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The book: production and participation
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Abstract

Purpose – The focus of this paper is on the benefits that may eventuate through new mechanisms of production and distribution. As we enter the twenty-first century, the nature of the book and the structure of the industry which produces it are undergoing radical transformation, as developments in information technology offer new mechanisms for production and distribution. Most of the discussion of these changes is conducted from the perspective of what has been lost through these changes.

Design/methodology/approach – This paper reviews the history of the book from the perspective of the disruptive effects of the changes in production technology and impact on the roles involved in production, distribution and reading of books. Darnton’s Communication Circuit is updated to predict future limiting factors and opportunities for participation.

Findings – The evolution of the book has seen successive categories of workers involved in book production supplanted by the adoption of new technology. The updated Darnton’s model suggests that the roles involved in the production and distribution of the book will, however, be supplanted in favour of authors and readers of the book in the future.

Social implications – The predicted changes will alter the roles of authors and book users.

Originality/value – This paper suggests a novel approach to the discussion of the future of book publication and suggests future developments.

Keywords History, Electronic books, Books

Paper type Conceptual paper

Introduction

[...] only through the encouragement of multiple encounters between disciplines, traditions, and approaches can histoire du livre be strengthened as an intellectual paradigm (Chartier, 2007, p. 519).

Chartier’s (2007, p. 519) final remarks in his essay The Order of Books Revisited encompasses what has become the very essence of book history. While still in its infancy, this field of research has begun to develop through the convergence of disciplines including, among others, literary history, information systems, sociology, economics, literacy and culture. While the production of books and the study of the book as a text have been well-researched, the study of the history of the book as an artefact is a much more recent advancement. The book as an artefact or object draws on history and analysis of not just the text itself, but also the book as a symbol and as a representation of a place in time. Much of the research that has been conducted to date shows a focus on one particular text or book – analysed in terms of the physical properties, cultural ties or historical significance – a particular time period or a specific technological or paradigm shift.

In this article, different perspectives on the definition of “book” will be acknowledged, with a distinction drawn between the book as a text and the book as an object. The term “book history” will then be discussed and defined, before it is situated within the history of production and participation in the book. The meaning of text was historically attributed to the author of the text, who was thought to create meaning through texts and symbols; however, a shift is occurring in which the reader is no longer considered a passive consumer whose only role is as a reader of a finished item. The relationship between the meaning attributed by the author and the meaning interpreted by the reader is considered. As part of the discussion, the future of the book is considered. The introduction of books in electronic format available on-line will be explored, as will the changes in production and participation from the perspective of the technological changes over time.
What is a book?
The codex, and the book as we know it today, is surprisingly difficult to define (Meadow, 1995, p. 249). As one of the most important developments in the dissemination of information, the definition of the “book” is still debated. In a basic sense, the book is a device for the communication of information (Howard, 2005, p. 10) and a technology in itself. The introduction of the codex, and the subsequent shift from scroll to book form, can be considered one of the greatest technological advancements in recent history (Howard, 2005, p.9). While it may not be considered a technology by today’s standards, “no other technology in human history has had the impact of this invention” (Howard, 2005, p.9).

The book as text
The book has been defined as “a sequence of pages on which appear meaning-communicating marks, all of which are bound together in an authorised order” (Meadow, 1998, p. 43). This includes the physical form of the artefact itself, and how it appears. This definition’s use of the word “authorised” implies that the book is crafted by a series of mediators, to result in a correct order of pages. While this seems to match the notion of a book as a physical article with the purpose of communicating information, this ignores the non-physical meaning that can be attributed. A further complexity is added when it is considered that books are often misidentified with texts (Topham, 2000, p. 155). While there are some who will disagree (Adams and Barker, 1993, cit Darnton, 2007a, p.502), many book historians use the term “book” as shorthand to refer to a range of written communication, including the traditional codex, manuscripts, periodicals and newspapers, among others (Greenspan and Rose, 1998, p. 9; Rubin, 2003, pp. 555-556). Because of this, the history and study of the book can be considered to be a study of the history of written communication (Rubin, 2003, p. 555), further adding to the complexity of the field. However, it is worth noting that much research in the history of books is dedicated to one or a selection of books, making the authors’ implied definitions somewhat clearer (Darnton, 1982, p. 80). However, the misidentification of book and text is not of consequence within the wider field.

