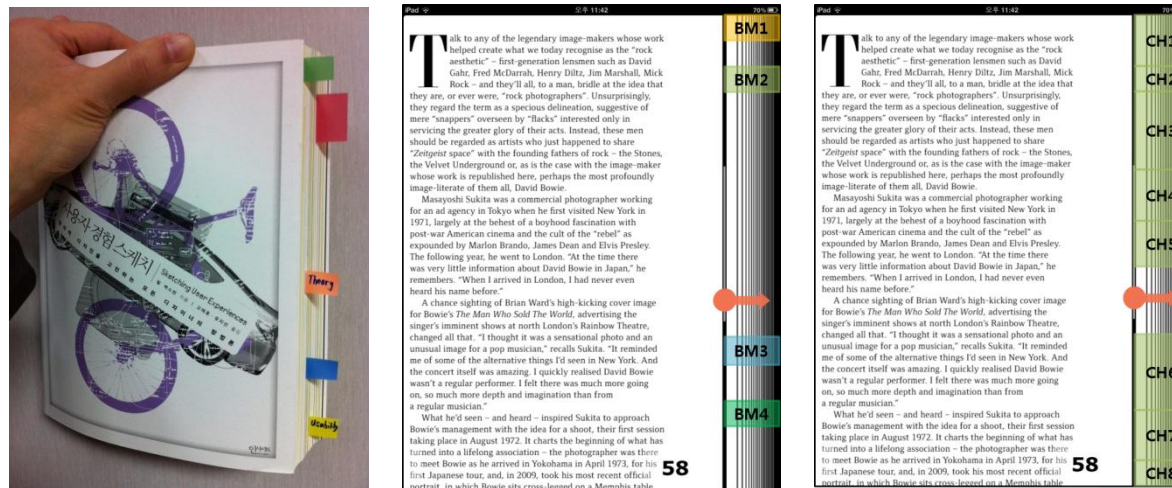

Figure 3. Fore edge for annotation and implicit indication of current location

Temporal bookmarking

- **Supporting repeated referencing between pages**
  - Able to make a quick comparison between two separated pages
  - Stay on the current page while acquiring related context from few pages back or forth
- **Applied on the eBook**
  - Initial touch hold the page, second touch either thumb through or turn page by page using dragging gesture
  - On release of the initial touch, either return or stay on the remote page (depending on the second touch dragging direction)

