Enhanced Fiction:

A Worthwhile Endeavour?

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Declaration:

I declare that the work described in this research paper is, except where otherwise stated, entirely my own work and has not been submitted as an exercise for a degree at this or any other university.

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Abstract:

Since the iPad was released in 2010, authors and publishers have been presented with the conundrum of how best to take advantage of the enormous popularity of tablet computers and to ensure that their publications are consumed on them.

Aside from releasing standard electronic books through dedicated online stores for consumption on book-reading apps, authors and publishers have also sought to develop products that supplement core text with multimedia content, thereby utilising the multifunctional power of tablets. These products are called enhanced electronic books.

The concept of an enhanced electronic book is not new, with varying degrees of success achieved with titles released on CD-ROM in the 1990s. However, tablet computers offer levels of portability and ergonomics previously unseen in personal computing devices, such that modern enhanced books are considered a brand new proposition. And yet the majority of these books released since 2010, across all genres, have lost money, with their cost of production and distribution not being recouped in sales. This paper explores the reasons for this state of affairs, specifically with respect to enhanced works of fiction.

Chapters 1 and 2 set the scene for this discussion, introduce various terminology used throughout this paper, and describe the backdrop of innovation that has seen publishers having to react to technological developments rather than driving the market themselves. Chapter 3 explores the technological obstacles to enhanced electronic books, illustrating how the many diverse, often proprietary means to create enhanced books pose challenges to the cost of production and discoverability. The focus on fictional content begins in earnest in Chapter 4, where the apparent conceptual contradiction between reading books and consuming multimedia in the same space is addressed. Two examples of enhanced works of fiction are evaluated as case studies in Chapter 5. Chapter 6 concludes the paper by proposing a basic model for enhanced fiction that seeks to reconcile the presence of a work of fictional text and supplementary multimedia elements in the same product, with the underlying assumption that they are best consumed in isolation.

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1 Paper Overview

1.1 Introduction

Apple's iPad tablet computer, launched in early 2010, for the first time enabled the consumption of digital text, multimedia, and web-based content on a single portable electronic device roughly the size of a hardback book. The iPad was quickly followed by a multitude of other tablet computers from a diverse range of manufacturers, all keen to tap into the market for devices that offered greater portability than laptop or netbook computers, and augmented displays compared to mobile smartphones. The tablet's arrival presented the publishing industry with both a challenge and an opportunity. Just a few years earlier, it had to adapt to the first major event of the digital revolution in reading – the rapid rise in popularity of dedicated handheld electronic readers, as exemplified by the success of Amazon's Kindle, released in 2007. At that point, the established business model of releasing only slightly differentiated products in hardback and paperback was already in danger (Horne, 2012, p. 8). Now, the industry had to immediately adjust to dealing with another means for the reading public to potentially consume its products, one that had moved from the realm of technological innovation to the heart of publishing "at astonishing speed" (Lichtenberg, 2011, p. 104).

One avenue that the publishing industry identified as having the ability to represent a product appropriate for the multi-functionality provided by the iPad and its competitors was the enhanced electronic book. This format, of supplementing text with multimedia content, was considered to be a new innovation and perceived by customers as being significantly different from existing electronic books; in turn, it was believed that they could command their own (higher) pricing model (Kirk, 2010, pp. 84, 92-93). Publishers, some more open to the concept than others, began to issue enhanced books across multiple genres, including education, lifestyle, general factual content, children's books, young-adult fiction, and adult fiction.

However, while there were early predictions that enhanced books would take off, the fact is that the market for them has been slow to gain momentum (James & de Kock, 2013, p. 108), with many of them losing money (Phillips, 2014, p. xiv). Despite the ability of tablet computers to offer this differentiated product, it is the plain 'vanilla' electronic book that has been the success story in digital reading (Phillips, 2014, p. 122).

The author Dave Wolverton, blogging under his pseudonym David Farland in 2011, wrote that he expected "enhanced books to become the dominant art form for novels in the next two years, replacing and outselling simple e-books on the bestseller lists, and even outselling hardbacks and paperbacks within a couple of years" (Wolverton, 2011). While the author was perhaps influenced by the possibilities provided by the genre in which he writes – science fiction and fantasy – the reality is that fiction has been arguably the least successful of any enhanced book output. A cursory perusal of the featured content in the 'Made for iBooks' section on Apple's iTunes store, which showcases its multimedia books, reveals titles relating to cookery, art, music, languages, games, and movie tie-ins; the only fictional books promoted in this section are in the children's genre. The closure of Atavist Books, a noted publisher of enhanced fiction, in Dec 2014, is informative, with a spokesperson quoted as saying "we have identified that the market for highly innovative enhanced full length literary e-books still heavily relies on a print component and has yet to emerge" (Publishers_Weekly, 2014). This suggests that the market for enhanced fiction is still in its infancy, with no certainty as to when, or if, it will reach maturity.

This paper is concerned with the obstacles to the success of enhanced books, with specific reference to traditional, linear narrative fiction. While some of the challenges to enhanced books are shared across genres, including technological and economic hurdles, the world of narrative fiction presents specific difficulties to the application of the enhanced model. The focus of this paper is therefore ultimately on reading for pleasure, and not, for example, reading for the purpose of learning associated with textbooks and children's books, or the browsing behaviour typical of reading on news sites.

1.2   Summary of Chapters

Chapter 2 of this paper focuses on the history and development of digital reading, including early enhanced books. In particular, it illustrates how the success of tablet computers and dedicated electronic readers reflects the importance that readers assign to the portable, ergonomic features associated with the traditional codex.

And yet, the general lack of success of enhanced books can be attributed, at least in part, to technological constraints. Chapter 3, in documenting the technology available and required of enhanced books, serves to highlight the primary technical and related economic challenges to their production, which are characterised by proprietary technologies and the absence of an adhered-to standard for e-books.

Technology-related issues are faced by the designers of enhanced books across all genres. The conceptual issues that specifically relate to enhanced fiction are the focus of Chapter 4. The key contradiction between the apparent deep reading required of narrative fiction and the immersive, multimedia environments inherent to interactive digital media, of which enhanced books are an instance, is evaluated.

Chapter 5 reviews two case studies of noted early enhanced fiction publications, with a view to identifying the characteristics and ordering of supplementary material that can potentially enrich the reader's experience, without interfering with the immersion associated with reading narrative fiction.

Chapter 6 concludes the paper by positing a model for enhanced fiction that is typified by supplementary multimedia as background material not intrinsic to the core story and the means and choice to consume that material put entirely in the hands of the reader. The reading demands of 'digital natives' are noted as being a potential factor in future developments in this field.

1.3 Definitions

It is essential to define some of the terminology that will be used throughout this paper. These definitions, unless otherwise specified, are my own and are ultimately for the purpose of differentiating products and technology. They may or may not conform to definitions in dictionaries or used by sources. If a source is quoted that uses some terminology where the implied understanding is different to my own, this is noted.

1.3.1 Electronic Book, E-book
The text and other media content of a book that are stored in digital format for the purpose of being read on a computer or electronic device of some sort.

1.3.2 Enhanced (Electronic) Book
An enhanced book is an electronic book that intentionally supplements text with multimedia, including, but not exclusive to, video, audio, animation, video game, and external content.

1.3.3 Enhanced Fiction

An enhanced book where the core text is traditional, linear narrative fiction. It is distinguished from interactive or hypertext fiction, where the reader can choose the direction of the narrative.

1.3.4 Electronic Book Reader, Electronic Reader, E-reader

A portable electronic device that has been specifically designed to store and display an e-book, with little or no additional or supplementary functionality unrelated to the consumption of the e-book. An e-reader is to be distinguished from other personal electronic devices that are capable of displaying electronic books, including general purpose personal computers, tablet computers and mobile smartphones.

1.3.5 Tablet Computer, Tablet

A multifunctional portable electronic device designed for the consumption of multimedia content that is invariably sourced online. Modern common features of tablet computers include high resolution colour touchscreen displays, cameras, Wi-Fi and Bluetooth connectivity, data storage capability, and pre-installed or downloadable software functionality in the form of 'apps'.

1.3.6 Book Reading App, Reading App

A pre-installed or downloadable program designed for the consumption of electronic books on tablet computers and mobile smartphones. A book reading app is generally platform specific and may only permit the consumption of content that has been produced on related, proprietary software, and from a dedicated online store.

