

**A STRATEGY AND VISION FOR THE FUTURE
FOR ELECTRONIC TEXTBOOKS IN
UK FURTHER AND HIGHER EDUCATION**

**A STUDY PREPARED FOR THE JOINT INFORMATION SYSTEMS
COMMITTEE (JISC) E-BOOKS WORKING GROUP**

BY

EDUCATION FOR CHANGE LTD

**UNIVERSITY OF STIRLING CENTRE FOR PUBLISHING STUDIES
&
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ACRONYMS

ALPSP	Association of Learned and Professional Society Publishers
Becta	British Educational Communications and Technology Agency
CAPP	Council for Academic and Professional Publishers, the Publishers Association
DfES	Department for Education and Skills
DOI	digital object identifier
DRM	digital rights management
EBX	Electronic Book eXchange standard
FE	Further Education
Ferl	information service for all staff working within the post compulsory education sector
FTE	full time equivalent
HE	Higher Education
HESA	Higher Education Statistics Agency
HTML	HyperText Mark-up Language
ILT	information and learning technologies
IMS	Instructional Metadata Standard
IPR	intellectual property rights
JCCS	JISC Committee for Content Services
JCIE	JISC Committee for the Information Environment
JCLT	JISC Committee for Learning and Teaching
JISC	Joint Information Systems Committee
LSC	Learning and Skills Council
LTSN	Learning and Teaching Support Network
MLE	managed learning environment
NEC	National Extension College
NGfL	National Grid for Learning
NLN	National Learning Network
NPV	net present value
OEB	Open eBook content development standard
OEBF	Open eBook Forum
OLF	Open Learning Foundation
PA	Publishers Association
PALS	Publishers and Library/Learning Solutions group
PC	personal computer
PDA	personal digital assistants
PDF	Portable Document Format
SENDA	Special Education Needs and Disability Act 2002
VLE	virtual learning environment
XML	eXtensible Mark-up Language

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CONTENTS

Executive Summary	5
Introduction.....	10
CHAPTER 1: INDUSTRY ANALYSIS	13
1 Introduction: The E-publishing Context.....	13
2 Hardware and Software	14
2.1 E-book reading devices	14
2.2 Software solutions.....	15
3 Standards	16
3.1 Content standards.....	16
3.2 Digital rights management	17
4 Industry Stakeholders	18
4.1 Publishers	18
4.2 Authors	20
4.3 Aggregators and Retailers	21
4.4 Other Players.....	24
5 Pricing and Business Models: Industry Perspective	27
5.1 Current business models for e-textbooks.....	28
6 Conclusions about the Industry and E-textbooks.....	31
6.1 The impact of e-textbooks.....	31
6.2 Marketing and promotion	31
6.3 Reading technology	31
6.4 The impact of SENDA.....	31
6.5 Exploiting digital technology.....	32
CHAPTER 2: MARKET ANALYSIS.....	33
1 Introduction: The Context	33
1.1 Growth in student numbers.....	33
1.2 Changing patterns of learning and teaching	34
1.3 Impact of ICT	34
1.4 Managing hardware and software.....	35
1.5 Constraints on the development of new learning resources	35
2 Higher Education Market Characteristics.....	37
2.1 Use of textbooks in HE	37
2.2 What is an e-textbook in HE?.....	37
2.3 Wider access to e-content	38
2.4 E-content development.....	39
2.5 Not-for-profit academic e-publishing models.....	39
2.6 Stakeholder interests	41
2.7 Librarians	44
3 Further Education Market Characteristics.....	47
3.1 Profile of FE students.....	47
3.2 The ICT agenda.....	48
3.3 Textbooks and e-textbooks in FE.....	48
3.4 Funding and resource levels.....	49
3.5 E-content development in FE.....	49
3.6 Integration of e-content with a VLE	50
4 Conclusions about the e-textbook market.....	51
4.1 Textbook use	51
4.2 The future shape of e-textbooks	51
4.3 Diversity	51
4.4 Affordability and equity.....	51
4.5 Cost-effective e-content development.....	52
4.6 Maximising investment in ICT	52
CHAPTER 3: A VISION FOR THE FUTURE.....	53
1 Introduction : a Continuum of Development.....	53
2 Scenario one: The short-term (1 – 3 years).....	54
3 Scenario two: the medium-term (5 - 7 years).....	56
4 Scenario three: the long-term (10 - 15 years).....	58
Macmillan English Campus – The beginning of electronic publishing?	59

CHAPTER 4: CONCLUSIONS AND STRATEGIC RECOMMENDATIONS	59
1 Conclusions	63
1.1 E-textbooks and the HE library	63
1.2 Reassessing the role of the library	63
1.3 Moving away from the link with print	65
1.4 New partnerships in the industry	65
1.5 Recognising diversity	65
1.6 Common learning and teaching goals	66
2 Strategic Recommendations for the e-Books Working Group	67
2.1 Future role for the e-Books Working Group	67
2.2 Purchasing models and licensing	67
2.3 The real costs of developing flexible e-learning content	68
2.4 Use of metadata tagging	68
2.5 Measuring use of e-textbooks and e-learning content	69
2.6 Pilot projects to build new publishing partnerships	69
Appendix 1: The Brief for the Study	71
Appendix 2: Literature and document references	75
Appendix 3: People and institutions consulted	79
Appendix 4: The economics of supply of e-textbooks	81
Appendix 5: Display readability and navigability	85
Appendix 6: The PELICAN Project pricing model	87

The Research

In February 2003 the JISC E-Books Working Group commissioned Education for Change Ltd and the University of Stirling to undertake a Study to define the business and market context for electronic textbooks for UK further and higher education, to shape the work and role of the Working Group and a vision for the future (up to 10 years ahead) of electronic textbooks.

The issue of what defines a textbook, in both the print and electronic worlds, is fundamental to both the analysis of the current situation and the vision of an electronic future. This issue of definition is re-visited from various perspectives in the report.

Industry analysis

Technology solutions to publishing e-books continue to use the 'metaphor of the book' and e-books have to date been published to be read using dedicated hardware – book reading devices – or general purpose software – software book readers – designed to run on computers, or latterly personal digital assistants (PDAs).

The e-book industry is currently dominated by the big players of the print-on-paper book industry: publishers, particularly international conglomerates, dominated by US academic publishers, aggregators and retailers, including online booksellers. There are other emerging players in the e-book / e-content industry, some of whom are combining roles and skills in new combinations and some of whom do not, as yet, play a significant role, but whose influence over the future shape of the industry could be significant. These include digitisation / conversion companies, VLE vendors and broadcasters.

Most publishers and booksellers consider there will be little or no decrease in traditional textbook sales in HE but that the income stream deriving from e-textbooks will increase (up to 10% of total income from a title). An economic model for the supply of e-textbooks in current market conditions broadly supports this view, taking into account the requirement to levy VAT.

The e-textbook as a product for FE hardly exists, except where the interests of HE and FE overlap in the colleges delivering HE courses, and is not now likely to emerge in its current configuration. Different publishers and producers serve the school and FE markets.

MARKETING AND PROMOTION

In many cases publishers do not actively promote the e-textbook versions of their printed textbooks and publishers rarely promote textbooks direct to students. Therefore, if a lecturer is not interested available e-textbooks there is currently little likelihood of his/her students finding out about them. Academics' awareness of e-books in general, and e-textbooks in particular, would need to be improved if sales are to increase.

READING TECHNOLOGY

In the short-term the less-than-satisfactory experience of reading and navigating book-like, linear text on screen seems likely to constrain student purchasing of e-textbooks. Reading technology and the relatively high price of the more

sophisticated hardware are probably greater market constraints in the UK than in North America, where the reliance on numerous course textbooks is more significant.

THE IMPACT OF SENDA

The requirements of the Special Education Needs and Disability Act 2002 (SENDA), and similar legislation in the US, are likely to provide a spur both to research and development of affordable reading technology for open platforms. HE and FE institutions are also increasingly likely to demand material published in formats that meet their own SENDA obligations.

EXPLOITING DIGITAL TECHNOLOGY

It may be that real innovation and developments in e-textbooks – more accurately, e-publishing – for the HE and FE sector will come from publishers and other content providers / producers who do not ‘carry the baggage of the printed textbook’, who are free from the perceived risks to a reliable income stream in traditional markets.

The HE and FE market

It is difficult to consider the whole HE / FE sector as one market for e-textbooks, or for any other form of publishing. Diversity not only differentiates HE from FE, but also defines sub-groups of institutions across the whole sector.

There are, however, some over-arching market trends and developments which impact all institutions across the HE / FE sector and which provide a common context in which to consider the characteristics of the HE and FE markets separately.

- Growth in student numbers
- Changing learning and teaching practices and delivery modes
- Impact of information and communication technologies (ICT)
- Managing hardware and software
- Constraints on the development of new learning and teaching resources

There appears to be a kind of consensus on three levels of textbook use in HE: course adoptions, essential reading, recommended supplementary reading. In this context, an e-textbook – as currently understood to be electronic versions of printed textbooks, with or without additional or interactive functionality – is likely to be limited to contributing to sales of essential and supplementary reading, but not to course adoptions.

However, the concept of teaching *per se* is moving away from the ‘whole course’ approach towards the provision of resources which can be combined to give the students the individualised learning experience they increasingly want. E-textbooks and e-learning content must also be seen in an HE context now rich in digital content of all kinds, much of which is purchased, licensed and mediated through the library, and some of which is developed within HE by academic, learning support and library staff.

The use of student textbooks in FE most closely resembles the US textbook market, where core texts define the course of study in colleges, and where student numbers are very large. For a number of reasons – not least, institutional funding and the lack of a research-based history of using electronic publications in FE – e-textbooks have not emerged as a product for the FE market.