The book as an object
Davidson (1988, p. 7) suggests that:

[...] the very concept book is problematic. A book exists, simultaneously, as a physical object, a sign system, the end product of diverse arts and labours, and the starting point for intercultural and intracultural communication.

This definition acknowledges the role of the book in social history as more than a physical object, as an object of status and power. Books were used to show social status, as many held great financial value, and were also used symbolically as awards or accolades for the recipient. While books were, and still are, objects of status and power, the advent of the printing press, and subsequent technological advances, have increased the availability of books, therefore potentially decreasing the value placed upon them. When books became readily available, readers began “rapidly consuming more and more books while placing increasingly less significance on the books they read” (Davidson, 1988, p. 12). Where books had once held great symbolic meaning, the increased availability lessened the book as a status symbol. In this sense, the major technological advancements of our time have also contributed to the decrease in non-physical attributes associated with the artefact.

The book as an artefact
While several definitions of the book have been considered, perhaps a central part of this definition should be the fact that a book will remain relatively unchanged over time. Notably, “a book changes by the fact that it does not change when the world changes” (Chartier, 1994, p. 16), allowing new meanings to be drawn as a result of these changes. While there is the opportunity for annotation or limited physical modification of a printed book, its tangible state means that the book is “stable in its
letter and fixed in its form” (Chartier, 1994, p. 16). In this way, a relatively static text can take on new meanings through the very changes that are occurring around it, in its place in history.

The book as a data element
When considering the book as something to record in a database, or online public access catalogue, we have many other issues to take into account. A long novel may be written as two parts over time, and published in two volumes. Should such a two-volume work be treated as two books or one book? If it is two books, and a later issue of this work amalgamates the two volumes into one omnibus, is that now one book? Could you convince an auditor there was no missing book? A library often has multiple copies of popular books. Is each of these then a different book or more correctly separate copies of one book? (Kent and Hoberman, 2012, p.44). These questions suggest that the concept of a book may well be independent of the format in which it is presented. The work itself may be, as Chartier (1994, p. 21) suggests, unchanging, but the delivery mechanism, the book, is subject to change.

Studying the history of the book
With the exception of isolated efforts (Harrison, 1943; Steinberg, 1955), the study of the history of the book as a field is relatively new, considering the age of the object itself (Darnton, 1982, p.66). There are clear relationships between the history of books and the histories of communication, knowledge and bibliography, and thus, the history of books will never be a discrete, self-contained discipline. This makes defining the field especially difficult. Before the history of books emerged as a field of research, historians had previously worked on researching the innovations in printing technology (Eisenstein, 1980), the changing trends in publishing (Lancaster, 1995) and the processes and actions that were involved in the production of books (Jennett, 1967). There was also some work on the effect of the technology and process changes that had occurred, and what this meant for society (Eisenstein, 1980). The shift from the focus of the book as a text to the book as an artefact did not occur until much later.