1.3.7 Book as App

Books as apps are not to be confused with reading apps. A book as app is a standalone app that has been created solely for the publication and release of a single electronic book, invariably enhanced, on a tablet computer (and some mobile smartphones).

1.3.8 Hypertext, Hypermedia, Hyperlink

Hypertext and hypermedia are described as text and multimedia content respectively that contain references to other content that can be accessed instantly by a user, usually in the form of activating a hyperlink embedded in or attached to the content.

1.3.9 Codex

The form of a physical, paper book as we know it today, with stacked, bound pages and a cover made from a harder material than the paper.

1.3.10 Markup Language

Markup languages are used for the definition and presentation of text and other items to be displayed in a document. They are widely used in the formation of web pages and electronic books.

1.3.10.1 HTML

HTML is the main markup language used for the creation and display of web pages and electronic books. The latest standard, HTML5, facilitates the integration of multimedia functionality into documents.

1.3.10.2 XML

XML is a markup language that is used to describe data. Within electronic book containers – or folders – XML files are used to describe the contents of other files, often in HTML or XHTML format. XML files are also used to define DRM and encryption, if such are present.

1.3.10.3 XHTML

XHTML functions the same as HTML in the structure and display of electronic books, but adheres to the stricter syntax rules of XML. XHTML 1.0 is equivalent to HTML 4.0; XHTML5 is HTML5 using the syntax rules of XML.

1.3.11 Cascading Style Sheet (CSS)

Cascading Style Sheets are used to control the presentation of web pages and, by extension, certain electronic book formats. CSS3 is the latest iteration, with additional functionality for animation and image styling.

1.3.12 Reflowable Electronic Book

A reflowable e-book is an electronic book whose content to be displayed on screen is adapted depending on the size of the device. It is typically implemented by a combination of HTML and CSS.

1.3.13 Fixed-Layout Electronic Book

A fixed-layout e-book is an electronic book whose content to be displayed on screen is fixed for all devices. This format is adopted where the optimum consumption of certain content, invariably text and accompanying imagery, is deemed by authors or publishers to be on a complete, single page.

1.3.14 Digital Rights Management (DRM)

DRM, with reference to electronic books, is the means by which authors, publishers and retailers restrict the consumption of an e-book to the person who purchased it and to designated devices. Amazon and Apple use proprietary DRM systems; most other retailers use a version from Adobe.

2 Development of Electronic Books

2.1 Introduction

The history of the electronic book can be traced from its inception in print in 1945 to the many reading apps available for tablet computers in 2015. Obviously, this development tracks general advances in computing, particularly increases in processing speeds and developments in digital storage, which have enabled the creation of powerful portable personal electronic devices, such as laptop and tablet computers, mobile smartphones, and electronic e-readers. Two important points are noteworthy in this respect. Firstly, the role played by computer scientists and technology companies has been more significant than that of the publishing industry itself. This is not an isolated occurrence in the broader context of digital media and entertainment, where, for example, the music industry has been transformed by Apple. However, for the purpose of this paper, it is relevant to the technological and economic barriers to entry that currently exist for enhanced books, as major technology players compete to market their own proprietary technologies for e-books and the means by which they can be read. Secondly, the history of the electronic book could equally be described in terms of the history of electronic *reading*. The demands of the reading public for the portability and ergonomics associated with the traditional codex are a defining factor in e-books' current incarnation on e-readers and tablet computers. In the context of this paper, these developments serve as a backdrop to the question as to whether the convergence of portable multimedia functionality with traditional narrative fiction represents a feasible or desired product for the reader (this topic is discussed in Chapter 4).

Noteworthy in the history of e-books is that the arrival of the iPad did not herald that of the enhanced book. As is discussed in Section 2.5, The Voyager Company, perhaps the most noted publisher of enhanced books in the late 1980s and early 1990s, released a range of titles on floppy disk and CD-ROM. Despite becoming defunct in 1997, the history of The Voyager Company is nevertheless informative in evaluating some of the challenges posed to enhanced books today.

2.2 Developments in Computer Science and Technology

This section illustrates how early developments in computer science and related technologies influenced the development of electronic books. The model for the structure, storage and distribution of the majority of contemporary e-books is comprised of markup languages, hypertext, and the Internet – just like the World Wide Web.

2.2.1 The Memex

Many sources highlight American scientist Vannevar Bush's *memex* as the earliest articulation of an electronic reader. In his essay "As We May Think", published in 1945, Bush envisaged the *memex* as being "a device in which an individual stores all his books, records, and communications, and which is mechanized so that it may be consulted with exceeding speed and flexibility. It is an enlarged intimate supplement to his memory … On the top are translucent screens, on which material can be projected for convenient reading" (Bush, 1945). While envisaged to be the size of a desk, and based on projecting text held on microfilm, Bush described many functions that are ubiquitous in modern e-readers and book applications, including pages, mechanised page turners, the ability for the reader to annotate to the text, means to link documents to each other, and sufficient storage for multiple texts (Gardner & Musto, 2014, p. 271). While the memex was never built, it inspired the development of portable computer technologies in the late 1960s and early 1970s (Manley & Holley, 2012, p. 294).

2.2.2 Hypertext and Hypermedia

The concept of hypertext – in its simplest form as described in Section 1.3.8 – is a key foundation of modern computing, the World Wide Web, and multimedia, including electronic literature. The principal feature of an e-book, enhanced or otherwise, is hyperlinking (Gardner & Musto, 2014, p. 277). While the literature draws attention to the short story *The Garden of Forking Paths*, published in 1941 by Argentinian author Jose Luis Borges, as an early inspiration for hypertext ideas (Montfort, 2003, p. 29), it was the American scientist Ted Nelson who invented the term hypertext in 1963 and first published its description in 1965. It was a component of Nelson's concept of a non-hierarchical electronic filing system, the *Evolutionary List File* (ELF), intended to be an aid to "personal filing and manuscript assembly" (Nelson, 2003, p. 137). *Links* connected hypertext *entries* within the ELF, enabling them to be *cross-sequenced* with each other (Nelson, 2003, pp. 138-139). The "chunk style" hypertext, as used in the World Wide Web, was only a portion of Nelson's concept (Wardrip-Fruin, 2003, p. 133). Sources also make reference to the work of Douglas Engelbart in the 1960s, and in particular to his so-called "mother of all demos" in 1968, a showcase for the work that Engelbart and

others were doing at their Augmentation Research Center (ARC) (Wardrip-Fruin, 2003). Among the innovations that were demonstrated was a means to select a digital file by pointing "to any character in the statement, using the mouse" (Engelbart & English, 2003, pp. 234-237). The work of Nelson, Engelbart, and others inspired further hypertext and hypermedia projects through the 1970s and 1980s (Gardner & Musto, 2014, p. 273). These led to two important junctures in the history of the electronic book: the HyperCard software application, released in 1987 by Apple (see Section 2.5), and, of course, the World Wide Web in 1991 (see Section 2.2.4).

2.2.3 Project Gutenberg

The model of an online repository for e-books, as introduced by Michael Hart when he began Project Gutenberg in 1971, defines the current means for e-book distribution, albeit with a different commercial slant. Founded by Hart at the University of Illinois, Project Gutenberg is notable for being the world's first digital library. Hart began manually entering and digitising documents, using the American Standard Code for Information Interchange (ASCII), on a networked Xerox Sigma V mainframe computer at the institution's Materials Research Lab, the first document being the United States Declaration of Independence (Manley & Holley, 2012, p. 296). This document was then made available for download by other users on the computer's network. As of October 2014, there were over 140,000 free e-books available on Project Gutenberg and via its partners and affiliates (Project_Gutenberg, 2014).

2.2.4 The World Wide Web

When Tim Berners-Lee married hypertext concepts and markup languages to invent the World Wide Web and HTML in 1991, he provided the model for the composition of the majority of electronic book formats. Hypertext and hypermedia, implemented through clickable hyperlinks, are the primary means of navigating to and from content and functional controls on e-books; HTML (various iterations), together with XML, are the principal methods for the display and structure of the content (see Chapter 3). But, while web-based technologies allow for the meaningful display of e-books on small screens, and the Internet the means by which they can be stored and sourced, it is important to note that the World Wide Web did not in itself lead to a sea-change in the consumption of electronic books (unlike other text-based media such as newspapers and reference material). Traditional web browsers on personal computer screens were not considered by the reading public as the optimum means of consuming books, particularly literature (Cline, 2012, pp. 2-3). This topic is discussed further in Section 2.4.