FE colleges are on a 'fast track' to the comprehensive use of VLE and e-learning content for courses, and they are not likely now to be interested in e-textbooks that are linked to print, should such products arise.

AFFORDABILITY AND EQUITY

Purchasing models for e-textbooks and e-learning content developed for the HE sector are likely to be too expensive and too inflexible for the FE sector (and quite possibly for many less well-resourced HE institutions). The potential lack of choice / range of e-textbooks and e-learning materials in new learning environments could be especially acute for students in less well-resourced institutions.

COST-EFFECTIVE E-CONTENT DEVELOPMENT

It is clearly not cost-effective for academics to develop all their own resources in the new electronic environments. Investigation of the economics of shared repositories of e-learning content and cost-effective, flexible access to commercial e-learning content (including e-textbooks) remains a priority, though there are serious questions about the willingness of academics to share proprietary learning and teaching resources and approaches.

THE FUTURE SHAPE OF E-TEXTBOOKS

It could be argued that any set of well-defined digital 'learning objects', grouped together in a coherent and well-presented way, properly indexed, referenced, etc. within a clear pedagogical framework that addresses a specific community of learners with identified learning objectives, could be called an e-textbook.

However, once the definitive link with a publication originated for print is broken, the term is probably misleading. The adoption of a more general, less restrictive term, such as e-learning content, may be more appropriate.

MAXIMISING INVESTMENT IN ICT

HE and FE institutions alike must make the ICT work to deliver on strategic learning and teaching goals. Effective and innovative use of ICT (and e-learning) may provide many institutions with the 'edge' in an increasingly competitive HE and FE market.

An increasing investment and interest in developing and obtaining quality e-content fit for purpose, which meets the learning requirements and other expectations of their student clients, will be a major part of this capitalisation.

Conclusions

REASSESSING THE ROLE OF THE HE LIBRARY

Libraries in HE have taken a lead role in the purchasing of e-textbooks because of their experience and expertise in the development of electronic services in response to research needs, not learning and teaching needs. In many HE institutions, library and information services are becoming a one-stop-shop for all electronic content and learning support, often including the development of institutional MLE and portals.

However, other stakeholders in the sector have different perspectives and see several reasons why the position and role of the library may need to be re-assessed in the medium- to long-term. For instance,

- Previous licence agreements have been licences for **access** to e-content: the new generation of licence and purchasing agreements, relating primarily to e-learning materials must be licences for **use** and re-use. This makes it much more difficult to define and manage licence terms, to establish fair pricing related to real costs, and to monitor usage and evaluate, and the scope may be beyond the remit of a library / learning resources centre.
- Many publishers would prefer to licence their e-learning content directly to academic departments as this most closely emulates the current market for textbooks as they see it and approach it. From the librarian's perspective, this model has the potential to undermine the hard-fought centralisation of institutional purchase for learning and research resources through the library and militates against the cross-institutional sharing of learning and teaching e-content.
- Developments in e-commerce, which will make micro-payment systems much more attractive and affordable to institutions, may soon underpin a move to pass the cost (and choice) of e-learning materials on to the student, through, for instance, the use of smart-cards and e-accounts. This would make the library into more of a middle man, the interface between publisher and student; a role might equally well be filled by a commercial aggregator.

REMOVING THE LINK WITH PRINT

At some point, academic publishers will need to make the 'leap of faith' and make significant investment in some quality e-learning materials that – while they may draw upon and re-purpose content originated for print – are de-linked from the printed versions, to meet, and generate increasing market demands for quality e-learning content. If they do not do this, the dominant driver of change in HE and FE – ICT and information and learning technologies – will anyway erode their markets for printed textbooks and other e-content producers (commercial and not-for-profit) will gain market share.

NEW PARTNERSHIPS AND PUBLISHING MODELS

There is no solid basis of understanding and confidence in the medium-term and future markets for e-learning content in HE and FE. The economics of, and business models for new ways of publishing and supplying e-learning content have not been tested, in part because there are so few commercial intermediaries based on new partnerships.

In the short- to medium-term what is needed is not a 'one-size-fits-all' national framework for e-textbook acquisition, but the development and monitoring of a range of different business models and trading relationships between commercial and not-for-profit producers and sector-level organisations, institutions, departments within institutions, academic staff and students. We need innovative new publishing models that serve the diversity in HE and FE.

COMMON LEARNING AND TEACHING GOALS

Despite their diversity, HE and FE institutions have common goals for learning and teaching, philosophically driven by the government's widening participation agenda and the need to raise quality and choice in learning.

In practice it is the massive investment in ICT infrastructure and the capabilities of the technology that will underpin the inevitable shift towards online and networked learning and the use of 'chunked' e-learning materials, particularly in the early undergraduate and FE courses.

The convergence of the learning and teaching goals and requirements of HE and FE, in the medium- to long-term, demands a more holistic approach from JISC and the various sector-level bodies concerned with and directing e-learning, and more effective sharing of understanding, perspectives and expertise.

Recommendations

- 1 We recommend that the e-Books Working Group's role should be widened to facilitate a more constructive and forward-thinking forum on the development of a viable market for quality e-learning content, which will ensure that the skills, capacity and content of the publishing industry are fully engaged with other sector developments.
- 1 We recommend that the Working Group should not seek to develop a 'one-size-fits-all' licensing model specifically for e-textbooks as they are currently configured.
- 2 We recommend that the e-Books Working Party should define the terms of reference for, and commission a research study on cost and remuneration issues, in order to clarify and establish benchmarks of direct and indirect costs for commercial and institutional guidance.
- 3 We recommend that the Working Group should play an active role in advocating and raising awareness of the importance of metadata tagging of e-books content; and commission practical research into and evaluation of standards to achieve proper mark-up of e-learning 'chunks' to underpin, e.g., micro-payment, use-based trading models, re-purposing and re-configuration of e-learning material, discovery and long term preservation.
- 4 We recommend that the Working Group should collaborate with other JISC Programmes and projects to define and commission work from an appropriate consortium of organisations – commercial and HE / FE sector-based - on tracking and measuring online usage of networked e-books and e-learning content, building on the work of the COUNTER Project.
- 5 We recommend that JISC should fund a series of substantial research and development projects, designed to develop an evidence-base on the feasibility and market success of new e-learning content publishing partnerships and business models; and that these projects are selected and developed through a Call for Proposals, for which the Working Group would be responsible.

INTRODUCTION

Scope of the Study

In February 2003 the JISC E-Books Working Group commissioned Education for Change Ltd and the University of Stirling to undertake a Study to define the business and market context for a national collections strategy in electronic textbooks for UK further and higher education, which would shape the acquisitions policy of the Working Group for e-textbooks and the role the Group should adopt in relation to partnership building for the successful take-up of e-textbooks within the academic sector.

The Study was also required to shape a vision for the future (up to 10 years ahead) of electronic textbooks in the context of changing higher and further education approaches to learning and teaching, technological innovation and the opportunities for new forms of partnership across the industry and market sector.

The full Brief for the Study is appended in Appendix 1.

This report was written by Julie Carpenter (EfC) with major contributions from other staff members of EfC and project team members Andrew Wheatcroft and Jim McCall (University of Stirling Centre for Publishing Studies), Carolyn Rowlinson (University of Stirling Information Services) and Frank Fishwick (consultant).

Research methods

LITERATURE AND DOCUMENT REVIEW

An extensive literature and Internet search revealed a very wide range of published literature and project documentation, epitomised by Bailey's long-running and frequently up-dated bibliography (Bailey, Charles, 2003) on scholarly electronic publishing. Features of the body of identified literature included:

- The majority originates in, and is therefore contextualised for, the United States
- A strong bias towards electronic journals and other serials for research in universities
- The views of academic librarians are well represented, but those of students and academics are less so
- Only a small proportion of sources deal specifically with textbooks and / or e-learning materials.

Considerable effort was made to identify an equivalent body of writing from the industry perspective, with some success, though once again, very little was found relating specifically to textbooks and / or e-learning materials.

Quotations from the literature are included in this report where appropriate, and references are provided in Appendix 2.

CONSULTATION MEETINGS AND INTERVIEWS

A series of face-to-face interviews were undertaken with industry and market (HE and FE) key informants. Evidence of relevance to the market for e-textbooks was also gathered from institutions through concurrent research into managed learning activity in UK higher and further education¹.

A list of people and institutions consulted is provided in Appendix 3.

VALIDATION OF FINDINGS IN THE MARKET

To validate evidence and emerging conclusions a discussion paper was prepared and circulated to key contacts in 14 HE and FE institutions, representative of a range of market features and aspects, including subject specialisation. These contacts were asked to read and comment on the paper through e-mail, face-to-face or telephone conversations with members of the project team.

Structure of the Report

The focus of this report is on a currently narrow, but important and evolving sub-set of electronic publishing. We provide a context in which the evolution of e-textbooks can be assessed; a carefully validated view of the evolutionary process; an examination of the key issues both current and on the horizon for the industry and the market; and some policy and strategy recommendations for both JISC and the Working Group.

The report has four chapters: Industry analysis; Market analysis; Vision for the future; Conclusions and strategic recommendations.

Defining a textbook

The issue of what defines a textbook, in both the print and electronic worlds, is fundamental to both the analysis of the current situation and the vision of an electronic future. This issue of definition is re-visited from various perspectives in the report. The Study began from the following point of view.

There is currently no all-embracing definition of a textbook. At one time the term was used to indicate a text used primarily in secondary and primary education; the terminology then extended into tertiary and professional education. It was then used in publishing practice more or less metaphorically to indicate a text with instructional value. In practice, a traditional 'textbook' is *commonly understood* as being

- instructional material used within primary, secondary, tertiary, professional and continuing education;
- delivered to the user on paper, in the form and binding produced and distributed by a publisher.