Professor Donald McKenzie is often credited with bringing the history of books as a field of research to the English-speaking world in the mid-1980s (Bell, 2007, p. 493). His concept of the “sociology of the text” (McKenzie, 1999, p. 13) was integral to future work. McKenzie, though, refused to separate the analysis of symbolic meaning from the physical form in which the text was transmitted, challenging existing concepts of hermeneutics and morphology (Chartier, 2007, p. 510). While there is evidence of book history reaching as far back as 1880, there has been a significant amount of development in the field in the past two decades (Burke, 2008, p. 363). The first model proposed to map the field was offered by Darnton in his influential essay “What is the History of Books?” (Bell, 2007, p. 492). Previous to this, models adopted by book historians had been derived from other disciplines such as economics (Darnton, 2007a, p. 495). The model arose due to the need to restore some sort of order to a fragmented and confused area that had not yet been determined to be a discipline. Darnton proposed his Communications Circuit (Figure 1) – a model for analysing how books come into being and how they spread through society (Darnton, 1982, p. 68). The model centred on the people involved in the production of books, namely, the binder, reader, author, publisher, printer, shipper and bookseller. Darnton’s work was the beginning of dedicated research into the development and role of the book in social history. While Darnton’s model incorporated what he considered to be the whole book industry, he acknowledged that many authors will only study part of this circuit. Much of the research into book history was also centred on a particular period, or a particular text, depending on the background of the researcher (Darnton, 1982, p. 65). This can be attributed to the fact that each text originates in a specific period and geographic location (Rubin, 2003, p. 557), and therefore, studying the artefacts outside of this context would produce no real meaning. Therefore, the literature in the field of the history of the book, despite Darnton’s best efforts, is still largely fragmented.
Following Darnton’s model, Adams and Barker (1993, cit Darnton, 2007a, p. 503) suggested an alternate model, “The Whole Socio-Economic Conjuncture”. The model operates at a more generalised level than does Darnton’s Communications Circuit (Figure 2). The key processes of publication, manufacture, distribution, reception and survival are identified. External forces – intellectual influences, political, legal and religious influences, commercial pressures and social behaviour and taste – provide context. For the purposes of this paper, the Communications Circuit (Figure 1) operates at a level closer to the technology, which is the perspective of this article and is thus preferred.

Skinner (2005) defines this field by saying that “to speak of the history of the book is to name a specialised form of enquiry into the production, diffusion and enjoyment of printed and scribally published material”. However, the relationship between books and history is complex. The nature of the book means that they do not “merely recount history; they make it” (Darnton, 1982, p. 81). Books have the unique ability to represent a place in history in terms of technological development, social values and tastes and political and economic conditions (Darnton, 1982, p. 77). The book itself forms part of a web of social history that incorporates the history of writing, reading, publishing, knowledge and information, the media and the economy. Further to this:

[...] the social, cultural and economic history of authorship, publishing, printing, the book arts, copyright, censorship, bookselling and distribution, libraries, literacy, literary criticism, reading habits, and reader response (Greenspan and Rose, 1998, p. 9) are also considered to be included in the study of book history.

The field shows the intersection between the text itself, the support of text and history of the reader (Chartier and Friedman, 1997, p. 10), and incorporates many interrelated phases of development (Bell, 2007, p. 494). The exclusion of aspects that impacted on the book, and those on which the book impacted, would ignore a central part of the history, and ignore key issues (McKenzie, 1999, p. 19). The book, as an essential technological advancement, was and still is a product of its environment (Howard, 2005, p. 9). The technological changes in printing generally, and in the production of books specifically, were also a field in which employers and workers competed over the nature and impact of technological changes (Pretzer, 1986, pp. 85-86).
In this paper, we examine the book and its production from the perspective of significant changes in the technology of book production. Such changes are popularly referred to as advances in technology, with accompanying connotations of creating an easier, less costly or more efficient form of production. These changes have, for the most part, been caused by disruptive innovations (Bower and Christensen, 1995, p. 45) and resulted in far-reaching changes to the production of books, not just in terms of the technology used, but the structure of the industry sector and the participation of various actors involved in book production. As such these changes have had underlying impacts on the perspectives used in book history, such as publication, manufacture, distribution, reception and survival.

**Eras of book production**

From a technological viewpoint, the history of the book as an object can conveniently be separated into five eras. While each of these eras is defined by a major change in the technology used in the preparation, production and distribution of books, the shift from one era to another overlapped and was not a discrete shift, e.g. the transition from manuscript to printing (Hargrave, 2013, pp. 224-227). The five eras which will be considered in this paper are:

1. manuscript;
2. hand setting and printing;
3. electromechanical setting and printing;
(4) computer setting and printing; and
(5) electronic publication.

It will probably come as a surprise that writing as an aspect of academia did not become significant for some centuries after its invention. Socrates considered reading and writing a contemptible pastime (Zeegers and Barron, 2009, p. 10). Even so, writing was used by some, for example Plato (1956, cit Zeegers and Barron, p. 10) who recorded Socrates’ arguments so that they would not be lost.