2.3 Developments in Publishing and Personal Computing

Technological developments in publishing and home computing illustrate how writing on computer screens was adopted more rapidly than reading on them. The publishing and printing of digital files into books has been routine since the 1980s, yet it took more than twenty years for the reading of digital books to become commonplace.

2.3.1 Electronic Publishing and Word Processing

While electronic processes had been used to produce printed books since the 1960s (Maxwell, 2013, p. 29), it was the home computer revolution in the early 1980s that opened the floodgates for electronic written content. Word processing applications allowed for anyone to create digital text for publishing or printing. Later, beginning with PageMaker (1985) for the Apple Mac, desktop publishing software began to provide a more convenient and inexpensive means for publishers to implement document typesetting and design. By the mid-1990s, publishers were widely using desktop publishing software as a means to decrease the costs associated with traditional typesetting (Gardner & Musto, 2014, p. 271). Computers had thus ensured that writing on screen became popular as it enabled the easy correction and formatting of text (Vandendorpe, 2013, p. 204). And yet the final output remained physical printed documents. Using electronic text files as a means of printing did not initiate a revolution in reading on screen (Gardner & Musto, 2014, p. 271).

2.3.2 Portable Document Format

One such electronic file type that continues to be used in electronic books is the Portable Document Format (PDF). Developed in 1992, it is designed to preserve the exact layout of text and graphics on documents to be printed or shared, regardless of platform or software (Adobe_Acrobat, 2015). The format has been enhanced over time to integrate multimedia elements as well as linking capabilities (Gardner & Musto, 2014, p. 278).

2.4 Digital Revolution in Reading

The digital revolution in the publishing of e-books is defined by changes in the habits of readers, specifically the rise in popularity of portable handheld reading devices for the consumption of books across all genres. That this is a revolution is perhaps overstating the point; this section illustrates how the success of these devices – be they dedicated e-readers or tablet computers – is related to their replication of the experience of reading on the

traditional codex. This section also shows how large technology firms were the ones to drive recent changes in the market, not established publishers.

2.4.1 Electronic Readers

From 1998, dedicated handheld electronic readers began to arrive on the market. Some notable examples included the SoftBook Reader (1998), the Rocket eBook Reader (1998), and the EveryBook (1999) (Manley & Holley, 2012, pp. 299-301). All of these devices attempted to offer the portable quality associated with the codex, but none were very successful. Their failure has been attributed to issues relating to the small numbers of electronic books available to each device, poor screen quality, prohibitive costs, and the inability to share titles (Manley & Holley, 2012, p. 303). When Sony launched its PRS-500 e-reader in 2006, many of those issues were thought to have been addressed; importantly, the device provided access to the Sony store with 10,000 titles and utilised E Ink technology on its screen (Manley & Holley, 2012, p. 303). E Ink in particular, a proprietary "electronic paper", where the display reflects light like a book instead of emitting it like an LCD, enabled the device to be read in bright sunlight and reduced the eye strain associated with back-lit LCD screens (Maxwell, 2013, p. 33). Subsequent devices, including Amazon's Kindle, released in 2007, and products from Barnes and Noble and Kobo, have all used E Ink displays (E_Ink_Corporation, 2015). Amazon's Kindle quickly became the market leader after its release, fuelled by the unparalleled access to electronic books that it provided (Maxwell, 2013, pp. 34-35). Multiple versions of the Kindle have since reflected consumer demand for touchscreens and increased portability, while Amazon's persistence with developing and retaining market differentiating proprietary file formats compared to its competitors continues to pose an obstacle to file standardisation, reflecting the electronic book market in general.

2.4.2 Tablet Computer Apps

Whilst dedicated electronic readers tended to mimic the page via black and white screens and E-Ink technology, tablet computers were developed with colour, LCD screens, web browsing capabilities, and processors and memory capable of running multimedia content. With the launch of the iPad in early 2010, two methods were presented for the consumption of electronic books on them – book reading apps and books as apps. Figures cited from the Book Industry Study Group suggest that the popularity of dedicated e-readers is waning in favour of reading on tablets (Kowalczyk, 2013), with industry figures suggesting that multi-functionality is becoming more important to buyers than E Ink (Carter, 2014). Apple is taking advantage of this trend by including its reading app iBooks as a standard, pre-installed app with its iOS 8 mobile operating system.

2.4.3 Competition and Market Segregation

The development of tablet computers has been defined by the competitive rivalry between large technology and e-commerce firms, including Amazon, Apple and Google. Competing proprietary platforms, software and e-book file formats are features of the current electronic book market, as the major players seek competitive advantage in a lucrative business. The inherent incompatibility among many of these technologies has necessitated that both book reading apps and books as apps must be developed multiple times in order reach the widest possible audience. While this may not cause an issue for a major player such as Amazon to release multiple versions of its Kindle book reader app, it does for small publishers. The implications of this are explored in Chapter 3.

2.5 The Voyager Company

To consider the history of The Voyager Company serves to illustrate that the challenges posed to enhanced books are not specific to the medium of the tablet computer.

The Voyager Company was a pioneer of enhanced electronic books, issuing them on diskette and CD-ROM between the late 1980s and the mid-1990s. Along with core text, the productions contained supplementary multimedia, including audio recordings and narration, images, animation and video clips. Samples of a selection of The Voyager Company's output can be found at one of its founders, Bob Stein's, account on video sharing site Vimeo (Stein, 2011). Many of their enhanced books belonged to factual and informational genres, including *CD Companions* to celebrated classical music compositions such as *Beethoven's Ninth Symphony* and *Stravinsky's Rite of Spring*, scientific publications like *Stephen Jay Gould on Evolution* and *For All Mankind*, about the Apollo space missions (Stein, 2011). The Voyager Company also released enhanced versions of literary classics, such as *Macbeth* (Stein, 2011).

In 1992, the company also began to sell software, i.e. the Expanded Books Toolkit, which enabled non-publishers to make electronic books. Titles released through this medium included *Jurassic Park* and *The Complete Hitchhikers Guide to the Galaxy* (Institute_for_the_Future_of_the_Book, 2008)[1].

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[1] Note that The Institute for the Future of the Book lists Bob Stein as a founding member, hence the use of the site as a source in this section.

Most of the products issued by Voyager were created using HyperCard (Martin, n.d.), released by Apple in 1987 as a free software application with their Macintosh desktop computer. HyperCard was one of the earliest hypermedia systems and allowed non-computer programmers to create their own multimedia content and accompanying user interface.

The Voyager Company became defunct in 1997, preceded by a decline in the popularity of e-books on CD-ROMs from the mid-1990s (Gardner & Musto, 2014, p. 274). Commentators also note how The Voyager Company's titles were only available on Apple Mac (as a result of them being HyperCard creations) (Ahlén, 2011), while Stein himself is quoted as saying that "the desktop is not a conducive environment for using the rich titles that Voyager is known for producing" (Martin, n.d.).

2.6 Conclusion

As demonstrated in this chapter, the development of the electronic book is best understood in the context of both its origins in the technology of the World Wide Web and the demands of the reading public for access to large libraries of e-books and portable, ergonomic devices on which to consume them.

In addition, the pioneering productions of The Voyager Company are regarded as having "substantial historical significance" and being the "natural ancestors" to modern electronic books (Brown, 2012, pp. 4-6).

3   Technical Considerations for Enhanced E-books

3.1   Introduction

This chapter illustrates some of the technological and associated obstacles to the creation and distribution of enhanced electronic books in general (many of which also apply to 'vanilla' e-books). By documenting the diverse platforms, development requirements, and DRM mechanisms utilised by the major players in this field, the issues relating to product discoverability and development costs are revealed. If an author or publisher wishes to target the largest possible market for their enhanced product, then multiple releases across different platforms are required.

The additional costs associated with the creation of supplemental multimedia content for an enhanced e-book are taken for granted in this chapter. In addition, this chapter does not make reference to any potential means of consuming or creating published material that may infringe copyright, sidestep DRM, or break an electronic book store's or publisher's terms of service.

3.2   EPUB Files

EPUB is the official standard for electronic books of the International Digital Publishing Forum (IDPF), which aims to "promote industry-wide adoption of electronic publishing through standards development" and to "develop, publish, and maintain common standards (e.g. EPUB) relating to electronic publications and promote the successful adoption of these specifications" (IDPF_About, 2015).