Extending from this basis, the 'electronic textbook' might be defined as any publicly available electronic material, independent of form, recommended by the tutor as being appropriate for the delivery of a course and which may have some additional material and/or functionality over the printed book, such as interactive exercises, notes facility, graphics or multimedia.

¹ See Social Informatics Research Unit, 2003 in Appendix 3.

Chapter 1: Industry Analysis

1 INTRODUCTION: THE E-PUBLISHING CONTEXT

It is difficult to separate out the 'e-textbook' from the more general 'e-book', which includes trade and general books, scholarly monographs, literature and fiction, technical manuals etc. Publishers currently use a wide definition for the printed or electronic textbook, which frequently encompasses everything in the higher education (HE) or further education (FE) section of their catalogues.

The wider 'e-book' industry is currently characterised by a very close analogy, in production, pricing, marketing and terminology, to the print world. For most published e-books "the printed form has been translated rather literally into an electronic representation....still formatted like print, and ...intended to be read sequentially like print" (Lynch, Clifford, 2001). The e-version of a textbook may have some additional related and 'born-digital' material (exercises, links to websites, access to moving pictures, other reference sources etc).

This is in contrast to other genres of electronic publishing:

"the development of new *genres* of material that are highly adapted to the online reading environment, built on the early success of types of books that translated advantageously to the digital environment, such as encyclopedias:....." "These new genres are designed to exploit the strengths of the digital medium. A scholarly Web site, for example, links and organizes many small chunks of text with multimedia content and provides the ability to search and navigate among them. It may also include interactive software components such as simulations, and use the communications capabilities of the Internet to build an interactive community around the work and its subject matter. It may also personalize its behavior for each individual user based on knowledge of that user's profile, interests, and history." (Lynch, Clifford, 2001)

Overall, industry consideration of e-book publishing has been dominated to date by three broad and interrelated issues: technology and formats, copyright and rights management, and pricing and supply chain models.

2 HARDWARE AND SOFTWARE

“The metaphor of a book is useful as an initial point of reference to a familiar context. As e-books evolve, references to books in the specification of content may tend to fade as distinctions and comparisons to products in print become less necessary. Even on Amazon.com, e-books are available alongside e-documents. The old metaphor itself is a limitation in understanding an e- book and it takes one only so far in understanding the current technical environment. The industry is now seeing a clear blurring of characteristics of the traditional offline world products in the online environment.” (Slowinski, F. Hill, 2003)

Technology solutions to publishing e-books continue to use the ‘metaphor of the book’ and e-books have to date been published to be read using dedicated hardware – book reading devices – or general purpose software – software book readers – designed to run on computers, or latterly personal digital assistants (PDAs). Both solutions have been constrained by the fact that current computer and on-screen technologies “do not offer a pleasant environment for reading very long texts when compared to ink on paper” (Lynch, Clifford, 2001).

2.1 E-book reading devices

In the US students were seen as the prime market for book reading devices, at a basic level offering a solution to the necessity of carrying around large bags of heavy books. In July 2002 Donald Hawkins reported, “two of the first entrants into this market, Rocket e-Book and Softbook, were purchased by Gemstar and merged. Their ...technology was used to develop two new reading devices, the REB1100 and REB1200...Other device makers have dropped out of the business” (Hawkins, Donald, 2002). Franklin Electronic Publishers was, however, still offering three models of its eBookman reader, which were reportedly not selling well in the American market. Also on the market was the goReader - “essentially a pocket PC enhanced with e-book reading features” – designed specifically for students, but reportedly priced rather high.

By August 2003 all of these devices have been withdrawn from the market and are no longer being sold in the US or Europe. One or two ‘3rd generation’ reading devices survive in the North American market. For instance, the hiebook from Korea, which uses XML reading software and incorporates other features, such as audio storage and playback, MP3 capabilities, diary and note-taking functions. Hewlett Packard has just announced a new prototype e-book reading device, which uses the ‘turning pages’ technology to provide a book and paper ‘feel’.

None of these book reading devices have yet gained a significant foothold in the UK market, and several of them were never marketed or distributed in Europe.

The form and technology of the devices needed some time to mature, which was difficult to achieve within the turbulent context of the dot-com market between 1998 and 2001. Industry analysts appear to agree that five factors contributed to the current failure of the dedicated reading device as an industry alternative.

- ◆ The devices were relatively high priced, in a market where students could be expected to also buy mobile phones, multi-function PDAs and / or laptops.
- ◆ The devices were quickly and effectively challenged by the development of reading software for PCs and PDAs, which provides similarly high display quality.

- ◆ During the period laptops and PDAs, with their multi-functionality, became increasing competitive in terms of display quality, portability and price, although the battery life of laptops restricts real portability.
- ◆ On-screen reading of linear, book-like text has anyway proved unattractive to students in comparison with quality print on paper, despite the improved display quality of the devices, and market research showed a marked preference among students for printing out relevant ‘chunks’ of text.
- ◆ Proprietary software formats restricted the availability of a sufficient volume of e-books for each device; by the time the Open eBook (OEB) standard had begun to have an impact on the industry, allowing publishers to make their e-books more easily convertible to a variety of formats, many of the reading device producers were already in financial trouble.

2.2 Software solutions

E-book publishers now have a range of reading software options in which to ‘publish’ their e-books: most academic publishers make their e-books available in at least two of the available formats and the online customer has the opportunity to download free reader software with their e-book purchases. All the reading software products offer a range of functionality that may include book marking, highlighting, navigation aids, hyperlinks and referencing, and the ability to change fonts. Current contenders include:

2.2.1 MICROSOFT READER

Microsoft provides its XML standard Reader software for a variety of platforms, including dedicated reading devices, PDAs and PCs (not Macintosh). Microsoft Reader’s ClearType display technology is intended to improve significantly readability on liquid crystal display (LCD) screens, simulating a print-on-paper clarity.

2.2.2 ADOBE READER

The Adobe Reader 6.0 software combines the functions of the Adobe Book Reader and Adobe’s familiar Portable Document Format (PDF) standard. It is capable of dealing with non-Latin character sets, images and formulae, for instance, which may make it a stronger competitor in the academic and scholarly markets. Adobe has also developed enhanced display technology in their CoolType.

2.2.3 MOBIPOCKET READER

This is primarily reading software for PDAs and mobile phones, although a PC version is available. Versions exist for the Palm Series of PDAs, Microsoft Windows CE, Pocket PC, Psion, the now-defunct Franklin eBookMan, Nokia and Casio.

2.2.4 DX READER

Developed by Digital Publishing Solutions in the US, DX Reader is XML driven reader software that comes in three versions – online, portable and CD-ROM. DX Reader claims to be a new approach to online and offline eBook readers with a “wide range of intelligent reading and research facilities”.

3 STANDARDS

3.1 Content standards

In 2001, Clifford Lynch described two fundamentally different approaches to electronic publishing with correspondingly different approaches to content development standards.

“the new genres, as networked information objects, [adopt] the full range of evolving standards for multimedia information in the Web environment. They are tracking developments in browsers, multimedia, interactive software products, distributed database queries and the like. Intellectual property management for these types of works is mostly about access management and authentication, not about technical protection systems that control copying and use. They are often being positioned as services, and to the extent that they operate within a commercial framework there is a license or service agreement, access control, and little else.” (Lynch, Clifford, 2001)

E-book publishing using e-book readers, both devices and software, are following a different track:

“Both think about content as a digital object that is moved from place to place and that represents something intellectually closely akin to a printed book. One model is to define a subset of HTML/XML that includes text and some limited multimedia componentsThe other model is to use Adobe PDF, which can work at a page image level.”

As Lynch predicted, standards in e-book publishing have stabilized and it is not “hard to translate existing digital books that are representations of printed books into one of the standard formats for loading into e-book readers”, or “to move from one reader format to another”.

The Open eBook Forum (OEBF)² is established as a leading international trade and standards organization for the electronic publishing industry – heavily dominated by US publishers and hardware and software companies including Microsoft and Adobe. OEBF also incorporates the Electronic Book eXchange (EBX) System. While the OEB “provides a specification for representing the content of electronic books....intended to give content providers ... and tool providers minimal and common guidelines which ensure fidelity, accuracy, accessibility and presentation of electronic content over various electronic book platforms” (Jantz, Ronald, 2001), the EBX System “defines the way in which e-books are distributed from publishers to booksellers and distributors, from booksellers to consumers, between consumers, and between consumers and libraries”.

“the [EBX]....specification also describes how these partners in the electronic book business will interact to form a comprehensive copyright management systems that both protects the intellectual property of authors and publishers while describing the capabilities required by consumers.” (Jantz, Ronald, 2001)

² <http://www.ebxwg.org/>

3.2 Digital rights management

Digital rights management (DRM) is the description, identification, trading, protection, monitoring and tracking of all forms of rights usage, which includes *all* intellectual property rights (IPR) and not only the rights applicable to permission over digital content. This is a much more complex and controversial issue for the e-book industry, for three main reasons

- ◆ DRM works where it supports the business model, not the other way round. Business models for trading in e-books, particularly to libraries and institutions, are not yet tested or mature.

“In some sense, publishers and libraries are on the opposite ends of a ‘rights’ continuum; libraries are looking for unfettered and inexpensive access to digital material while publishers seek opportunities for new and innovative pricing models.” (Jantz, Ronald, 2001)
- ◆ Current DRM systems are not sufficiently developed to handle smoothly the complexities of, for instance, ‘fair use’ (in the US) and ‘fair dealing’ under licence (in the UK).
- ◆ Balancing control of e-book content against the need to remain competitive is taking publishers into unknown territory – and this is particularly relevant to e-textbooks. If your e-textbook offering is hedged around with too many rights restrictions, your competitor’s may be available on more flexible terms.

