

Fourth Generation Ebooks: Keynote for JCDL 2011 Workshop on Semantic Web Technologies for Libraries and Readers

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ABSTRACT

Starting in the early 1990s, three generations of ebooks have quietly paved the way for a fourth generation, one that emphasizes the social side of reading. The first generation of ebooks focused on multimedia and the direct advantages of reading on a computer. The second generation explored the mobile form-factor of reading hardware. The third generation—the first to gain widespread adoption—emphasized three concurrent technology advances: light, relatively inexpensive mobile computers; better battery technology; and higher resolution, lower power displays, as well as the availability of far more content. Now we are ready for a fourth generation, one that acknowledges the social aspects of reading. In particular, a fourth generation of ebooks will highlight two new perspectives: (1) *reading together* (i.e. using ebooks as a focal point of synchronous activities) and (2) *reading as a productive activity* (i.e. using the collective social data that results from reading as the basis for beyond-paper functionality). This talk will explore how we got to where we are today, and where we're going next.

Categories and Subject Descriptors

H.3.7 [Information Storage and Retrieval]: Digital Libraries –
User issues

General Terms

Documentation, Design, Human Factors.

Keywords

ebooks, social, collaboration.

KEYNOTE SUMMARY

To readers who wouldn't dream of embarking on a long plane

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flight without their Kindle or iPad, ebooks are a recent success story: it's easy to pack all of your current reading onto one of these devices and hit the road. Forget to bring something to read? You can buy a new book, selected from an extensive collection, from wherever you are. Or you can download a free out-of-copyright classic from Project Gutenberg [7]. From today's vantage point, it's hard to remember that we've already gone through several less successful generations of ebooks.

The first generation of what we now think of as ebooks began circa 1990, before the advent of the Web and before mobile devices were commonplace. First generation ebooks were sparked by the excitement wrought by multimedia, coupled with the realization that there were distinct advantages to reading on a computer. For example, students using the Perseus Project's corpus of ancient Greek texts were able to read their assignments using an in-place dictionary lookup facility [10]. Never again would they need to tote around heavy ancient Greek dictionaries in their backpacks. During the same period, Voyager, a multimedia company, supplied early adopters with a limited number of popular titles on laserdisc (e.g. Poetry in Motion, a 1992 collection based on a documentary by director Ron Mann that included works read by noted authors such as William S. Burroughs, Charles Bukowski, and Anne Waldman). Just as surely as multimedia and computational functionality drove the first generation of ebooks, these pluses were insufficient to overcome the well-known drawbacks to reading on the screen [4].

The second generation of ebooks, which launched about a decade after the first, took advantage of newly available mobile devices (mostly laptops, but also Personal Digital Assistants such as HP's Jornada) as a vehicle for distributing a relatively limited number of ebook titles. Several dedicated readers, including the Rocket ebook and the Softbook, gave the most persistent technophiles platforms to read on. These hardware platforms were heavy, their battery life was frustratingly short (too short, say, to handle a long flight), and their small monochromatic screens were not sufficiently high resolution to make reading comfortable. But mobility in and of itself was a winning concept [12], and in early 2000, the two ebook hardware companies were sold to Gemstar for 200 million dollars.

The first two generations of ebooks did not founder without notice; even though they were not widely adopted, they fostered an atmosphere of anxiety and skepticism. Anxiety arose in the wake of predictions of the death of text, the end of books, or even the decline of textual literacy and reading as we know it [2].

Concomitantly, there was a justified level of skepticism about reading on a screen, either based on Human-Computer Interaction research into the affordances of paper [15], the continued dominance of print documents in the workplace [13] and the library [3], or the intellectual superiority of existing literary systems [6], [1]. Experiments developing real active reading devices [14] concluded with optimistic assessments of ebooks' potential, but caveats about both hardware and software [11].

Dystopian visions of a day when we read and write on our mobile phones formed the basis of jokes, skits, and cartoons. The absurdity of reading on the screen was the basis of a decade's worth of comics: "I'm never gonna read a book on the computer," said little Jeffy in *The Family Circus*, "It's too hard to curl up with a monitor." In less mainstream quarters, Bill Griffith's *Zippy the Pinhead* echoed Jeff's sentiment: "e-books will never replace p-books!"

Yet by 2007, ebooks were poised to do just that. The Kindle arrived, followed closely by other e-paper based readers, and not long after that, the iPad joined the ranks of portable devices. Three vital enabling hardware technologies had fallen into place: (1) light, relatively inexpensive mobile computers; (2) better battery technology; (3) higher resolution, lower power displays. These were coupled with semi-ubiquitous network access (so content could be downloaded almost anywhere); an ecommerce infrastructure (so books could be purchased); and existing reading software, which while unremarkable, was sufficiently easy to use that most readers had little problem picking up an ebook and simply reading it. Clifford Lynch's vision of "portable personal digital libraries" had come to pass [9].

The question now becomes, can we take what we know about reading on paper, and what we see developing in the last ten years' worth of technological change (especially, but not limited to, social media), and conjure up a longer-term vision of ebooks? In other words, what should we make of the social life of ebooks, given that reading has come to be mobile, material, interactive and part of the constantly interrupted flow of everyday activities?

Of course, reading is inherently social. In his book *Scrolling Forward*, David Levy reflects on the nature of documents and discusses their future; in a chapter on reading and attention, he wrote, "...solitary reading always was, and still is, inherently social: how we read is ultimately determined by social conventions and community membership." [8] But it is far different to follow Amazon's recommendations about which book to buy, to connect socially through personal libraries, or to see aggregated annotations (new social functionality we are likely to all be familiar with) than it is to look over someone's shoulder onto a page, to discuss a poem in a graduate literature seminar, to buy a used book marked up with someone else's annotations, or to send someone an illustration from a long magazine article (functionality possible—and indeed ubiquitous—in a print age).

Thus this talk is intended to sum up directions that show promise for a maturing technology. What's next as ebooks are incorporated into everyday life? I focus in particular on two emerging areas:

(1) **reading together** (i.e. using ebooks as a focal point of synchronous activities, e.g. [5]), and

(2) **reading as a productive activity** (i.e. using the collective social data that results from reading as the basis for beyond-paper functionality, e.g. Amazon's Popular Highlights feature).

We should regard both of these directions—ebooks as a communication substrate and reading on the screen as a data-producing and data-using activity—as just a start. We stand on the precipice of a fourth generation of ebooks and on-screen reading.

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