3.2.1   EPUB Overview

An EPUB file comprises of a zipped container file that includes XML and HTML / XHTML documents, together with CSS, media and font files. The current EPUB standard is EPUB 3.0.1, which was adopted by the IDPF in June 2014 (IDPF_EPUB3, 2015). The EPUB 3 standard primarily differs from its EPUB 2 predecessor in its ability to utilise multimedia (via HTML5 / XHTML5) and JavaScript; in addition, it facilitates both reflowable and fixed layout books (IDPF_EPUB3_Changes, 2011), (Buse, 2014, pp. 171-196).

3.2.2 Creating EPUB 3 Files

Just like a website, an EPUB 3 file can be created by anyone with knowledge of the relevant IDPF standards, markup languages, CSS3, and JavaScript, using a simple source code editor such as Notepad++. Alternatively, dedicated e-book software, such as Jutoh (Jutoh, n.d.) or Playwrite for Mac (Apple_Playwrite, 2015), or premium desktop publishing software such as Adobe InDesign (Adobe_InDesign, 2014), can export content into EPUB 3 format. However, as EPUB 3 is a relatively new standard, some open source applications such as Sigil (Sigil, n.d.) or the web-based PressBooks (PressBooks, 2015), for example, have yet to offer full EPUB 3 support. Publishing houses may use their own tools to create EPUB files, or outsource to dedicated e-book creators, while Kobo and Barnes & Noble will convert copy from self-published authors.

3.2.3 EPUB 3 Availability

To evaluate the extent by which an EPUB 3 file can be consumed across devices and platforms is indicative of the broader material issues facing enhanced books. At the time of writing, as expected, the majority of dedicated electronic readers do not support the new multimedia and interactive functions that come with EPUB 3 (BISG, 2015), the most notable exception perhaps being the Kobo Glo HD (Kobo, 2015). The support for EPUB 3 features among dedicated book apps for tablet computers and desktop software is, not surprisingly, greater (BISG, 2015). More important, however, is the fact that two of the main players in the electronic book market have restrictions in place on the format of the files that can be sold in their stores and read on their devices. Both Amazon's Kindle store and Apple's iBooks store require enhanced electronic books to be produced in a proprietary format before they can be sold there (see Sections 3.3 and 3.4). This necessitates the additional overhead of having to convert EPUB 3 files into other format(s), and with diverse DRM, to reach a larger potential market. Also, the full functionality of EPUB 3 is not uniformly accepted across platforms, meaning that simple conversion of EPUB 3 will not necessarily translate to an equivalent enhanced book on a proprietary platform. DRM constraints, outside of Amazon and Apple, may also limit the consumption of an EPUB 3 file to a specific device connected to the online store where it was purchased.

3.3   Amazon Kindle Formats

Amazon Kindle e-readers and Kindle Fire tablet computers use proprietary e-book file formats. They are used essentially as a means to maintain a competitive advantage over their rivals (McIlroy, 2012).

3.3.1   Kindle Overview

Like EPUB, these formats have evolved in recent years to allow for the embedding of multimedia functionality. Kindle Format 8 (KF8), also known as AZW3, supports HTML5 / XHTML5, CSS3, and allows for embedded audio and video; it also supports fixed-layout books (Amazon_Kindle, 2015). Importantly, however, scripting and JavaScript are not supported in KF8, signifying a potential compatibility issue with enhanced content created in EPUB 3.

3.3.2   Creating KF8 Files

Perhaps in recognition of the myriad of electronic book formats, Amazon provides several options for the creation of files compatible for use on its devices and software. Amazon's KindleGen product, a command line tool, can be used to convert EPUB 3 files, or even a standalone HTML file, into the KF8 format (Amazon_Kindle, 2015). In addition, Amazon supports a plug-in for Adobe InDesign, which can export content into Kindle files (Amazon_Kindle, 2015).

3.3.3   Kindle Format Availability

All e-books formatted in AZW or KF8 can only be read on Amazon Kindle devices or Amazon reading software, i.e. the Kindle app, for tablets and PCs. And, as stated in Section 3.2.3, Amazon Kindle devices and apps only recognise these proprietary Amazon formats. Specifically relating to KF8, such file formats can be viewed on all Kindle Fire tablets and later generation Kindle e-readers; however, the latter, and also the first generation Kindle Fire, do not play any audio or video content that may be in those files (Amazon_Kindle, 2015) (Amazon_Audio_Video, 2015).

3.4 Apple iBooks

Apple iBooks is a reading app that is only available for use on iOS and Mac devices.

3.4.1 iBooks Overview

iBooks is primarily intended for content downloaded from the iBooks Store, which is in an EPUB format that includes Apple's DRM. In addition, iBooks applications on some devices can support e-books created in iBooks Author, which are in a proprietary 'ibooks' format (see Section 3.4.2). These are enhanced books – which Apple calls Multi-Touch books – and can contain interactive multimedia content such as image galleries, video, interactive diagrams and 3D objects (Apple_iBooks_Author, 2015).

3.4.2 Creating iBooks Files

iBooks Author was launched by Apple in 2012 and is available free for the Apple Mac. It is used to create Multi-Touch books. While limited to Mac users, iBooks Author is clearly intended for self-publishers: little or no programming skills are required, with most of the functionality of iBooks Author based on 'drag and drop' (Apple_iBooks_Author, 2015). It can also be used to import EPUB 3 e-books, assuming there is no DRM attached to the files (Apple_iBooks_Author, 2015).

3.4.3 iBooks File Availability

Books purchased in the iBooks Store contain Apple's proprietary Fair Play DRM and can only be read within the iBooks app. In addition, while the app allows for the import and reading of external EPUB and PDF e-books, these files must be DRM-free (Apple_iBooks, 2015). Multi-Touch books that are created in iBooks Author can only be sold in that format on the iBooks store. While Apple does allow for e-books created by iBooks Author to be distributed outside of the iBooks Store, a fee can only be charged for such books if they are in PDF or text format, not in 'ibooks' (Apple_iBooks_Author, 2015). However, Apple does not guarantee that all interactive or multimedia functionality will work outside of iBooks. Furthermore, even within the iOS platform there are restrictions on the availability of enhanced e-books: Multi-Touch content created in iBooks Author cannot be read on iPhones or iPods (Apple_iBooks, 2015).

3.5 Portable Document Format (PDF)

The ubiquitous PDF file is primarily used for fixed-width e-books, which may cause issues with devices and apps designed for reflowable content.

3.5.1 PDF Overview

The latest incarnation of PDF incorporates the ability to embed interactive controls and multimedia functionality, making it an option for the creation of enhanced e-books.

3.5.2 Creating PDF Files

E-books with the latest interactive PDF functionality can be created by using Adobe InDesign (Adobe_InDesign, 2014).

3.5.3 PDF Availability

Most personal and tablet computers contain software that can read PDF files, as do many dedicated e-readers, but the full suite of new interactive features may not be supported (DigitalPublishing101, n.d.). Of equal significance may be the discoverability of PDF e-books in the main e-books stores. The iBooks Store does not accept books in PDF format (Apple_Working_with_iTunes, 2015). Neither does the Amazon Kindle Store, although its Kindle Direct Publishing (KDP) arm does provide a conversion process (while flagging the possibility of formatting and conversion issues) (Amazon_KDP, 2015).

3.6 Books as Apps

This section is concerned with native app development for mobile platforms, using the development environments and programming languages specific to the platform.

3.6.1 Books as Apps Overview

Books as apps seek to utilise the full power of mobile device hardware to generate interactive and multimedia content; they only make sense for an enhanced book, it being far easier to create simple text content via a standard e-book. In addition, native books as apps allow for a different commercial model, with the potential to implement in-app purchases for serialised or staggered content.

3.6.2   Developing Books as Apps

The creation of a native book as an app requires access to programming development skills related to the platform being developed on. To develop on iOS for iPad, iPhone and iPod, requires an Apple Mac and knowledge of the Xcode integrated development environment (IDE) and Objective C (Apple_Developer, 2015). For devices running Google's Android software, a different skillset must be in place, namely Java Development Kit and the Android SDK (Android_Developers, n.d.). Apps for Amazon's Kindle Fire use the same tools as for Android devices. For Windows mobile apps, developers require the Windows Mobile SDK, using the Visual Studio IDE (Microsoft_Windows_Dev_Center, 2014). For those without the knowledge or means to engage a developer, some software applications contain plug-ins that can output an e-book into an app. The most notable example is Adobe InDesign, which, coupled with Adobe Desktop Publishing Suite (DPS) or a third party plug-in, can create apps for tablet computers and mobile phones and upload them directly to an app store (AdobeDigitalPub, 2012).