4 INDUSTRY STAKEHOLDERS

The e-book industry is currently dominated by the big players of the print-on-paper book industry: publishers, particularly international conglomerates, dominated by US academic publishers, aggregators and retailers, including online booksellers.

Authors, of course, are stakeholders in the e-book industry, but currently they are not dominant ones.

4.1 Publishers

It has been commonplace for several years for academic publishers in the US and Europe to include supplementary materials with the printed textbook— exercises, images, hyperlinks etc. – on an accompanying CD-Rom and a companion web site. Some publishers are, at the same time, digitising their ‘born-analogue’ content, driven by internal production and re-purposing requirements rather than a market for electronic products.

In the last 4 years most of the large US publishing groups, with extensive college and academic lists, have invested in the production of e-textbooks – electronic versions of printed textbooks – in a variety of formats to accompany dedicated e-book reading devices and, more recently, e-book reading software. Customer responses have generally been disappointing:

“Over the past year, the e-textbook market [in the USA] endured a painful reality check. In spite of optimistic early predictions, e-textbooks have yet to generate significant revenue. According toMcHraw-Hill Higher Education, e-textbooks generate less than 1 percent of [their] higher-ed revenues. Other publishers have scaled back or even dropped their e-textbook development efforts, and technology providers focusing on the e-textbook market have scrambled to stay afloat.....Yet the current state of the e-textbook market isn’t simply a technology story; it also reflects some interesting, and perhaps surprising, discoveries about what instructors and students want—and are willing to pay for—in their textbooks. In addition, recent trends in educational technology suggest that e-textbooks might play a much more limited role, as part of a wider array of educational content and technologies, than print textbooks play in today’s college classrooms.” (Mackenzie, Matt, 2002)

4.1.1 PUBLISHING FOR HIGHER EDUCATION

Although US-based publishers, who think globally and whose policies are led by the US market conditions, tend to dominate the academic publishing industry in this country, UK publishers have taken a more cautious approach to e-textbooks, for five apparent reasons:

- ◆ The perception that offering an electronic alternative may jeopardise the dependable and continuing income stream from printed textbook sales.
- ◆ The cost of conversion of content originated for print seemed extremely high for what was a speculative market, and the diversity of possible content formats added to the uncertainty.
- ◆ Dedicated e-book reading devices never presented a serious market opportunity in Britain, as prices were high and sales were low among students, and they therefore did not create the same stir as in the US.

- ◆ The role of the textbook, particularly in higher education, is subtly different from that in North America, where core texts define the course of study in colleges and at undergraduate level. Academic staff in the UK take a more flexible approach to course content, in which textbooks, lectures, recommended and supplementary reading all play a part.
- ◆ The UK market only accounts for 15% - 17% of textbook sales: export sales and publishing for non-UK markets influence on publishing policies and decisions, and in these markets, sales of the printed textbooks remain buoyant.

Several of those UK academic publishers now 'dipping their toes' in the e-textbooks market are able to build on experience gained through the development and licensing of e-journals for the HE community.

A glance at the web sites of leading UK publishers shows that several are offering, or about to offer the HE community some kind of e-textbook or e-content alternative, although hardly any work is being done as yet to produce e-textbooks *ab initio*. Some publishers have all their backlist available as e-books; some are making all relevant titles available electronically once the printed version is out of print, yet others scarcely proceeded along either or any route.

Four examples illustrate the current variety of production and delivery models:

- Taylor & Francis, the acknowledged UK pioneer in the e-book development field, offers e-versions (in a choice of reader software versions) for its complete list of 4,000 academic titles, of which perhaps 10% could be described as 'textbooks', for sale to end-users via its online e-bookshop and online booksellers or (shortly) through a sector-wide licensing agreement with JISC for institutional access. Taylor & Francis hopes to move to simultaneous (print/online) publication soon.
- ◆ Pearson Education, in partnership with the Blackboard virtual learning environment (VLE) company, has developed CourseCompass, enabling access, under licence, to Pearson content and e-textbooks for academics to develop and customise their own courses, whether their institution licenses Blackboard systems or not.
- ◆ Oxford University Press (OUP), in Autumn 2003, will launch its Oxford Scholarship Online, which will offer the complete text of 700-750 academic titles, accessible under an institutional licence with a range of research, reading and 'chunking' options to enable the development of course packs, etc.
- ◆ Cavendish Publishing and Taylor & Francis are offering e-textbooks for sale direct to end-users from their web sites and provide customers with a range of purchase options including the opportunity to buy or rent for a limited time page or chapters (micro-purchases), or buy the whole book at full price.

Underlying these different approaches are some fundamental issues:

- ◆ The level to which the content has been 'tagged' with metadata ('granularity') and/or the use of digital object identifiers (DOI).
- ◆ The decision on the part of the publisher whether to develop and host e-textbook sales and online e-content services in-house, to enter into external partnerships to cover these functions, and/or to exploit a range of supply chain alternatives. Smaller publishers are clearly constrained by limited in-house expertise, resources and investment capital.
- ◆ The choice of business model and pricing, which is in-part determined by the decisions described above.

- ◆ The need for a new perspective and understanding of the changing needs of their end-user market, in order to make decisions on business models, marketing strategies etc.

4.1.2 PUBLISHING FOR FURTHER EDUCATION

Although there is some overlap between the two sub-sectors (e.g. Pearson Education), publishing for FE in the UK is largely dominated by a different group of publishers (e.g. Collins Educational, Nelson Thornes), which publish primarily for the curriculum in UK secondary school and FE, not for HE. Printed textbooks are published by a wide range of leading and niche publishers (both commercial and not-for-profit) for GCSE and A level courses, for key skills curricula and vocational courses leading to NVQs such as construction and engineering, hairdressing and IT skills. Course packs are also available from publishers, trade bodies and federations (often containing material on CD-ROM, for instance, for key skills literacy, numeracy etc) and are much used in learning and teaching in FE.

Centrally funded government agencies, such as the British Educational Communications and Technology Agency (Becta) and the Learning and Skills Development Agency (LSDA) promote the development and sharing of FE materials for the electronic environment from within the sector. The National Learning Network (NLN), managed by Becta, has tendered twice for the commercial development of online and multimedia materials for key skills and other FE courses to be funded by central government, and now provides institutional access to a growing body of material. Successful tenders on both occasions have largely come, not from the traditional publishing industry, but from broadcasting (e.g. BBC Learning, Granada) and small multimedia content companies.

There are no e-textbooks – that is, e-versions of these print materials for FE – currently available from the leading publishers, and no apparent plans to produce them. Several publishers provide supplementary teaching and learning content at their web sites, to accompany the printed textbook for both secondary and FE courses.

Publishing for FE lacks the research context, the building of experience in e-journal and electronic information services to the sector, and a (relatively) well resourced institutional and end-user market that exist in HE. In the absence of market demand, there are no other obvious and current incentives for publishers to consider e-textbooks as a product line.

4.2 Authors

According to publishers, most textbook authors are happy to let their publishers do whatever they see fit, and to receive a royalty on the additional income accruing from e-textbook sales.

On the other hand, while authors are likely to continue to want the imprimatur of the publishers' imprints on their work (although self-publishing in electronic formats is on the increase), from their perspective the relationship between authors and publishers is, and will continue to be, an uneasy marriage.

“Authors and editors require protection to ensure that their work is properly attributed and that the integrity of original content is preserved. There is also the need to encourage the continuing creation of original quality content. “Rights holders need their effort and investment to be rewarded with continuing revenue streams”. Authors also require rapid dissemination of their material. In the case of those authors who are dependent upon sales of their books..... there is also a need for rapid payment of acceptable royalties for copies made of their materials.” (Oppenheim, C et al, 2001)

The royalty system of payment for published authors is unlikely to be abandoned or overturned by the industry, despite the difficulties this may present in a digital environment.

While authors will agree readily enough to e-versioning in which the e-book would be available as a whole, or possibly in chapters, they balk at ‘chunking’. Here, for instance, if the reader is only interested in page 6, they are able to acquire (print out and pay for) only that page. In this situation authors regard their moral rights to be in jeopardy, and that they will suffer from potential loss of revenue, if, like Taylor & Francis’ authors, they are to get paid according to the number of pages printed out from the e-book. In this context also, accurate and detailed usage statistics for e-textbook use are clearly of paramount importance to authors.

Authors’ protection from potential plagiarism by students and academic staff, from material making its way into teachers’ notes unacknowledged, and from potential loss of revenue when particular ‘chunks’ of their works may be used out of context of the traded whole, all rely upon rigorous and sophisticated DRM and effective usage counting systems, based on granular metadata ‘tagging’.

At present, for most published and potential textbook authors, the impact of the e-textbook is in the area of negotiating and protecting electronic rights. A greater impact on authors will result when and if ‘e-textbooks’ are written, designed and published directly into an electronic environment, with no print intermediate version.

Academic and education authors experienced in writing for either the web or other digital formats confirm that writing electronic learning materials and courses from scratch challenges the structure and delivery of learning and teaching in fundamental ways, and requires new expertise and skills. (See Dorner, Jane, 2002)

4.3 Aggregators and Retailers

The supply chain for e-books in general and e-textbooks in particular is evolving quickly in response to technological and industry developments and is far from stable. In the US diverse players have emerged (and some disappeared) within the last 5 years to meet industry and market needs. Traditional book wholesalers and retailers (trading online) provide outlets for e-book titles, and several are providing aggregation services that add value for the publishers through hosting e-books, DRM, user interfaces and research tools, marketing and promotion etc.

In the US, in particular, new commercial entities emerged to offer digitisation of content in addition to these kinds of services, with no ties to the print-on-paper book trade. Questia is, perhaps, the best known of these new aggregators, selling access to a large database of humanities and social sciences e-books direct to students. Questia has had a rocky ride through the dot.com industry decline, but is apparently still trading.