**Manuscript**

It is commonly known that writing by hand was the only widespread method of recording information prior to printing – initially, the scroll (volumen) for formal texts and wooden or wax tablets (codex) for informal or mundane purposes (Brown, 2008, p. 13). This distinction of purpose faded in favour of general use of the codex, especially after the codex became the chosen format for Christian scripture, just as previously the scroll was chosen for the Judaic Torah. This technology was not static, and was subject to change, as much as in any other era. The reed pen was replaced by the quill pen in the sixth century, and many alternatives were used for writing sheets. Wood and wax were too cumbersome for long texts, folded papyrus cracked and animal skins were less of a problem – parchment (sheep or goatskin) and vellum (calfskin). The use of animal skins led to the use of quires (gathering), so that matching surfaces (flesh side vs hair side) would oppose each other on opening (Brown, 2008, p. 186), lessening the degrading of the text through abrasion. The use of quires persisted in the makeup of a book, and only disappeared in the late twentieth century with the introduction of “perfect binding” of individual sheets. Production in this era was measured in individual books, rather than runs of hundreds or thousands of copies. Production of a single illuminated book may have taken a significant part of a single scribe’s life or occupied several scribes working together. The Book of Kells, dated to the ninth century, is believed to be the work of a team of eight (Brown, 2008, p. 182).

**Hand setting and printing**

The nature of the advances caused by the adoption of movable type is commonplace. Type design and the hand setting of type have permeated our language. Miniscule originally referred to the ascenders of “b” and “d” and descendents of “p” and “q”, and it was the mirror images of those pairs of type which gave us the phrase “minding your ‘p’s and ‘q’s!” Type was stored in cases, and placed one above the other at the work station used by the compositor (type-setter). Capital letters in the upper case and letters for the body of the text in the lower case, hence the use of those terms. A cliché originally referred to the storage of type, constituting a repeatedly used phrase, held together by a piece of string, in French “cliché”, so set type was always available. For example the phrase “I, the Governor in and over the State of Tasmania and its Dependencies in the Commonwealth of Australia, acting with the advice of the Executive Council, make the following regulations” appears in every regulation of the Tasmanian Parliament and is a candidate for a cliché. The use of movable type was a major advance in book production. Rather than spending an entire life on one copy of one work, a compositor could set multiple works from which many copies could be printed. A competent compositor was capable of setting 200 characters per hour (PKIU, 1979, p. 9). On projects where multiple compositors were employed, there was greater consistency of letter style and quality through a work, as they could work from the same fonts of type. Less skilled workers could be used – manual dexterity was prized over lettering ability. The variation in skill and literacy has led to the discussion of the early Shakespeare printings in terms of Compositors A, B and C who are unknown but recognisable by the style of their composition and are believed to have gone so far as to unilaterally alter the text of Shakespeare’s plays (Darnton, 2009, pp. 137-141).

It is less widely recognised that the increase in printing speed also depended on advances in inks and paper. Printing requires the complete transfer of ink from type to paper in one pass through the
press, in one impression. The ink must also dry quickly, before the next sheet is delivered. The impression must be made on a surface which can receive the ink, and which is manufactured to a consistent standard.

As well as receiving ink effectively, consistency in paper thickness is also required. A heavy impression may be effective, but this results in heavy type wear over an edition, resulting in costly type replacement. Unless a specific aesthetic effect is desired, the aim is for the type to kiss and not show any type impact. Animal skins possess neither of these qualities, and use of paper became universal. Paper, as we now know it, is only five-centuries-old (Harrison, 1943, p. 10). Its development addressed the needs of the printing industry, and the coincidence of dates at which both items emerged may well be no coincidence but a simultaneous development to address a market need.

**Electromechanical setting and printing**

The next major advance in the printing press was when it moved from hand power to machine power. The introduction of powered presses in newspaper production set a precedent for later technological change in this industry. At 6 am on 29 November 1814, Mr John Walter walked into the press room of the London Times and announced “The Times is already printed by steam” (PKIU, 1979, p. 30). The Times had established a separate printery and kept this from their hand press operators. The move from sheet-fed to web (a continuous reel of paper)-fed presses also increased the number of impressions per hour. In fact, the measurement unit changed from impressions per hour to metres per second. Web-fed presses were able to achieve 15m/s compared to sheet-fed presses, which rated 4 m/s (Kipphan, 2001, p. 52).