3.6.3   Availability of Books as Apps

To read or consume a book as app requires access to a tablet computer or smartphone device, running a proprietary operating system that has access to a proprietary app store or marketplace where the book as app is available for download. Inherent in this is that books as apps can only be read on designated devices connected to the relevant stores. If the book as app, for example, is not available on iTunes, it cannot be read on an iPad or iPhone. The implication is, of course, that multiple developments are potentially required to reach the full tablet computer / smartphone market, with associated costs of production. In addition, there is the issue of discoverability of books in app stores where, with the hundreds of thousands of other apps of diverse content, and limited accessibility from web searches, discovery is challenging (Phillips, 2014, p. 78).

3.7   Books as Web Apps

Web apps are simply websites that use CSS3 functionality, including 'media queries', to scale the content appropriately to the display.

3.7.1   Books as Web Apps Overview

The full functionality of HTML5, CSS3 and scripting can be used to implement an electronic book as web app, complete with interactive multimedia, which is accessible by any device with

an internet browser. As with websites in general, acceptance issues of HTML5 with older browsers are a potential issue. An example of a web app is Kindle Cloud, which displays books on tablets and desktop computers without the need for any software other than a web browser; a single page is displayed, with no scrolling, on the iPad, while two open pages are displayed when the website is accessed from a laptop or PC. Kindle Cloud is not compatible with iPhones. Alternatively, the web app can be compiled using Apache Cordova / Phonegap software into a mobile app for installation on iOS or Android devices (note that web apps converted in this manner are distinguished from native apps as described in Section 3.6).

3.7.2   Developing Books as Web Apps

Anyone with up-to-date web development skills can create enhanced books as web apps. Knowledge of Cordova / Phonegap applications is required if the web app is to be converted to a mobile app. The similarities with creating an enhanced e-book using an open standard such as EPUB 3 are evident, except that books as web apps may provide greater access to the hardware of the device if compiled into a mobile app.

3.7.3   Availability of Books as Web Apps

While web apps can provide a fully enhanced electronic book, discoverability outside an established online store may be problematic. Web apps compiled as mobile apps can be distributed through iTunes and Google Play, although, again, issues with finding e-books in the app stores apply.

3.8   Conclusion

This chapter illustrates the technological and associated challenges posed for enhanced e-books. With reference to e-books for tablet computers, these challenges can be summarised as:

a) The need to create multiple file formats for a product to be made available across the primary platforms and online stores.

b) The diverse compatibility with multimedia and interactive functionality on those platforms, resulting in the potential for either differentiated or lowest-common-denominator products.

For books as apps, which potentially offer the most homogeneous end product across platforms, the primary issues relate to cost and discoverability. The potential is noted for web

apps, which require primarily web authoring skills, and Adobe InDesign, to address issues associated with production costs, given that specific knowledge of multiple platforms is not required to implement a book as app on those platforms.

4   Conceptual Concerns with Enhanced Fiction

4.1   Introduction

An enhanced electronic work of fiction is both a form of literature and an instance of interactive digital media. It seeks to provide the reader with additional supplemental material to the text, generally in the form of interactive multimedia, which its author and / or publisher believes constitutes a value-added product. Supplemental material in enhanced fiction can take several forms: it can be factual, such as background information on the author, the history and setting for the story, or fictional content directly relating to the fictional world of the story. Two early examples of enhanced works of fiction are considered as case studies in Chapter 5.

The key questions with respect to the design of the content of enhanced fiction are whether it is appropriate to supplement the fictional text with multimedia, and, if so, what type of content is fitting and how should it be made available to the reader. To answer these questions it is necessary to evaluate both the nature of reading typically associated with fictional writings and the design considerations required of an interactive digital medium. The case studies in Chapter 5 illustrate the application of diverse supplementary content.

Section 4.2 describes different types of reading behaviours. Section 4.3 defines the nature of immersive reading associated with narrative fiction. Digital media, and some of the core concepts underpinning it – interactivity and interactive narrative, agency and immersion – are described in Sections 4.4, 4.5, and 4.6. Next, the challenges and apparent contradictions of reading narrative fiction in a multimedia environment are discussed in Section 4.7, while Section 4.8 describes how some theorists consider how those challenges can be overcome.

Throughout this chapter, the views of noted authorities in the fields of digital media and interactive design are discussed, compared and evaluated critically. In some cases, they will contribute to definitions used within this paper.

4.2   Types of Reading

The reading of texts forms a major part of our daily engagement with the internet and cyberspace in general (Gervais, 2013, p. 186), but the type of reading differs depending on the intent of the reader and the nature of the content. Three distinct categories of reading can

be identified (Heyer, 1986), which are useful as guidelines in describing reader behaviour in consuming diverse types of text (Vandendorpe, 2013, p. 205).

4.2.1 Browsing

Browsing is associated with scanning text to find an article or other content of interest. The reader may not have a particular topic or goal in mind. Browsing behaviour is common to newspapers and news sites, coffee table books, and magazines.

4.2.2 Hunting

Hunting behaviour is present when the reader is seeking out specific information, where a goal or a topic is generally known. This is typically associated with using internet search engines or consulting reference material.

4.2.3 Grazing

Also known as continuous reading, grazing is typically the type of behaviour associated with the reading of novels (Vandendorpe, 2013, p. 205). It is this category that frames the issues that are discussed in this chapter. As continuous reading depends on the reader's ability to consume a comparatively large piece of text (Vandendorpe, 2013, p. 214), the manner in which the reader is facilitated to do this is a key consideration for fictional works.

4.3 Immersive Reading of Fiction

Marie-Laure Ryan describes fiction as being the product of an act of make-believe that requires readers to transport themselves from the real world to that of the text for the duration of their involvement in the story (Ryan, 2013, p. 251). This transportation into the world created by the author is facilitated by immersive reading. In classical fiction, readers are passive witnesses to events, and not in control of any part of the narrative (Ryan, 2013, p. 254). Engagement in the story on the part of the reader therefore requires imagination. Immersion occurs in the readers' minds as they participate and lose themselves in the story. This is assisted by an absorbing plot and rich, detailed descriptions of the characters and the environment in which they exist (Ryan, 1999, pp. 116-118). Anne Mangen describes this as phenomenological immersion, which is "largely the product of our own mental, cognitive abilities to create that fictive … world from the symbolic representations – the text" (Mangen, 2008, p. 406).

Ryan argues that none of this is possible without concentration on the part of the reader. Concentration that is required to convert the writing on the paper or screen into imaginary senses on the part of the reader (Ryan, 1999, p. 133). Implicit in this is that the words on the page or screen, coupled with the imagination and concentration of the reader, are not just sufficient, but optimal, for the consumption of narrative fiction.

4.4   Digital Media

An enhanced book is a form of digital media. To define enhanced books is to acknowledge the key concepts that underlie digital media in general and the choices that are made for their design and implementation.

4.4.1   Defining a Digital Medium

Lev Manovich, in describing the concept of 'new media', here to be assumed as essentially meaning the same as digital media, frames it in the context of a convergence of computing and media technologies that began in the 19th century and culminated with the ability to convert or generate all media as numerical, computational data, with the computer becoming the media processor (Manovich, 2001, pp. 20-26). One of Manovich's key principles of new media is their 'numerical representation', the fact that they are comprised of digital code (Manovich, 2001, pp. 27-30). Ryan echoes Manovich when she states that digital media has the property of being algorithmic, i.e., operated by computer code (Ryan, 2013, p. 251). Janet Murray highlights the creative intent of digital media designers in the utilisation of computer hardware and software when stating that a digital medium "is the medium that is created by exploiting the representational power of the computer" (Murray, 2012, p. 8). Other properties that Ryan identifies in digital media are networking (through nodes and hyperlinks), multisensory dimensions (as provided most notably by certain games and multimedia), and interactivity (Ryan, 2013, p. 258).

Enhanced books are thus forms of digital media as they are comprised of digital data (text and multimedia), have been intentionally designed by authors or publishers for consumption on a computing device, use hyperlink technology to navigate the content, engage multiple senses through the use of multimedia, and contain interactive controls. It is the latter that defines the design of most digital media, with the journey that the user takes in his / her consumption of the content, the 'interactive narrative', critical to the efficacy of the medium as a whole.