Smaller publishers, in particular, that will not be able to allow public access to server-based e-content, will increasingly rely on aggregators or 'one-stop-shops.' And smaller retailers, entering the e-book market, will also require the services of 'wholesalers'. Aggregators of e-books and e-content have considerable power in the supply chain. As with printed books, they provide access to markets for publishers who are rarely in direct contact with the end-users of their products. In the electronic world, aggregators also have the potential to help publishers solve some technologically complex issues surrounding the sale and / or licensing of e-books.

4.3.1 THE SUPPLY CHAIN

"The e-book is a digital product. Its obvious home, therefore, is the Internet, either via a publisher's own website or via some form of intermediary that offers e-books from a wide range of publishers. As with the paper book supply chain, booksellers have a simple choice to make in terms of sourcing e-books: get them from a single wholesaler / distributor or get them direct from individual publishers. The single wholesaler route is emerging as the preferred option, for a number of reasons.....the retailer does not have to build links to individual publishers. Such an e-book supply chain is not only complex to build and administer, it is also likely to be expensive. You can be fairly sure that all the publishers will have different interface requirements. (Taylor, David, 2003)

Those academic publishers— predominantly American - with a significant e-book lists appear to be taking advantage of the full range of supply chain options currently available. E-books are available to end-users to download at several publisher web sites. Online booksellers, such as Amazon and Swotbooks (in the UK), are beginning to offer a range of e-book titles, downloadable in a range of reading software versions. These are currently acquired from the publishers at discounts, and sold on to end-users at prices, analogous to the print versions. In order to ensure that the price for the end-user is competitive with the printed version, the supply chain must absorb the cost of the VAT at standard rate levied on e-textbooks. Booksellers pay publishers for the e-books when a sale is made.

The wholesalers OverDrive³, which has emerged as the market leader in America, is a model for an e-content aggregator, serving publishers, retailers and institutions.

"[OverDrive] is actively building digital content for the emerging e-book market. Thousands of e-books are currently available from their e-book wholesaling offer, Content Reserve....[which is] very much presented as a distribution system for digital content. At present that is almost exclusively e-books, but audio books in digital format are being added and video is not far down the track, delivered by software like Windows Media." (Taylor, David, 2003)

The take-up of e-books in general in the UK has been much slower than in the US. While American based Barnes and Noble, the wholesaler and retailer moved into online e-book selling and supply at an early stage, Blackwell, W H Smith and other UK-based book suppliers with online selling points have been more cautious.

In e-textbook sales, their approach has no doubt been influenced by the currently limited range of textbook titles available in electronic formats and by the evidence that "virtually all students [in higher education] who bought new [text]books [in 2003] [did] so from a bookshop. 10% of students had bought from the Internet, but this represented only 3% of total new books purchased....Access and delivery issues

³ <http://www.over-drive.com>

aside, there was a clear tendency to buy at the last minute, and to want to browse books for relevance and perceived value.” (BML, 2003)

Anecdotal evidence from academic booksellers (supported by the BML Survey for CAPP in 2003) in the UK indicate that sales of printed textbooks in HE are holding up and have not yet been adversely affected by the availability of e-textbooks. Average spend per student is around £133 per year for seven titles at an average price of £19 per title. While Internet sales are rising among student age groups, trade books appear largely to account for this and not textbooks, which is good news for the campus bookshop.

“Buying an e-textbook, or even finding a list of current digital titles, often requires a long and confusing journey through a publisher’s Web site. There are very few centralized locations for a student or instructor to find information on e-textbooks, and little information describing exactly why or how a customer can use various content-delivery options.” (Mackenzie, Matt 2002)

One of the biggest constraints on selling e-books direct to end-users is the current complexity in paying and downloading online – whether from the publisher’s own site or that of a bookseller / aggregator. The persistent buyer must go through many different and challenging steps to acquire the appropriate software, to register as a software user, read and agree to lengthy copyright and use agreements and finally download large files after making a credit card payment online. This is a time-consuming and often frustrating process.

Simpler and faster sales transactions are likely to emerge as publisher confidence and experience grows and as e-commerce technology improves.

The campus bookshop may feel comforted by the evidence that suggests that printed textbook sales are unlikely to be seriously affected in the short- to medium-term. Some observers (e.g. David Taylor, 2003) also predict the development of new roles for the campus bookshop, for instance, high-quality print-on-demand (POD) facilities, advisory services and assistance to students in reviewing e-textbook and e-content options.

The used book trade in textbooks – which accounts for a considerable proportion of overall sales and is sustained often through campus bookshops – is also likely to remain vigorous in the short-term, as long as students show a marked preference for the printed book. In the longer term, however, e-textbooks may present a challenge:

The used book market has always annoyed publishers (and sometimes authors as well), because they don’t receive any revenue from these salesthere are a few niche markets where resale by book purchasers represents a significant economic impact for publishers, such as textbooks, where perhaps 20% of the sales are in the used market. Publishers do many things today to keep the used textbook market at bay, such as releasing new editions of popular textbooks every few years. Electronic delivery, in conjunction with technological control of content, could wipe out these resale markets overnight and yield significant revenue opportunities. (Lynch, Clifford, 2001)

4.3.2 LIBRARY SUPPLY

In the US a number of aggregators have made the library market for e-books their specific target, though several have subsequently developed student access options as well. ebrary and netlibrary were the two market leaders in the US, with a foot in the UK market, both of which have survived the declining business of e-book development, though netlibrary was declared bankrupt and bought by OCLC; ebrary has taken a significantly more cautious approach to business development.

In the UK Ingenta, which has its roots in the provision of access to academic and research information services, is developing a similar range of aggregation services for publishers and content licensing for libraries.

“ebrary has developed a powerful system that cost effectively and efficiently creates highly interactive, online databases of content. We license our unique database technology to organizations such as publishers and corporations that need to reduce costs, increase revenues and promote knowledge sharing through digital distribution. Using our own technology, ebrary also creates database collections of books, maps, sheet music, reports and other authoritative content from leading publishers, which we license to libraries and other institutions worldwide. Individuals that do not have access to ebrary’s collections through their library may pay to access over 20,000 authoritative documents through ebrary Discover.”

[Extract from ebrary web site]

The role of aggregators in the supply of e-books to institutions and libraries is a powerful one. As in the printed book world, libraries will welcome a one-stop-shop approach to research on and access to e-content across publishers and subjects, to uniform purchasing and licensing models, and reading technology formats. As the range and number of e-books available in the market increase, it seems likely that new aggregators will enter the market, some based on supplying printed academic and educational books, some building on experience of e-journals and electronic information services.

In the short- to medium-term new and existing players will be feeling their way in new supply chain relationships and building confidence in trading in e-books and e-content. Constraints on these relationships will include:

- Effective pricing – to secure market demand at the same time as ensuring profit margins for both publishers and aggregators;
- Licence terms and conditions – appropriate for the library and institutional requirements while protecting rights holder interests and preserving income streams from printed books.

4.4 Other Players

There are other emerging players in the e-book / e-content industry, some of whom are combining roles and skills in new combinations and some of whom do not, as yet, play a significant role, but whose influence over the future shape of the industry could be significant.

4.4.1 DIGITISATION / CONVERSION AND PACKAGING

There are many specialist companies in the US, with a global reach, servicing the publishing industry and other big content providers in preparing content for electronic distribution and the Web by converting it to structured formats like XML, OEB and HTML. These companies may take on large, complex conversion projects, reorganizing and re-purposing the content for evolving applications and technologies.

Data Conversion Laboratories (DCL)⁴, for instance, offers digitisation and conversion implementation and management services, while Digital Publishing Solutions (DPS)⁵ also offer content management and hosting services.

Conversion and packaging companies are subject to the same market uncertainties as other industry players. Versaware, the company that converted Taylor & Francis' back list into e-books has gone out of business. Lightning Source⁶, owned by Ingram Inc. but now located in the UK, focuses on digitising content for POD rather than electronic environments.

Other companies focus more on the packaging and re-purposing of e-content. For example, XanEdu⁷ provides tutors and students in the USA access through search engines to a collection of digitised content, including commercial e-textbooks, course pack development and editing tools, research applications and assistance, copyright clearance services, a range of print productions options, and expert development support.

4.4.2 VIRTUAL LEARNING ENVIRONMENTS / LEARNING MANAGEMENT SOFTWARE

"An effective e-learning system would have an e-book at its core.....But it will also link out to other learning objects: pre-course gap analysis, built-in tutorial programs, customized learning paths through the material, post-assessment vehicles, course-management systems for the faculty, links to related Web sites, and simulations." Although many of these applications work with print textbooks, they are clearly more effective when they are linked to a digital textbook at the heart of the system." (Mackenzie, Matt, 2002)

Pearson Education, is in partnership with the Blackboard VLE company to provide CourseCompass, enabling access, under licence, to Pearson content and e-textbooks for HE academics to develop and customise their own courses.

A glance at Blackboard's web site⁸ shows that the company has formed US-based partnerships with many of the leading global academic publishers to enable access to and delivery, through Blackboard applications, of e-textbook content in various forms. Most of these partnerships currently entail downloading e-content 'chunks' and limited repurposing by the academic staff – as in the Pearson offer CourseCompass – and, of course, access by students to a range of e-textbook materials.

The makers of VLEs (or learning management software as it is more commonly known in the US) are well aware of the demand in HE and FE for relevant and authoritative course content, and of the challenges for teachers and academic staff in producing their own course and supplementary materials for the VLE.

⁴ <http://www.dclab.com/>

⁵ <http://www.dpsl.net/index.asp>

⁶ <https://www.lightningsource.com/>

⁷ <http://www.xanedu.com/>

⁸ <http://www.blackboard.com/about/pc/Partners.htm?PartnerType=Content>

Partnerships with commercial publishers and the development of interfaces to digital library collections are important in addressing this demand.