While mechanisation of printing increased production, setting of type was still a bottleneck. “The snail paced process took so many men and so much type that daily newspapers were limited to eight pages” (Miller, 1959, p. 34). In 1884, Otto Mergenthaler invented the Linotype, which was capable of setting 10,000 characters per hour (PKIU, 1979, p. 9).

The application of machine power to typesetting and printing so drastically lowered costs that increased production from new clients resulted in the existing hand compositors and printers being re-skilled and re-employed and within a decade, employment had exceeded the numbers at the time the Linotype was introduced (Smith, 1980, p. 209). This is probably one of the few instances where the introduction of mechanisation has had this effect.

**Computer setting and printing**

The final development of typesetting in the printery was the decoupling of entering text from the production of type for the press. Initially this was electromechanical, with keyboards producing punched tape (TTS), which could then be fed into a casting unit. This increased the speed of setting to 25,000 characters per hour (PKIU, 1979, p. 9). The independence of the keyboard from the casting unit also saw the change from the linotype “ETAOIN SHRDLU” keyboard layout to the typewriter “QWERTY” layout. While the typewriter layout was inefficient (Holmes, 2011, p. 112), it was more commonly used and it was easier to find operators used to the typewriter layout.

Computer setting allowed the development of systems which could produce a fully laid out page, rather than lines of type which then had to be assembled into pages. This page was not metal, but a photographic negative (Smith, 1980, p. 90). There were readily available systems for producing a metal page for relief printing, but lithographic printing allowed the abandonment of metal type entirely. Lithographic printing is based on the fact that water and ink do not mix. A photosensitive layer receives the image of the page which is inked, the ink is then transferred to a rubber blanket (hence offset), and then to the paper (Smith, 1980, p. 91). The perfect match of full-page computer-based photocomposing with offset printing subsequently became widespread (Smith, 1980, pp. 90-92). This raised setting rates to 8,000,000 characters per hour (PKIU, 1979, p.9) or, in new measurement units, over4,000 lines per minute (Friedlander, 1968, p. 61). Letterpress machines achieved speeds in a range of 1,500 to 5,000 impressions per hour.
(Riddle, 1973, p. 143), whereas offset lithographic machines could achieve 25,000 impressions per hour when configured for web printing (Hargrave, 2013, p. 229).

In a review of publication methods and technology, Friedlander (1968, p. 57) proposed a model of computer-based printing and production of journals attaining 1,000 copies per minute and lifting the production of books from 2,000 to 6,000 per hour. Even with these possible volumes of production, the number of copies of a physical book are necessarily finite, and this reality limits readership by requiring a physical copy of the book to be present (Crossick, 2015, p. 30).

**Electronic and online publication**

The transition to electronic and online publication marks not just a change in production methods, but an actual change of deliverable. This change has wide implications. We have known the book through its physical printed versions, and the materiality of the book has been a fundamental aspect of its success. However, as we move into a society which is becoming used to near-instant retrieval of an extensive range and nature of information completely independent of location, the print book shows obvious limitations (Crossick, 2015, p. 30):

- Publishers cannot embed video, audio, interactive graphs and databases and so on into a print book—separate media are needed for this.
- Publishers cannot “push” updates, addenda or other minor corrections to a print book – for these a new edition must be produced and purchased.
- Readers cannot make extensive notes directly into the book – separate media are needed.
- Readers cannot be transported seamlessly to different sections of the book or to external sources – page numbers and other references must be tracked down manually.
- Brief searches for keywords are possible, via an index, but are slow and sometimes not successful or exhaustive, especially as the character and rigour of indexes change (Crossick, 2015, p. 31).

The transition to electronic forms is in its early stages. In a survey of 1,898 staff and students at the University of Kansas, 61 per cent of the respondents preferred print, while 39 per cent preferred electronic books (Waters et al., 2014, pp. 1-3). As in the previous shifts in methods of production, the introduction of electronic publication coexists with the existing print forms, and this is expected to continue for some time (Crossick, 2015, p. 5).