4.4.2 Interactive Narrative

In the case of enhanced books, the interactive narrative refers to the means by which the reader is able to consume both the core text and any supplementary multimedia, as well as defining the scope and content of that material. In essence, it reflects how the design of the reader's experience has been implemented. For the purpose of this paper, interactive narrative is not to be confused with any ability on the part of the reader to control a character or effect the outcome of the story (common to games and hypertext fiction).

4.5 Interactivity and Agency

Interactive narratives are defined by the affordance to users of an element of control as to how the content of the digital medium can be consumed, together with outlets for the exercise of that control. In defining interactivity, in the context of virtual reality (VR) but applicable to digital media in general, Ryan describes it as being the power of the user to navigate and modify the environment in which he / she is engaging (Ryan, 1999, p. 121).

4.5.1 Interactivity as a Conversation

Manovich states that labelling digital media as specifically interactive is not warranted, because so-called 'old media', such as film and paintings, can themselves be interactive. Manovich argues that, by requiring viewers to think, and in turn generating an emotional or intellectual response in the viewer, films and art necessarily interact with the viewer (Manovich, 2001, pp. 55-57). Manovich might opine the same of fictional reading, as it too can stimulate a response in the reader. For the purpose of this paper, however, it is preferable to consider interactivity in primarily functional terms, a position that is supported by theorists in this field.

Chris Crawford's framework within which control is afforded to the user is in the form of a 'conversation': "a cyclic process between two or more active agents in which each agent alternately listens, thinks, and speaks – a conversation of sorts" (Crawford, 2013, p. 28). In the context of digital media, the human user of the digital medium is one agent, the computing device controlling the digital medium is the metaphorical other. Implicit is that the interactive process is at least two-way between a user and the computing device. Murray complements Crawford's notion of interactivity as a conversation by defining it as "the structures by which we script computers with behaviours that accommodate and respond to the actions of human beings" (Murray, 2012, p. 12). Therefore, the intentional physical interaction with the content, text or otherwise, is not to be confused with reader reaction to the content.

4.5.2 User Agency

If interactivity is essentially the means by which the functional power to exercise control over a digital medium is afforded to the user, agency can be described as a measure of that control. Agency concerns the quality of interactions available to the user, including their effectiveness. For Murray, the key theorist on this topic, agency is "the satisfying power to take meaningful action and see the results of our decisions and choices" (Murray, 1997, p. 126), later describing it as arising from the "matching of the interactor's participatory expectations and actions to the procedural scriptings of the machine" (Murray, 2012, p. 12), "of making something happen in a dynamically responsive world" (Murray, 2012, p. 100). Michael Mateas, in speaking of games, defines agency as the "feeling of empowerment that comes from being able to take actions in the world whose effects relate to the player's intention" (Mateas, 2001, p. 142), a definition that can be applied across interactive narratives. According to Murray, "the appropriate design goal for interactive environments is not the degree of interactivity, but whether or not the system creates the satisfactory system of agency for the interactor" (Murray, 2012, p. 12).

The issue with respect to designing for user agency within an enhanced fiction interactive narrative is how best to marry the expectation for a level of control over the consumption of the digital medium, as the desire for agency in a digital environment can make users impatient when the options are limited (Murray, 1997, p. 132), with the need to retain the integrity of the story from beginning to end. This is explored further in Section 4.7, but first requires an exploration of the meaning of immersion within a digital medium to put it in full context.

4.6 Immersion in Digital Media

Immersion is often described when referring to video games, but is applied to digital media and interactive narratives in general. It concerns the capacity of the digital medium to provide a setting that will captivate the user, one that is both interesting and sufficient for the purposes of supporting the intended interactive narrative. Murray states that, while there is a widespread sense that digital media are immersive, there is little consensus on what the term actually means (Murray, 2012, p. 101). However, as Murray is regarded as the renowned theorist in this field, this section will focus on her description of immersion.

Immersion is "the sensation of being surrounded by a completely other reality … that takes over all of our attention, our whole perceptual apparatus" (Murray, 1997, p. 98). Referencing

Murray, Mateas relates immersion in digital media to the experience of "being present in another place and engaged in the action therein" (Mateas, 2001, p. 142). If immersion is to be present, the setting for the interactive narrative must feel "expansive, detailed and complete", which is facilitated by the "encyclopaedic and spatial affordances" of the digital medium (Murray, 2012, p. 102). By encyclopaedic and spatial affordances, Murray specifically speaks of the functionality supplied by computers: the navigable interface that enables the user to explore the medium and the data (or content) available to be explored (Murray, 2012, pp. 51-85).

User agency and immersion are mutually reinforcing (Murray, 2012, p. 102). The ability to control the consumption of the digital medium to some degree is negated if the content available to the user is uninteresting or insufficient.

The concept of immersion in digital media signals one of the greatest difficulties with respect to enhanced fiction. By this account, immersion can be created by providing the user with the content typical of multimedia. And yet, as illustrated in Section 4.3, the immersion of narrative fiction is associated with the continuous reading of text. Key to this chapter is whether those notions can be reconciled.

4.7   The Paradox of Enhanced Fiction

An enhanced work of fiction is a form of digital media, and yet some of the key underpinnings of digital media appear to either contradict or impact on its core element – the reading of narrative fiction as it has traditionally been understood. This section explores these issues further, including opinions as to their possible redress.

4.7.1   Agency versus Narrative

Murray states that "we do not usually expect to experience agency within a narrative environment" (Murray, 1997, p. 126). This point is critical to the evaluation of enhanced fiction: if the agency experienced by a consumer of digital media reflects a high level of control over how the contents of the media can be consumed, this potentially creates a conflict with the story as it is intended to be read by the content's creator, the author, where the level of interaction can detract from, or even compromise, the story. How the interactive narrative of a work of enhanced fiction retains the integrity of the story whilst balancing the demands for control by the user is a key issue facing the medium's designers.

Mateas's attempts to address this issue can be applied to enhanced fiction. Speaking about games, but the concept can be applied to enhanced books, Mateas proposes that any agency afforded to a user is best designed within the constraints of Aristotle's poetics model (Mateas, 2001, pp. 143-145). In summary, the neo-Aristotelian narrative structure places the story and plot, or 'action', above all other elements of the narrative, including 'character', with all elements constrained by the formal causation of the plot (Mateas, 2001, p. 144). In a digital media environment, the core narrative is the 'action', while 'character' represents the user. The user's agency, his / her ability to control the consumption of the media content, is framed within the strict confines of the story being told (Mateas, 2001, pp. 145-146).

In applying this model to an enhanced work of fiction, the narrative of the fictional story equates to Aristotle's 'action' and the reader to the 'character'. The core work of fiction is paramount; interactive controls must not interfere with the integrity of the story.

Some conclusions that can be taken from applying Mateas's model to the design of an interactive narrative for enhanced fiction might include:
a) The core story of the fictional work should remain intact.
b) Any additional material must supplement the story, not contradict or change it.
c) Interactive controls should focus on the means to read the story, as it is primary.
d) The consumption of the fictional narrative must be placed front and centre for the user.

4.7.2 Immersive Reading versus Immersive Media

If the continuous reading of fiction, of absorbing oneself in the story, requires concentration, as Ryan states, then this implies that distractions are to be avoided. Yet many commentators highlight the distractive nature of hypertext / hypermedia content. Enhanced e-books are defined by their hyperlinking functionality and multimedia. For Bertrand Gervais, these factors impact on the linearity required to tell a story, with accompanying imagery in particular making it more difficult to read text (Gervais, 2013, pp. 194-197). Echoing Gervais, Christian Vandendorpe argues that books are collections of pages to be read as a whole in a continuous manner, and that the mixing of text and other media can provoke a different reading behaviour in the user, namely browsing (Vandendorpe, 2013, p. 210). Ryan, when speaking of hypertext fiction, states that the constant need to make decisions is a barrier to proper immersion in a fictional text (Ryan, 1999, p. 128). This can be applied to hyperlinks, where the availability of alternate content, and whether to choose it or not, is often in sight and a mere touch away.

Gervais suggests that even the actual physical medium of the multimedia device itself poses challenges for immersion in fiction: books that occupy the same space as magazines and news articles are subject to the same initial reading strategy as that informational content, with the tendency then for texts to be read quickly, with little investment in them (Gervais, 2013, p. 191).

