From intertextuality to transphysicality
The changing nature of the book, reader and writer

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ABSTRACT

Recent years have seen dramatic changes in publishing; for a while it seemed that digital technology would supplant paper media entirely. This paper reviews some of these changes, drawing on examples of systems where the authors have been involved in development or design. We touch on various issues including curation and student-generated content and the way books can become the locus of community discussions and learning. Recent reports suggest a resurgence in physical book sales, and advantages of physical study methods such as paper note taking; this suggests new challenges for digital systems to augment rather than replace physical books.

Author Keywords

Collaborative annotation; educational technology, human–computer interaction, hypertext, locative media, physicality, reading lists

CLASSIC PICTURE (STRAWMAN)

The classic view of a book is as a transformer of knowledge and ideas: from the author, through the book as intermediary, to the passive reader. Typically, or perhaps always, there is a level of intentionality, the words in the book are about something outside the book whether in a real or imagined world.

… but not that simple

Of course this is an over-simplification. Readers have always written to authors, and the common practice of publication through serialization meant that some of this feedback was often available to early novelists during writing. There are also other actors involved including reviewers and editors. Indeed many authors, notably Hardy and Hugo, have explicitly acknowledged the influence of the latter, albeit not always graciously.

Post-modern views

20th century post-modern criticism challenged this somewhat caricatured picture. Three aspects which are particularly relevant to current digital writing are (i) emphasis on the active role of the reader in 'writerly texts' intended to engage the reader as meaning maker; (ii) non-linear narrative, from serious novelists such as

Fowles to 1970s children's interactive paper comic books (fig 1); and (iii) intertextuality, from direct citation and quotation to allusion and tropes.

Fig 1. Interactive Comic Book
Mission to Planet L,
K. James & J. Allen.
Tracker Books, 1973

Leakage

At a more pragmatic level, literature has long escaped the confines of the page, from 19th century pincushions of Dickens' characters [5] to Kit Williams' *Masquerade* and 'Bronte country'.

GOING DIGITAL

The nature of the book has hardly been static, but it is the rise of 'digital', which has prompted this workshop.

eBook (the reader)

The most obvious change to the book and reading is simple digital delivery. This has often had little impact on the nature of underlying text apart from the physical medium, however, it has opened possibilities, such as the ability to add rich media, search, hyperlink and comment.

In some ways commenting can just be a digital version, often poor, of writing in margins, but when networked allows new opportunities, for example, Kindle finding 'hot sections' of books. At Talis a pilot research project Lighthouse has allowed tutors and students to share annotations on academic texts, videos and other media.

Similarly, while rich media may simply be embedded, like a traditional figure, online materials from the first author's HCI textbook are being semantically tagged, to enable, for example, dynamic cross-linking between video, slides, exercises and text [2].

Authorship and publishing

The digital impact on paper production has been at least as dramatic: in publishing, from the Wapping dispute to on-demand printing; and in writing, from word processors to Mendeley. Some of the earliest work on hypertext is focused on its use as a management aid for linear writing [4], and, in this spirit, one of the authors has used a bespoke WordPress plugin to export sections of blogs as LaTeX.
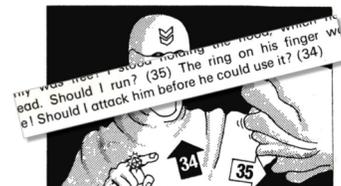
Collecting and linking

A defining (albeit problematic) feature of web browsing has been the bookmark, and this has spawned numerous individual and social platforms from del.icio.us (now almost digital archaeology) to more recent systems such as Pearltrees. This can be an aid both to reading or studying, and for research and authoring, especially when content is also included as with Snipit.org or Evernote.

In the context of this paper, the role of such systems is most interesting when published as a form of digital curation. This can be simply an appropriation of social sharing sites, or as a specific design choice, for example the way Storify creates narrative from social media posts. In the educational domain Talis Aspire Reading Lists (TARL), OB3 (a tool to create media-rich online study documents) and course management in virtual learning environments (VLEs), such as Moodle, allow educators to collate materials.

IN CONTEXT: BOOKS AND THE WORLD

As noted, books have always been intentional, about the world, but they are also intimately related to the world, from manuals to tourist guides. Geographic and spatially organized hypermedia have a long history, from Brown's Post-it note metaphor [1] to more recent locative media and narratives. The blogs of the first author's walk around Wales are being semantically tagged, much of which is geographic. Typically linkage is achieved through mobile devices using GPS or other forms of geolocation. However, some of the most interesting examples are where information is distributed in the environment, with links back into digital material, of which MonmouthpediA is perhaps the most extensive example.

Academic

A special case of contextual books are those used in education. Often early textbooks were derived from lecture notes, indeed Springer's flagship computing series is "Lecture Notes in Computer Science". Crucial for this is the relationship between text and course, and the role of the academic as co-creator: curating, annotating and linking resources (digital and physical) to courses. Indeed, this is precisely the purpose of TARL and similar software.

However, while the principal aim of TARL is to help academics curate material *for* students, part of Talis' interest in the Lighthouse pilot is that this also enables annotation *by* students. Some of this is for their own personal notes and studying, but partly it is to enable them to share with others, that is become co-creators of their own study materials. This builds on pedagogic research on the value of peer learning, which is central to many MOOC platforms, such as FutureLearn, and is the defining feature of Peer-to-Peer University (p2pu.org).

So far Talis' experience has been in encouraging sharing *within* a course, but looking forward there is the potential to allow sharing between students using the same text across *different* courses and institutions, potentially opening rich paths of communication within the student community and also between students, academics and authors.

Physical books

A few years ago, many were suggesting that the growth in eBooks signalled the end of paper publication; indeed in the newspaper and magazine industry there have been high-profile examples, such as The Independent's move to digital-only publication. However, like Twain, the reports of the death of the book are perhaps exaggerated; recent reports suggest a resurgence of the paper book [3], and also the value of paper-based student note taking and study [6].

This raises interesting challenges about the relation between physical and digital materials. TARL and bibliographic systems such as Zotero are *about* physical books. Another Talis product Talis Aspire Digital Content (TADC) makes it easy to import and manage scanned physical documents, and Evernote manages photographically captured text; that is both bring physical materials *into* the digital world.

Can we envisage deeper digital augmentation of physical books? The online search facility the first author's HCI textbook (2nd ed) searches a digital version of the text, but then directs the searcher back to the physical page. This was created in the mid-1990s, but current technology such as Anoto pens or recognition of page images may mean the golden age of the paper book is yet to come.

CONCLUSIONS

We are faced with two related challenges: (i) to make digital media as rich educationally as physical media; and (ii) to design ways to connect digital and physical media so that we can make the best of the strengths of each.

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