The major technological changes have dramatically increased the number of books produced, both absolutely and per edition, with an accompanying reduction in price. Greco and Aiss (2015, p. 123) found that the digital book sales share in the USA has increased from 1.74 per cent in 2008 to 18.16 per cent in 2013.

Zhang and Kudva (2014, p. 1,074) state that while there is a rising consumption of books in electronic form, there is no imminent likelihood of an e-book takeover. Even so, there has been a dramatic effect on the industry. US book store annual sales have dropped from 15,437 in 2002 to 11,897 in 2013, despite the annual number of new titles published rising from 247,777 to 2,352,797 over the same time (Greco and Aiss, 2015, pp. 114-115). This drop in sales has also been reflected in the drop in the number of bookstores in the USA from 25,137 in 2002 to 14,939 in 2012 (Greco and Aiss, 2015, p. 124).

The full electronic delivery of a book was initially seen as an “and/or” approach as shown in Figure 3. This model was published in 2001 (Kipphan, 2001, p. 8), some six years after the introduction of the World Wide Web (WWW) platform. At that time, the WWW had not reached a level of sophistication where completely replacing print would be practical or competitive.

It is interesting to compare the model in Figure 3 with the earlier model proposed by Darnton (1982, p. 68) in Figure 1. While Darnton’s model is more comprehensive and therefore necessarily general, Kipphan’s model would fit within it, without significant modification. Darnton says of his model:
It could be described as a Communications Circuit that runs from the author to the publisher (if the bookseller does not assume that role), the printer, the shipper, the bookseller, and the reader.

The book has developed as a mechanism for communicating information with content and context as directed by the author. But the development of “Web 2.0” in the early 2000s greatly increased the sophistication of the facilities available on the WWW not just for authors, but for others. These changes were based around the following characteristics:

- services, not packaged software, with cost-effective scalability;
- control over unique, hard-to-recreate data sources that get richer as more people use them;
- trusting users as co-developers;
- harnessing collective intelligence;
- leveraging the long tail through customer self-service;
- software above the level of a single device; and
- lightweight user interfaces, development models and business models (O’Reilly, 2005, p.5).

Figure 3. Structure for producing electronic media, print media and multimedia products

This approach led to the development of platforms, such as WordPress (Automattic, 2014), which require little technical knowledge on the part of the content creator to author sophisticated web presences. The stage of direct, un-moderated, author creation and publication had arrived.

Darnton’s model, not to mention Kipphan’s, now required significant modification.

The future of the book

What does this mean for the future of the book? In this section, a distinction is made between a simple e-book, effectively a reproduction of the physical book in electronic form, and enhanced e-books which exploit the potential offered by the WWW, especially the developments of Web 2.0. It is the latter form that we address and examine developments within.

Today “texts are no longer prisoners of their original physical, material existence” (Chartier, 1994, p. 89). This statement has some interesting implications. The meaning that is drawn from the format of the book itself, the presentation of texts electronically and the possible change in the way books are presented almost certainly change interpretations. However, if “the creativity of the reader grows as the institution that controlled it declines” (de Certeau, 1984, p. 172) and if the format of the text as a
book is the institution by which it is controlled, the decline of the physical book in favour of electronic books may increase the potential for creativity in the reading process. The change in the conditions under which the text is consumed can affect its interpretations (Chartier, 2007, p.512); however, apart from an almost certainty that the information will be delivered electronically, it is yet unclear how and to what extent these changes in interpretation will occur.

In 2009, Matt Stewart published a full-length novel on Twitter. “In blasts of 130 characters or so (leaving room for hashtags and links), it will take approximately 3,700 tweets to transmit the 480,000 characters in my novel” (Stewart, 2009). Ironically, within three years, a physical book, “How To Convert Your Tweets Into A Published Book”, had been published (Mustafa, 2012).

Inanimate Alice (www.inanimatealice.com) is a digital novel that combines text, audio, video, special effects and gaming to provide an experience where the reader becomes an active participant (Warren, 2010, p. 41). According to author, Kate Pullinger, this approach was taken because of her interest in exploring the digital tools available, and because the story seemed to lend itself to the forms (Warren, 2010, p. 42).