From the publishers' perspective, such partnerships not only offer another route to their markets for e-textbooks, but they should, with sufficient foresight, help to position a publisher – in terms of different skills and approaches to learning – successfully to develop content for fully-fledged e-learning.

There are currently few examples of partnerships in which publishers are developing new, electronic only material for VLEs, but this seems a next logical step.

4.4.3 BROADCASTING

Broadcasting companies, such as the BBC and Granada, are already producing e-learning material (free and priced) for both schools and FE. There are already examples of collaboration between academic institutions, academic publishers, libraries and broadcasters in the provision of free and priced e-learning opportunities (e.g. the Fathom concept which did not survive). The demand for multi-media content in e-learning is almost certainly set to increase and broadcasters are likely to be increasingly in competition with publishers.

5 PRICING AND BUSINESS MODELS: INDUSTRY PERSPECTIVE

“Michael Holdsworth, press business development director at Cambridge University Press, comments, “As long as print textbooks continue to offer excellent value I would doubt that the student market will go 100% e-mad, at least in the short term. However, tomorrow’s ‘Martini’ generation—any time, any place, anywhere—of demanding, consumerist students, whether on campus or distance learners, will certainly expect their course materials to be customised and fragmented just for them; to be interactive and media-rich; to be updated and supplemented online; and to be delivered overnight to their doors or directly to their PCs. There’s a new environment in which stand-alone print publishing risks being found seriously wanting.” (Taylor, David, 2000)

Academic publishers with large textbook lists are, understandably, very keen to protect the income stream and profits deriving from the sale of traditional printed textbooks. Currently all e-textbook pricing and business models are linked closely to the printed textbooks, either through ‘bundling’ the e-version with printed textbook adoptions in institutions, pricing e-textbooks at the same levels as print for individual buyers, or constructing institutional licence agreements which are modelled on the restrictions on photocopying accepted in the education and research sector.

Contrary to widespread assumptions in the academic market, publishers maintain that costs of e-textbooks are currently not lower than print. Investment and risk are still required and it may take years to build a sustainable model. There are substantial costs in development and in the use of proprietary formats, very significant costs for providing 24/7 access. It is true that there are savings on print, binding and distribution – however the costs of outsourcing online delivery are currently similar. E-books must be priced similarly to, or cheaper than print textbooks, for the market to be able to afford them, so effectively the price has to be ‘cost – 17.5%’ (i.e. standard rate of VAT on electronic but not printed books).

Standards and technology developments, and ‘trial and error’ experience of selling and licensing e-textbooks will assist the industry in building confidence and more mature business models for the electronic environment. These include:

- The adoption of an industry-wide code of practice on the measurement of usage of online information products and services – the COUNTER project⁹ is currently addressing this in the context of e-journals and scholarly publications. Accurate usage statistics will greatly improve the publishers understanding of the potential and actual markets for e-textbooks and enable more precise ‘chunking’ of e-content and associated pricing models.
- A greater commitment to using metadata and tagging e-textbook content among publishers, so that more flexible and innovative pricing, DRM and licensing will be possible. One view of the e-textbook market is that the concurrent release of electronic and print textbooks will never challenge the commercial position of the printed version in the market, and that textbook publishers should therefore be able (and willing) to experiment and innovate with the resulting e-content.

⁹ <http://www.projectcounter.org/>

- Developments in e-commerce technology to provide, for instance, cost-effective and robust micropayment systems, using smart cards or deposit accounts, with integrated DRM capability, would provide opportunities for a wider range of business models to develop.

5.1 Current business models for e-textbooks

“The balance points among publisher fears, consumer desires, and technical capabilities have yet to be established for digital books. The debate begins with the desire to control copying, but it quickly expands to include control of use, usage monitoring, and new business models that emphasize pay-per-view and transient access rather than actual ownership of copies of works.” (Lynch, Clifford, 2001)

Current business models for e-textbooks are far from mature. There are a variety of options and models for sales to individual end-users: selling direct (through the supply chain) to end-users is the clear preference of publishers, as long as sales of printed textbooks can be protected. Options include:

- Pay to download – which mimics the print world book-buying model and may allow reading on screen or printing out: a model used by several publishers and booksellers online.
- Pay to read online with limited copy and print facility – the model which underpins added value services for students such as Questia, which charges a monthly subscription.
- Read online free and pay to download – the model adopted by ebrary, and a number of publishers.
- Online rental (time limited) for micro-payments.

Institutional business models – whether for libraries or academic departments – are based on licences, the terms of which, and the payment method, differ quite widely.

“*Licensing* is a key issue when providing electronic text. Any pricing mechanism must be linked to the terms of the licence. The licence terms will impose the pricing on subscribers and may oblige the licensee to undertake certain duties, such as registering users, defining core texts, etc.....we would argue that the licence terms should follow the pricing model adopted, rather than have a licence terms dominate a pricing model. In other words, first the pricing model should be agreed, and then the licence terms should be built around it. (Oppenheim, C., et al, 2001)

Examples of these licence arrangements include

- Single publisher to institution licences – for example, OUP’s new Oxford Scholarship Online service, which will be subscription-based.
- Aggregator to institution licences – for example, netlibrary licences to libraries for access and use of their content database.
- Single publisher to the HE / FE sector – the first e-book example of which is currently in negotiation by JISC on behalf of HE and FE institutions.

Institutional licences (including the sector-wide JISC model) currently tend to be for single user access only, which greatly restricts the flexibility and effectiveness of e-textbook collections in libraries. It is expected that licences will evolve into multiple user licences as confidence and usage grows.

Considerable research and project-based work has been done to explore new and different business models for electronic materials (including DRM), much of it supported by JISC (for instance in the *eLib* Programme) and the Publisher and Library / Learning Solutions (PALS) group¹⁰. The majority of them focus on the HE market and not FE. These projects include HERON (now part of Ingenta)¹¹ and PELICAN¹², both of which began by dealing with the digitisation, by HE institution or publisher, of material originated for print.

As with any new digital product entering a diversified market, there are too many unknowns to predict what may happen to the take-up of the product, to income streams and the impact on other products. There is, currently, insufficient volume of e-textbooks products on the market to provide hard evidence.

In terms of “resource costs” dispensing with the physical, printed version should eliminate costs of paper, printing, storage (at each stage of the supply chain) and physical distribution. New costs arising from set-up for electronic production, distribution and retailing (aggregation electronic distribution and retailing (aggregation) only partly offset these savings. Currently, however, the economics of conversion of printed textbooks to digital formats are distorted by discriminatory taxation and by market imperfections, specifically the market power of intermediaries who seek to maintain margins equivalent to those on printed books. This is demonstrated in the following example.

5.1.1 THE ECONOMICS OF SUPPLYING E-TEXTBOOKS

In Appendix 4 we present an illustrative example of an economics textbook sold direct to end-users over a six year ‘life’ in order to analyse the possible impact on publishers’ income streams. The example assumes about 100,000 students in HE each year beginning a course with economics content, and a market share for the example textbook of 25% at the peak. In the fourth year a revised edition of the textbook is published.

The tables analyse four different situations:

- Sales of the printed textbook only (Table 1);
- Sales of the electronic version only (Table 2)
- Sales of both printed and e-textbook with an increase in sales and no ‘seepage’ of sales from printed to electronic versions (Table 3);
- Sales of both printed and e-textbook with significant ‘seepage’ of sales over 6 years (Table 4).

Providing the same net margin to those involved in the supply chain as in Table 1 (sales of the printed version only), savings in resource costs on the electronic textbook should make it possible to reduce the retail price by about one-third. However, this theoretical ideal cannot be achieved at present; first, because electronic products carry VAT at 17.5% while printed books are zero-rated; secondly because powerful intermediaries are unwilling to reduce gross margins, beyond absorption of the VAT. This means that savings are confined to elimination of physical production costs.

¹⁰ Publisher and Library/Learning Solutions (PALS) is the ongoing collaboration between UK publishers (the Publishers Association and ALPSP) and higher/further education (JISC) to tackle issues arising from electronic publication. <http://www.palsgroup.org.uk/palsweb/palsweb.nsf/pubframe>

¹¹ <http://www.heron.ac.uk/>

¹² <http://www.lboro.ac.uk/departments/dis/disresearch/pelican/indexpage.html>

The net effect of these factors, together with the costs of set-up for the electronic version is that publishing exclusively in electronic form would be less profitable over the six years than publishing exclusively in print (see Table 2).

If it were possible to sell an electronic version without losing any sales of the printed one, this would add to profits, despite the duplication of fixed costs. Table 3 shows an increase in publisher's profits despite absorbing the VAT, no savings in distribution or retailing costs for the electronic version and incremental sales equivalent to only five per cent of those of the printed version.

If the two versions were produced in parallel and over the six years total sales were unchanged but with a gradual switch to the electronic (assumed to be 60% of sales in year 6), this would be the least profitable for the publisher of the four situations examined (see Table 4).

6 CONCLUSIONS ABOUT THE INDUSTRY AND E-TEXTBOOKS

6.1 The impact of e-textbooks

When asked what the impact of e-textbooks on HE markets position will be in five years time most publishers and booksellers consider there will be little or no decrease in traditional textbook sales but that the income stream deriving from e-textbooks will increase (up to 10% of total income from a title). Our economic model (see Appendix 4) for the supply of e-textbooks in current market conditions indicates that in the 'worst case' scenario (Table 4), with a 'seepage' of sales from print to e-textbooks over a 6 year period and no extra sales, net present value (NPV) is shown as 10% lower than in equivalent sales of the printed version alone. Pricing to absorb the VAT on e-textbooks accounts for most of this reduction in NPV.