For Ryan, however, while it is a challenge to marry interactivity and immersive fiction, they need not be entirely exclusive (Ryan, 1999, pp. 134-135). This is a view shared by Ryan James and Leon de Kock in their consideration of enhanced books. Firstly, they posit that immersion can be enhanced by multimedia if it is of suitable content and positioned in the correct manner in the context of the literary text (James & de Kock, 2013, p. 117). This assertion is based in part on a reading of the young-adult fiction novel *Nightingale*, by David Farland (see Chapter 5), where the delivery of multimedia, in the form of an author interview, illustrations and a music soundtrack, is placed at the beginning of each chapter, for reasons "it must be assumed … to prevent excessive media from breaking an immersive reading experience" (James & de Kock, 2013, p. 117). Secondly, they suggest that the implementation of a clear element of choice in the interactive design of the enhanced novel, where the reader can simply choose whether or not to interact with entirely optional multimedia content, can be sufficient to facilitate immersive reading, assuming that this is what is required by the reader (James & de Kock, 2013, p. 118). Of course, this choice implies that functionality is visible, or can be located easily, and available to be chosen, in the form of hyperlinks.

This contradicts the view of Gervais and Vandendorpe that the mere presence of the hyperlinks themselves can be a barrier to continuous reading. However, it is known that immersive reading is possible on e-readers: Angus Phillips cites a 2010 study that found that reading on a standard Kindle was considered as immersive as a printed book (Phillips, 2014, p. 37). Hyperlinks are present on e-readers, but tend generally not to be visible unless the reader requires access to them: on a Kindle Paperwhite, the top of the page needs to be tapped to reveal the menu items.

Interestingly, Ryan posits that, even within the fictional text, if the plot is sacrificed at the expense of overly complex detail, this can be a barrier in itself to immersive reading (Ryan, 1999, pp. 117-118). This suggests that plot takes precedence over background and setting, which in turn has implications for the content of supplemental material, or even the need for it at all. This implies that content and the means to access it must be carefully balanced, with the element of choice being key.

4.8 Conclusion

The suggestions that can be taken away from this chapter to address the issues with agency and immersion in an enhanced work of fiction include that the core story, and the manner in which it was intended to be read, remains intact, that the placement, access and substance of supplementary content is carefully chosen so as not to take away from the plot, and that a clear choice is available as to whether to interact with additional content.

5 Enhanced Fiction Case Studies

5.1 Introduction

Two early enhanced works of fiction, which represent diverse means for both the creation and distribution of the digital medium and the form of its supplementary content, are evaluated in this chapter. The enhanced version of *Nightingale* was created on iBooks Author and contains a mixture of content directly relating to the plot, as well as background detail from the author. The enhanced version of *On the Road* is an app for the iPad that contains background supplemental media about the author, the book, the road trips that the characters took, and members of the *Beat Generation*.

5.2 *Nightingale* by David Farland

Nightingale (East_India_Press, 2014) is a 2011 original work of fiction by the science fiction and fantasy writer David Farland (aka Dave Wolverton), primarily aimed at the young-adult market. Released in both print and electronic formats, the focus of this case study is the enhanced novel version for Apple iPad that was first published on iBooks in August 2012 by East India Press. The price at the time of writing is €9.99.

5.2.1 Features Overview

The enhanced version of *Nightingale* supplements the original text with illustrations, which are interactive in landscape mode, music clips from the original music soundtrack for the book with accompanying simple animations, and short video interviews with the author. All of this additional material appears at the start of each chapter. As the reader makes progress beyond the first page of each chapter, the icons and controls for the multimedia are no longer visible.

5.2.2 Technology

The enhanced version of the novel was created on Apple's iBooks Author software. The size of the file is 1.08GB. The version at the time of writing was updated for iBooks 3 on 31/12/2013, which is the only update at the time of writing. This e-book is only compatible with iPads.

5.2.3 Discoverability

As the enhanced e-book was created on iBooks Author, it is only available for purchase in this format through Apple's bookstore on iTunes. There is a link to it, and other versions of the novel, on the novel's website (East_India_Press, 2014). The other versions include a standard unenhanced e-book for Kindle and Nook, which interestingly is not available on iTunes, a narrated audiobook on MP3, as well as premium-priced print editions.

5.2.4 Evaluation as a Digital Medium

The look and feel of the interactive content and navigation differs slightly depending on whether the iPad is in portrait or landscape mode. In portrait mode, at the beginning of each chapter there is a full page illustration with a quote from a character. Scrolling down reveals the core text of the novel along with two or three small icons on the top left-hand side of the first page of the text, which contain audio clips, very simple animations, and an interview with the author. As the user scrolls beyond the first page of each chapter, the multimedia icons disappear leaving only the text. In landscape mode, the first page of each chapter presents the illustration, in this case featuring a small amount of interactivity that activates on screen tap, and the icons for the other media. Pages are navigated by tapping or swiping the screen. None of the multimedia is visible after the first page of each chapter. All interactive icons function on tapping, and page navigation in either page layout mode is responsive. However, user agency may be compromised with some readers for two reasons:

a) Illustrations are interactive in landscape mode, but not in portrait.

b) There is an issue with the audio tracks, in that they can be played on top of each other if the reader switches between page layout modes, with the result that the interactive control for the first track to be played cannot be retrieved to stop it; the clip plays until it is finished. The length of the audio clips also vary, with no indication on the control as to the length of time remaining.

Relating to the immersive qualities of the supplementary material, it is unclear as to their intention within the overall design. The music clips cannot be played while reading (unless the reader inadvertently plays it twice per Section 5.2.4), so, unlike a movie, the music is not designed to be consumed with the narrative. Some of the audio clips are also very short, less than twenty seconds. The interviews with the author contain mixed content, ranging from motivations for the settings of chapters to character background. The illustrations seem to be graphic representations of portions of the chapter, indicating some of the narrative, although they don't reveal how the chapter will end.

5.2.5 Evaluation of Immersive Reading

At the beginning of each chapter, the reader is confronted with the multimedia content; it is not possible to progress through the text otherwise. However, they are easily ignored, appearing only on one page of core text per chapter, and do not reveal excessive plot. For the majority of the text, no controls whatsoever appear. Only if the user taps towards the top of the screen in either page layout mode do the normal iBooks menu controls become visible. User choice defines all interactive control functionality. In addition, the multimedia is not intended to be played concurrently while the text is being read.

5.2.6 *Nightingale* Summary

With reference to the conditions required for immersive reading described in Chapter 4, it would appear that the enhanced version of *Nightingale* has been designed to facilitate it through reader choice and minimal distractions within the core text. For those wishing to consume additional material to the text, the supplemental content appears to have little depth. In addition, the issues described with some of the interactive controls may lessen the sense of agency on the part of the reader.

The decisions made regarding the discoverability of this e-book are interesting, with a clear differentiation between the availability of the standard and enhanced versions of the novel. Pricing reflects the absence of the supplemental material on the standard version, which at the time of writing is £3.75 on Amazon's UK site.

5.3 *On the Road* by Jack Kerouac

The focus of this section is Penguin Books' 'Amplified' Edition of Jack Kerouac's 1957 novel *On the Road* (Penguin_Books, 2011). The paperback of the novel is widely available, as are standard e-books across all major distributors, including Amazon and iBooks. This enhanced version is only available as a downloadable app from the iTunes store. The price at the time of writing is €12.99.

5.3.1 Features Overview

This app supplements the novel with additional text in the form of biographies, quotations and the original scroll, image galleries, maps, audio, and video. All of the supplementary material is available from the front page of the app, as is the novel. Once inside the novel, it is possible to connect to elements of the supplementary media through hyperlinks, which are flagged as

a blue rectangular shape on the left-hand side of the text; these indicators do not appear on every page, but are located beside text that corresponds to an item within the multimedia content, be it a description of a place on a map, a person or a business mentioned in the book. The hyperlinks require a tap on a control to be followed, with one tap invariably required to return to the current position in the novel.

5.3.2 Technology

This enhanced book was created as an app for the Apple iTunes store. The size of the file is 327GB. The version at the time of writing (1.2) was updated on 04/10/2013, which was the third update since 2011. It is not compatible with iPhones.

5.3.3 Discoverability

The amplified edition of *On the Road* is only available for purchase on the iTunes store, to which there is a link on the Penguin Books webpage (Penguin_Books, 2011). The app has not been developed for other mobile platforms.