Given these perspectives, perhaps an e-book read on an iPad or computer screen does not have a physical form that holds meaning, or that gives the reader similar cues in terms of placement in and progress through the book as those in a paper version would. Perhaps this new form and format will lead to the creation of a new “Communications Circuit” or a modified version of “The Whole Socio-Economic Conjuncture”, including new factors, people and processes that may soon become part of the history of the book.

Figure 4 shows such a modified form of Darnton’s Communications Circuit. This version provides the simplest form of the suggested model, and assumes a single authorship, and single distribution point to the readers.

Figure 4. A form of Darnton’s Communications Circuit for electronic publications

However, the existing functionality offered by applications such as WordPress already allow for a more public contribution by readers. In addition to communication between author and reader, there is the opportunity to make such a communication public through comments on the website. The Communications Circuit is now fully capable of wholly operating in both directions (Figure 5). As an example, a history text would allow definitions to be seen when a cursor hovers over a word, brings up a map when a location is mentioned, could show groups migrating by using animation or map overlays. Instead of one picture, links could take you to galleries, and you could add images you had taken as well. Interiors could be rendered into photospheres, different aspects of which could be viewed by moving your device.
It is also possible that authors will modify their already uploaded material either of their own volition or in response to reader feedback. This is not a new development, though it has been harder in the mass production era, being restricted to clearly identified new editions of a book. The major French bookseller of the 1770s, Rigaud, deplored Voltaire’s “tendency to tinker with his books, adding and amending passages while cooperating with pirated editions behind the backs of the original publishers” (Darnton, 1982, p. 69).

Beyond that, there is also the noted propensity for others to republish material on other websites, with or without additional material and with or without attribution (Rowland, 2003, pp. 167-168), so Darnton’s Communications Circuit may well be as shown in Figure 6.

These probable developments are significantly different to those of previous eras of production. Two things change. Firstly, the resource and financially expensive process for producing copies of books...
would no longer be necessary. An author would be able to place their work directly online and allow access to it. Secondly, the entire question of a definitive copy where the author sets both content and context is thrown into question. This could be as a result of the author continually refining or reconsidering the work and amending it. It could also be as a result of the duplication and modification of the work by people other than the author. Even without such duplication and modification, there is the potential for inclusion of all or part of the work in future works. Interest in these innovations is growing, and a number of initiatives are being developed to tap into and to reward new communication models. The Digital Book Awards [1] were established in 2010 to recognise innovation, creativity and excellence in all aspects of digital book publication. The programme encompasses all forms of digital publishing that are available to consumers as e-books, enhanced e-books and apps, to showcase and reward the work of authors, developers and publishers. In 2013, Google created a €60-million Digital Publishing Innovation Fund [2] to help support transformative digital publishing initiatives for French readers. It will be interesting to see what comes of this. It would seem that we may have arrived at an era where, for the first time, the issues around the production of a book will reduce in significance, and the potential for the participation of people other than the author will greatly increase.

Implications for Functional Requirements for Bibliographic Records

This move to electronic publication of the book must now be considered in the context of the requirements of the Functional Requirements for Bibliographic Records (FRBR) conceptual model as documented by IFLA (1998). The aim is to produce a high-level model which is independent of cataloguing codes or implementations. Within this section of the paper, the use of terms such as work, expression, manifestation and item will be used as they are defined in FRBR. The items described in the section above on the future of the book must now be examined in the context of the FRBR definitions, and especially in terms of relationships. The impact of any such definition may or may not have any effect on a specific catalogue, depending on the policy on levels of cataloguing, in FRBR terms, at an aggregate level (IFLA, 1998, p. 28). The FRBR definitions quite properly cater for the inclusion of items on the Web in various forms:

Example:

cb1 Australian Business Deans Council (ABDC)
w1 ABDC Journal Quality List
e1 Online resource
  m1 Excel spreadsheet
  m2 HTML document
    i1 lamp.infosys.deakin.edu.au/abdc/