The e-textbook as a product for FE hardly exists, except where the interests of HE and FE overlap in the colleges delivering HE courses, and is not now likely to emerge in its current configuration. The publishers who publish textbooks for FE are part of a different dialogue with the sector about the shape of e-books and e-learning content; different publishers and producers in discussion with different sectoral organisations (e.g. LSC, Becta, JISC Learning and Teaching Programme committees and working groups).

6.2 Marketing and promotion

In many cases publishers do not actively promote the e-textbook versions of their printed textbooks (e.g. making no reference to them in their catalogues) and publishers rarely promote textbooks direct to students. Therefore, if a lecturer is not interested available e-textbooks there is currently little likelihood of his/her students finding out about them. Academics' awareness of e-books in general, and e-textbooks in particular, would need to be improved if sales are to increase. Publishers needed to integrate e-book promotion with normal marketing and promotion activities and work closely with aggregators and booksellers in promoting to students.

6.3 Reading technology

In the short-term the less-than-satisfactory experience of reading and navigating book-like, linear text on screen seems likely to constrain student purchasing of e-textbooks. Reading technology and the relatively high price of the more sophisticated hardware are probably greater market constraints in the UK than in North America, where the reliance on numerous course textbooks is more significant.

While considerable understanding and research are advancing in reading technologies (see Appendix 5), it will be some time before this translates into affordable devices or 'next generation, computers. In the medium-term, the publishing link between e-textbooks and the linear text, print originals may be weaker, and reading technology may not be quite so decisive a factor in publishing for learning and teaching in HE and FE.

6.4 The impact of SENDA

The requirements of the Special Education Needs and Disability Act 2002 (SENDA), and similar legislation in the US, are likely to provide a spur both to research and development of affordable reading technology for open platforms, and to the development of new and interesting partnerships between established players in academic and FE publishing and innovative packagers.

“A U.S. Senate committee this summer approved a bipartisan reauthorization of the Individuals with Disabilities Education Act (IDEA), calling for adoption of a standard format for students with "print disabilities" to gain access to the general curriculum. A similar initiative by educators, technology providers and publishers, the National File Format, is already underway. The outcome could influence digital media standards in educational publishing markets well beyond the special needs community.” (Sieck, S, 2003)

HE and FE institutions are also increasingly likely to demand material published in formats which meet their own SENDA obligations.

6.5 Exploiting digital technology

It may be that real innovation and developments in e-textbooks – more accurately, e-publishing – for the HE and FE sector will come from publishers and other content providers / producers who do not ‘carry the baggage of the printed textbook’, who are free from the perceived risks to a reliable income stream in traditional markets.

E-publishing for the HE and FE sector, with no print parallels or models, brings its own risks and problems, not least

- how prices are to be fixed, since the market currently determines the ‘significance’ to enable price fixing through exposure to print;
- how relationships within the supply chain might develop or change, and
- what kinds of relationships must be built by publishers / content providers with the academic and FE communities to source and reward new authors.

Chapter 2: Market Analysis

1 INTRODUCTION: THE CONTEXT

It is difficult to consider the whole HE / FE sector as one market for e-textbooks, or for any other form of publishing. Commercial publishers and other e-content providers certainly do not see it as a unified market, and relatively few publishers publish for both HE and FE.

Diversity not only differentiates HE from FE, but also defines sub-groups of institutions across the whole sector in terms of (to name only a few dimensions of diversity):

- Levels of resources (e.g. in learning support, IT infrastructure)
- Subject specialisation
- Research or teaching bias (HE only)
- Outreach and distance education.

There are, however, some over-arching market trends and developments which impact all institutions across the HE / FE sector and which provide a common context in which to consider the characteristics of the HE and FE markets separately.

These common features include:

- Growth in student numbers
- Changing learning and teaching practices and delivery modes
- Impact of information and communication technologies (ICT)
- Managing hardware and software
- Constraints on the development of new learning and teaching resources

1.1 Growth in student numbers

Student numbers in HE rose by 55% between 1990/1 and 2001/2 to 1.8 million, as measured as FTE by the Higher Education Statistics Agency (HESA). Historical data on FE are harder to find, but according to the Learning and Skills Council (LSC), the total number of registrations in the FE sector in 2001/2 was 4.15 million, an increase of 10.2% on the previous year. 84% of these were adults (19+), most of whom would be part-time. The continuing rise in the number of students entering HE and FE puts pressure on institutional resources – of particular interest to this study, on library and learning support resources, but also on IT infrastructure, staffing, teaching and study space etc.

Although government funding is linked to student numbers (among other factors), increasing funds do not necessarily keep pace with this pressure. During the 11-year period (1990/1 to 2001/2) funding per FTE fell by 30%, or by 49% after allowing for general inflation. Nor can additional funds easily and quickly be translated into more library resources, more staff, more study space.

“Well, for us just increasing student numbers overall, that has created a real challenge. We have a short loan collection which every year brings out more complaints than just about any other aspect of the service. We’ve got what we think is a pretty reasonable formula for buying multiple copies. It is never enough and there is never enough access at those peak times in the academic year.” (Armstrong, Chris & Lonsdale, Ray, 2003 – quotation from a focus group member)

Distance learning is also on the rise, in both HE and FE, enabled by information technology, and structured to allow inclusion by a wide range of student groups for whom continuing or higher education would previously have been difficult or impossible.

1.2 Changing patterns of learning and teaching

With a new government emphasis on quality in teaching and student choice in learning, evidenced, for instance, in the recent White Paper on HE (DfES, 2003a), learning and teaching methodologies and modes of delivery are changing across the HE and FE sector. Institutional strategies emphasise greater flexibility and inclusiveness in learning and teaching, with the focus firmly on the needs of the student rather than the institution.

These strategic plans, however, do not necessarily translate easily into practice. There is a growing awareness of how large are the training and professional development needs, not only in relation to pedagogy and curriculum change, IT skills and awareness, but also in relation to wider ‘cultural change’ and attitudes.

1.3 Impact of ICT

Information and communication technology (ICT) underpins government policies and institutional strategies for learning and teaching across the sector. Both government and individual institutions have made significant investment in ICT infrastructure, IT support and staff / student skills upgrading. Over 80% of institutions use some kind of VLE; over 70% are currently engaged in the development of a managed learning environment (MLE)¹³ over 40% have some kind of institutional or departmental portal (SIRU, 2003). Higher levels of recurrent spending in this area are indicated – at least in the short- to medium-term – if institutions are to build on this initial investment and develop capacity to exploit the potential of the technology.

Because of the investment in VLEs and MLE development, institutions across the sector are now under pressure to re-assess pedagogy and the relevance of existing curricula, methodologies and approaches in the context of new learning environments. However, face-to-face teaching is unlikely to be abandoned and ‘blended’ learning is a favoured option for courses that are not part of distance learning programmes. Blended learning *may* be fairly traditional, but is likely to have at least a web presence for a course (with e.g. course textbook, notes, past exam papers available online), and at the other end of the scale, there may be a range of course-specific interactive work with online discussion and assessment.

¹³ Managed Learning Environment (MLE) refers to the whole range of information systems and processes of an institution (including its VLE if it has one) that contribute directly or indirectly to learning and the management of that learning.

1.4 Managing hardware and software

There is wide variation among institutions in the provision, accessibility and quality of IT hardware and software, including many institutions that have problems with

- Student access to a sufficiently large number of networked computers on a (close to) 24/7 basis;
- Network infrastructure capable of enabling off-site and remote access to electronic resources by academic staff and students;
- The provision of adequate computer access for students in libraries and learning resource areas, and to academic and teaching staff for learning materials preparation
- The availability of sufficient technical support staff to support academic staff and students in learning development and skills upgrading.

1.5 Constraints on the development of new learning resources

The new approaches to teaching and course delivery demanded by the implementation of MLEs bring with them the requirement for a critical mass of electronic content related to subjects and courses. In most courses and at most levels, this mass of content does not currently exist.

“.....universities and FE colleges are attracted to the flexibility of VLEs and take up from students has been fast but the questions of who is going to pay for and create the content, how high quality pedagogy can be guaranteed and, crucially, whether there is any evidence that online teaching and learning actually makes a difference, are still to be answered. The national institutions, in seeking to overcome some of these barriers, are calling for a coherent national strategy for VLEs. Publishers need to keep up with a changing market but there are huge concerns over poor investment returns and the threat to IP. **Liz Horne, Knowledge Business Consultant**” (PALS, 2003)

While academic and teaching staff are using and re-purposing their existing handouts and teaching materials, the impetus to rethink learning materials in the new environment is clearly growing (SIRU, 2003). This has several implications.

The first is the availability of time for academic and teaching staff to write and develop learning content of suitable quality. It is by no means certain that this can be found across all subjects in all institutions. Academic staff who are embracing the electronic environment for learning and teaching developments and developing e-content are typically doing the majority of this work in their own time.

In **Calderdale College** the Curriculum Innovation project represented a significant investment to tackle the problem of staff take-up of systems by freeing participating staff for half the time to enable them to focus on their curriculum materials. Now that the (expensive) project is over, one of the unforeseen outcomes is that staff members do not perceive this work as being part of their daily routine, but as ‘special project’ work. Mainly because of this, the VLE has been ‘on the back-burner’ for the past 18 months, without any real push to promote it. (SIRU, 2003)

Second, the availability of appropriate skills for creating coherent and pedagogically sound e-content (including IT skills, writing for the electronic environment, design and presentation, editorial skills etc.) is not yet widespread among teaching staff in HE or FE. The complexities of the task are often underestimated.