Figure 4. Temporal bookmarking on a paper book; reference pages are generated and lost repeatedly
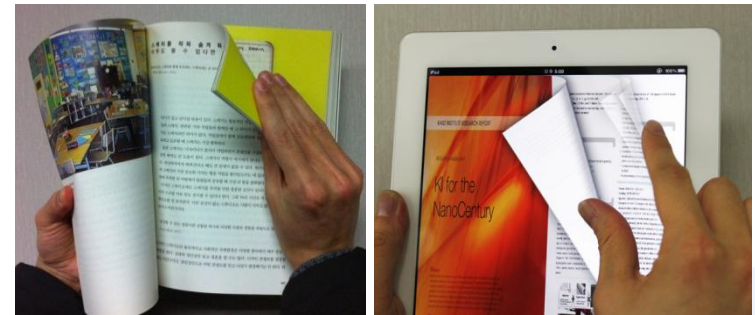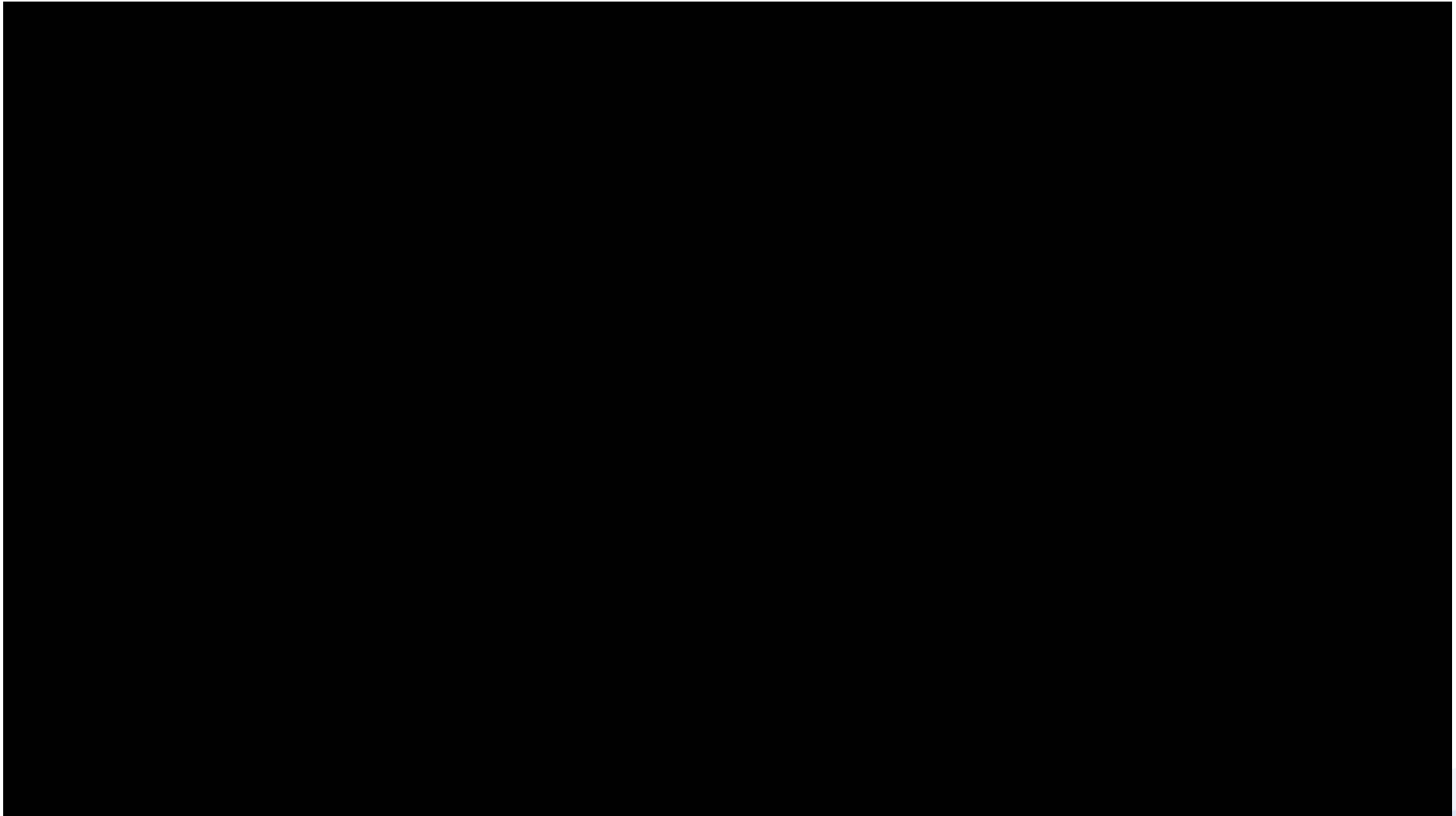
Figure 5. Temporal bookmarking translated on the eBook

Demo Video

Full version can be viewed at: http://www.youtube.com/watch?v=rVyBwz1-AiE

Issues and requirements in web perspective

- **Thumbing through on the fore edge**
    - Fore edge interface layout (dedicated area or initiated upon command)
    - Rendering of the page stack behind the current view page (in replacement of the slider bar)
    - Efficient HTML5 cache control for loading pages
    - Optimized fast flipping effect
    - API for placing additional feature on the fore edge area (Figure 3)

- **Temporal bookmarking**
    - Presentation for flexible division and merging of separated pages