The example above shows the Australian Business Deans Council (the corporate body: cb1) which has created a Journal Quality List (the work: w1). This document is available as an online resource – the expression of the work, and is available in two forms. It is available as an Excel spreadsheet (the first manifestation: m1) for online downloading from the ABDC website (item: i1) and as an HTML document (the second manifestation: m2) from a completely different website (item: i2). Such a situation is relatively routine, or at least becoming routine. The more interesting situation is the development of Darnton’s Communication Circuit described above. In Figure 5, the author or a reader is now able to modify the original item. In this instance, does the original item continue to exist? The URL pointing to the Web location still exists, but arguably to a new item – is the catalogue entry now in error? Variations, versions and “slight modifications” are derivative and should be considered new expressions according to the continuum.
used by Tillett (2004, p. 4). A semantic solution could be to describe the expression as a “modifiable online resource” and subsume any alterations by virtue of that definition. Whether that is an adequate solution is also debatable. It may well be a pragmatic solution. The further modification (shown in Figure 6) of the introduction of an alternate author who may be publishing on an alternate website would clearly be a new work using Tillett’s (2004, p. 4) continuum, and presents less of an issue. FRBR could meet the eventualities posed by these new forms of the book. The ontological question of the possible disappearance of the original item is interesting, but not a pragmatic consideration.

Conclusion

The study of books is a relatively loosely defined new field, changing focus from the format and production of the codex, to the electronic book. While discussion of the past has set the scene, book history is being made now with the introduction of digital books. Where books were widely available and dispersed in a range of forms, formats and contents, the focus changed from the role of the book in that period to the future directions and innovations that were occurring. Much of the discussion related to the format of the book itself is concerned with the features that are lost in the publication of books electronically, as opposed to the physical version. Chartier (1994, p. 90) notes that:

[... ] when it passes from the codex to the monitor screen the “same” text is no longer truly the same because the new formal devices that offer it to its reader modify the conditions of its reception and its comprehension.

While research has been conducted into the comprehension and memory of electronic books as opposed to paper-based books (Larson, 2010; Lam et al., 2009), this is generally in relation to the technological devices and presentation of the books, rather than the different interpretations as a result of the format. Books in paper form possess physical qualities, such as smell, which are absent in electronic forms (Darnton, 2008, p. 1). In this way, the interpretation of a book returns to its text. Darnton (2007b, p. 169) also acknowledges the power of hyperlinking and interactivity when books are presented in electronic form. However, the new form of electronic publication will also enable new opportunities for annotation and use.

It would also appear that the cataloging of these derivative items would be adequately catered for using the existing FRBR principles.

It should be noted that this paper has focused on the technology, as it impacts on the book as an artefact, which is created, distributed and read. It has not even begun to examine the wider impact of incorporating source material, multimedia and advanced features such as translations and identifiers for searching facilities on electronic publication of books. There is substantial scope for research to be undertaken in these areas to identify the models and systems that are involved in these advanced and novel characteristics. A key characteristic has to be the increased involvement for users other than the author, and the mechanisms they develop to interact and use the book. In the relatively recently established research field of the history of the book, a central debate surrounds the meaning of the book, which is extensively discussed by Darnton (1982). This can be in terms of the definition of the discipline itself, and in the definition of the object itself. While these are complex topics, they have only been addressed here in overview, allowing a discussion of key themes across the area. By the very nature of the book, its pre-electronic form remains a static object while time moves on, leaving the book as an influencer and a product of the time in which it was created. The degree to which this applies in electronic publication remains to be seen. It might be felt that the discussion here unevenly addresses what are complex concepts. Some specific areas discussed (e.g. FRBR) are well-developed and generally accepted, while others (e.g. the involvement of the reader in modifying the book) are novel and contain conjectures as yet untested. The irony is that this unevenness is a fairly accurate reflection of the nature of the field itself, where
there is still much work to be done to explore and assess the unfolding potential for the future of the book.

Notes

References
Chartier, R. (1994), The Order of Books: Readers, Authors, and Libraries in Europe Between the 14th and 18th Centuries, Stanford University Press, CA.
Miller, L.L. (1959), Maintaining Reading Efficiency, Holt, New York, NY.

Further reading

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