5.3.4 Evaluation as a Digital Medium

Whether in portrait or landscape mode, the core text of the novel displays as a single page. This is the same when viewing the supplementary content – all content and links are presented in the same layout. The book and the various multimedia elements have separate access controls on the app's front page. Within the novel, page navigation is implemented by screen tap or swipe, with the former being more responsive. Tapping on the top of the page reveals the usual menu items, which disappear if elsewhere on the screen is tapped. As noted in Section 5.3.1, hyperlinks appear on the left-hand side of the text to indicate the presence of related supplemental media. In landscape mode, there is a description beside the hyperlink, in portrait mode a tap is required to reveal the description, and then another to access the media content. If the link is followed, one tap on the relevant hyperlink within the media content is generally all that is required to get back to the novel. Links that take the reader to *the Trip* element proffer additional navigation within that segment of the content; care is required by the reader in this instance, as additional navigation within *the Trip* can result in the reader's place within the novel being lost, unless carefully noted. In general, the means to exit any content is clearly labelled and responsive.

The supplemental material of this enhanced version of *On the Road* almost entirely relates to background information and is quite voluminous. A biography of the author is accompanied by photo archives and audio and video clips. There is a seventy-eight page introduction to the

novel, alongside critics' reactions and a gallery of international book covers. Maps illustrate the journeys taken in the book (and, by inference, by Kerouac himself). All of this material is clearly targeting enthusiasts of the book, the author and the *Beat Generation*. While hyperlinking functionality allows for immediate access from the novel to supporting descriptive content within the supplementary material, the multimedia could equally serve as standalone content for consumption. Immersion in a digital medium can be facilitated if the interactive narrative feels "expansive, detailed and complete" (Murray, 2012, p. 102). Certainly, it would appear that the additional material fulfils that, with the caveat that a niche interest in the author and 1950s US culture may be required.

5.3.5   Evaluation of Immersive Reading

While the novel is standalone within the app, and all media content is activated by choice, the presence throughout the core text of visible hyperlinks to additional content, and, in the case of landscape mode, descriptions of those links, is a barrier to immersive reading. That these hyperlinks can appear on different parts of the left-hand side margin from page to page only serves to heighten their presence. Exploration of the app did not reveal any means to turn off or make less visible the hyperlinks.

5.3.6   *On the Road* Summary

As a classic novel, the assumption is perhaps that this enhanced version is aimed at people who have already read *On the Road*, or are at least familiar with it or its author, and wish to explore more about its history and background. While the novel is standalone, the design of the interactive narrative favours the reading of it in conjunction with at least some of the multimedia material. A deliberate decision that presents the 'amplified' content as equally worthy of consumption and immersion in its own right. The agency of the user is facilitated well in this respect, with access to the additional content presented in the same space as that of the novel, and navigational controls are functional and responsive.

The hyperlinking functionality within this app is more complex compared to *Nightingale*, a consequence perhaps of it being developed as an app, as opposed to an electronic book.

5.4   Conclusion

The design decisions of *Nightingale* and *On the Road* on the surface seem to preclude simultaneous immersive reading and immersion in the multimedia. *Nightingale* allows for a potentially more immersive reading experience, but the multimedia accompaniments are far less detailed than those of *On the Road*. With *On the Road*, however, the effort that has gone into the supplemental media is reflected in the choice to bring its content to the reader's attention.

Perhaps the learnings from these case studies are two-fold. Firstly, supplementary content may be most appropriate where the core text is well known, a classic novel, where demand for factual background to the story already exists. This of course assumes that readers are less interested in additional content being framed by the core text and narrative, but more as context for an established text. Secondly, with established works of fiction, the material for supplementary content may already exist to a large extent; to create brand new media content to accompany a new work of fiction may be an expensive undertaking, which is perhaps the reason for the lesser content in *Nightingale* compared to *On the Road*.

6 Findings and the Future

As illustrated in this paper, the material and conceptual challenges to integrating original linear narrative fiction into a digital medium are substantial. The case studies in Chapter 5, while not intending to be definitive examples of the latest developments in enhanced fiction, serve to illustrate some of those difficulties, as well as to highlight design considerations that align with the views of the relevant theorists.

6.1 A Proposed Model for Enhanced Fiction

Based on the findings from Chapters 3 and 4, and the evaluation of the features identified in the case studies in Chapter 5, it is possible to propose a basic model for the design and implementation of an enhanced work of fiction that meets the demands of a specific market. The underlying principle is that the core text of the novel and the multimedia should be able to be consumed separately, but that some level of customer choice can facilitate linkage between them should the user wish to consume the product in that manner.

6.1.1 Supplementary Content

The assumption regarding the additional multimedia content is that it contains significant background material, such as information on the author, inspirations for the novel and its characters, the geographical setting for the novel, the history of the era (if applicable), third-party insights etc. Therefore, either the novel is already well-known and / or the author is well-established, with an existing market for his / her work. The content does not form any part of the linear narrative of the story: for multimedia content to have value, it must be significant and detailed, and there is as yet no model to balance that amount of supplemental material within a narrative that doesn't impact on reading immersion. While the slight supplementary material of *Nightingale* can be ignored by the reader, questions arise as to its value in the first instance.

That the novel is well-known and / or the author is already established also infers the existence of existing material to be used for supplementary content, with less to create from scratch. Suggested sources include the author's participation at literary festivals, which aligns with the market for these enhanced books (Horne, 2012, p. 11).

6.1.2   Intended Market

The market for enhanced works of fiction is a niche one, specifically relating to the existing fan base of the novel or author, and is willing to pay for a premium product.

6.1.3   Reader Experience

Control over how and when to read the core text and consume the additional multimedia content is placed in the hands of the reader. The default presentation of the core text is that of a standard e-reader, with no visible hyperlinks or controls, with a single tap required to bring up the usual text and library navigation controls. However, should the reader wish to consume the text with the ability to reference related encyclopaedic material within the enhanced book, such as by following hyperlinks on the page that relate to specific multimedia content (as in *On the Road*), this is made available, either through general settings or additional interaction with the device, such as a double-tap. To revert back to only seeing the core text is intuitive and instant.

In addition, all multimedia content is distinct and delineated, capable of being consumed in isolation from the core text and other content. The supplementary materials are divided thematically, not by media type, and are available from a main menu. Cross-referencing to related content in the core text is possible; controls to navigate back to the multimedia content are intuitive and instant. Consistency of presentation is maintained in both portrait and landscape modes.

6.1.4   Technological Delivery

The assumption of both a niche market and the means / desire to pay for premium content informs the decision for the creation and implementation of this enhanced book model as an app. While the discoverability of apps are challenging in the apps stores, it is assumed that the intended consumers of this premium product, given that they own a tablet device, have both the means and the desire to research and discover the availability of enhanced books through authors' and publishers' websites, social media, industry sources, and publicity relating to literary festivals and fan conventions.

In addition, standalone apps offer the best functionality for a premium enhanced e-book, with no attention necessary, for example, to compatibility issues with e-book standards across reading apps and devices. Of course, the potential cost of developing code for iOS, Google and Windows is a major consideration. Web apps offer the means to deliver an app across multiple platforms at a potentially lower cost than native app programming, while also utilising

the basic technology of EPUB 3 – HTML5, CCS3 and JavaScript – that can perhaps be leveraged to deliver related products as e-books. It is acknowledged that the implications of such a design choice requires further investigation.

6.2   Digital Natives to Drive Change?

Quoted in the *Economist* magazine in 2012, Dan Franklin, the digital publisher at Random House UK, stated that the best enhanced books will be digital from the start, as opposed to digital adaptions of printed copy: "It's all about inventing things the reader doesn't know yet that they'll love" (The_Economist_Prospero, 2012). And yet the history of e-books, as shown in this paper, reflects the fact that the demands of readers have shaped the digital revolution in books more than publishers themselves.

Will future readers' demands change? For Marc Prensky, who coined the original term, to be a digital native is to have grown up in a digital culture, to be comfortable with digital technology, and to be able to master it without much effort (Prensky, 2011, p. 17). Many commentators suggest that the reading habits of digital natives, who are web-orientated and do not read the same way as previous generations (Kirk, 2010, p. 83), will drive a new model for the book, where immersion within a work of fiction is fully expected to be aided by multimedia and links, and is not primarily a function of the reader's imagination.

Any yet the current evidence suggests that such a scenario is still a distant proposition. Citing a recent U.S. study by Publishing Technology, Digital Book World reports that so-called millennials, people aged between eighteen and thirty-four, are "almost twice as likely to read a print book as an ebook" (Digital_Book_World, 2015). The market for enhanced electronic fiction, it seems, is still very much in its infancy.

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