In the **University of Dundee** some of the staff think, because the system is easy to use, that they can 'do' Blackboard courses in very small amounts of time – staff often underestimate how much time and commitment is necessary to get courses properly onto the system in a way that makes sense and which students can understand. Few staff understand that teaching online is much more difficult than face to face. It has been estimated that 1 hour online = 3 hours face to face. (SIRU, 2003)

Finally, related to this is increasing concern about the uneven quality of e-learning material, much of which is home-grown or sourced on the Internet and being 'dumped' on the systems with no observation of or opportunity for quality control procedures. These procedures are difficult for individual institutions to develop, embed and sustain.

"We cannot rely on the consumer market mechanism to improve quality. Products are often selected on behalf of end-users (learners and teachers) by intermediaries (parents, teachers, lecturers, department heads, Government agencies, local advisers, etc). We have no 'kitemarking' system and this makes it difficult for parents, teachers and advisers to make appropriate judgments of quality. The lack of a direct relationship between the users and the suppliers means that the products developed are less likely to meet learners' and teachers' real needs. We have not yet found the right mechanisms for the partnerships we need between developers and users. We have to create the conditions in which innovative ideas for e-learning pedagogy will flourish." (DfES, 2003b)

2 HIGHER EDUCATION MARKET CHARACTERISTICS

2.1 Use of textbooks in HE

In general, the textbook has always had less relevance in HE in the UK, compared to the USA and other countries. UK styles of teaching and learning have always been quite different.

However, in the sciences and (to some extent) the applied sciences, medicine, law, business and economics, the textbook still has an important role. It is clear that the textbook, while not necessarily providing the only course content, still occupies a central role in these kinds of disciplines which require 1st and 2nd year undergraduates to absorb a large body of fact or principles.

In humanities, history and social sciences, textbooks (and packaged knowledge in general) are less relevant, although here the definitions of what is a textbook and what is course reading become very blurred. These subjects emphasise the ability to assess arguments and evidence supporting a range of viewpoints: there is no body of facts or principles needing an authoritative single source of reference.

Student spending on textbooks, reported in numerous recent surveys, is significantly lower among arts, humanities and social science students which supports these views of differences between broad subject disciplines.

Within these broad differences, it is difficult to arrive at a definition of a textbook in any subject – a book may be a textbook in one institution and a piece of supplementary reading in another. However, there appears to be a kind of consensus on three levels of textbook use:

- a) Course adoptions, selected by the course leader or team and usually associated with a body of factual knowledge or principles, and most frequently for the early undergraduate years, where class sizes can be very large in some subjects (over 100 students), although many postgraduate taught courses also rely on textbooks as well, especially those that are cross-disciplinary.
- b) Essential reading, without which students will not be able to complete their courses; and
- c) Recommended supplementary reading, which may be important at certain points in a course, and is of considerably greater importance in humanities and social science subjects.

2.2 What is an e-textbook in HE?

In this context, an e-textbook – as currently understood by the publishers who produce them to be electronic versions of printed textbooks, with or without additional or interactive functionality – appears to have a relatively limited role to play.

Despite the lack of much hard evidence relating to e-textbooks (as a new product, sales figures are relatively limited), current evidence appears to show a marked reluctance on the part of students to buy e-textbooks in place of print. As we speculate in Chapter 1, this may change when and if reading technology and the navigability of documents on screen improves (see Appendix 5 for a consideration of these issues). Until then, the role of e-textbooks is likely to be limited to contributing to b) and c) above, but not significantly to a).

However, the concept of teaching *per se* is moving away from the 'whole course' approach towards the provision of resources which can be combined to give the students the individualised learning experience they increasingly want. Already in distance learning, and, no doubt, in many on-site courses throughout HE, it is unusual for particular textbooks to form a central part of any course. Rather, individual academics and course teams work together with support staff to design content and learning structure, and link in a very wide variety of resources both electronic and paper-based, of which textbooks are a subsidiary part.

2.3 Wider access to e-content

E-textbooks and e-learning content must be seen in an HE context now rich in digital content of all kinds, much of which is purchased, licensed and mediated through the library. Research related digital materials, e-journals and databases, have provided HE institutions with almost a decade of experience in models for licensing access, with many lessons learned about the most appropriate licence terms, costs, patterns of access and use within the institution, etc.

JISC itself has been responsible for negotiating and licensing for the sector with e-journals, electronic reference works, databases and e-information services, and the development of central repositories of different kinds of e-content, , such as the data archives, much of it not-for-profit and often originated in the academic sector.

In the past ten years considerable investment has been made, centrally by JISC, and locally by consortia of institutions, in exploring all aspects of the 'electronic library', networked and shared access to distributed e-content. Innovations in licensing and other trading models, DRM, metadata standards, interoperability, on-screen readability and digital preservation have all emerged from projects in HE.

Typically this activity has been driven by the sector's research agenda, rather than by teaching and learning. It could be said that HE has rarely concentrated on pedagogy; its priority has traditionally always been research and the subject discipline. With the Government's recent White Paper (DfES, 2003a), which recommends funding models for HE institutions tied to excellence in teaching as well as to student numbers and excellence in research, a new focus on learning and teaching is likely to provide an opportunity for the HE sector to develop a similar programme of innovation with learning materials at the centre.

JISC has started down this path with its Learning and Teaching Programme and the JORUM+ Project.¹⁴ However, there is a question over how these and future programmes of research and innovation will relate to the (largely commercial) development of e-books and e-textbooks for the academic sector. Will they develop as entirely separate, possibly competing, strands of activity and learning content development, one funded by HE sector investment, and the other from the private sector? At what point, if at all, will they converge and will mutually beneficial partnerships develop?

¹⁴ The JORUM+ project will provide a practical 'test-bed' investigation into a digital repository for learning materials, one that is both capable of providing the technical infrastructure for storage and retrieval of learning objects, and stimulating the re-use of learning materials for UK further and higher education. The JORUM+ project commenced in October 2002 and will end in July 2005.
<http://www.jorum.ac.uk>

2.4 E-content development

E-content development within HE currently takes many forms and is undertaken by academic, learning support and library staff. It can include:

- Original writing for lectures and hand-outs, exercises and tests etc.
- Drawing on 'chunks' and pre-existing 'learning objects' to create course-specific modules.
- Creating course packs from digital or digitised material.
- Developing new curriculum and course modules on VLEs, and course-related web sites.

"..a learning object is any resource that can be used to facilitate learning and teaching that has been described using metadata. Examples could include an image, a map, a piece of film or audio, a piece of text, an assessment or a combination of more than one of these." (JORUM+ Project)

All of these kinds of activity involve searching and collating material, checking copyright and possible negotiation of rights (or, equally possibly, ignoring copyright implications), writing, editing and designing, and considerable IT and / or software skills.

"Alun Hughes, Learning and Information Services, University of Highlands and Islands, explained the practical issues concerned with supplying learning resources to a university that covers an area the size of Belgium. He asked the question, are academics the best people to be creating learning objects for online learning? Aggregation is hard work and time consuming, can you be sure that a learning object had pedagogical value - will lecture notes pass quality control? Is self-development really cost effective? He said that publishers are in a good position to help here - they understand the economics of HEIs, they understand how to compete for limited budgets, unlike IT software suppliers, and they can offer continuity if not perpetuity." (PALS, 2003)

Many librarians, academic and other staff in HE are sceptical about the added value that academic publishers bring to pedagogical and scholarly material written by colleagues in the academic sector. Here the frequent analogy of the e-journal, and even the scholarly monograph, is misleading. In textbook publishing, considerable editorial, design, production and management skills are applied by publishers to the 'raw material' supplied by academic authors, in order to produce, promote and market textbooks fit for purpose. These are skills and capacity that are not easily sourced and sustained within HE itself.

2.5 Not-for-profit academic e-publishing models

Misconceptions exist, also, about e-book publishing in general being currently cheaper than print publishing, and these lead to dissatisfaction with current pricing levels for e-books in general and e-book licences.

Strong arguments exist, within HE, for institutions themselves – and consortia of institutions – to take control of 'publishing' learning and teaching materials, modelled on the self-archiving of research outputs which is gaining ground, championed by Stephen Harnad at the University of Southampton¹⁵.

¹⁵ <http://www.ecs.soton.ac.uk/~harnad/>

Current examples of collaborative initiatives include the Open Learning Foundation (OLF)¹⁶, and HERON services offered to the sector by Ingenta. ebrary in the US already cooperates with universities wishing to self-archive their research and teaching outputs and make them available 'toll free'.

"...a more cooperative approach to the development and publication of 'quality' learning materials would be worth considering among universities. The Funding Councils might have a role to play (JISC leads on 'not-for-profit' developments at the moment). The incentives for individual academics would be primarily kudos and reciprocal access. There could still be some role for commercial publishers (e.g. in marketing) but the present relationship would change."

[Extract from comments on a Study discussion paper from **Bruce Ingraham**, Teaching Fellow, Centre for Learning and Quality Enhancement, University of Teesside]

However, as Harnad points out in one of his discussion list contributions, "universities providing open-access archives for their own refereed research publications are not themselves publishers. They are merely providing toll-free access to their own refereed research output, published in toll-access journals. The only copyright protection they seek is protection against plagiarism or text-corruption."

Self-archiving and more complex not-for-profit publishing of learning and teaching materials all have costs associated with them, even though the software and basic content may not themselves be priced. Political and strategic decisions about who will bear these costs - not only once but sustained and expanded to meet increasing demands for materials - need careful consideration, and need to be based on accurate information about those costs. There are also other immediate considerations, such as

- Remuneration of authors and rights holders. There are potentially many players in the creation and provision of e-learning content - authors, editors, brokers of relations between content providers, dissemination platforms, clearer of rights etc. - all these activities will have a cost and a market value (both can be 0) even within a not-for-profit model. Assuming that DRM systems can cope, the different products and services with their costs and values can and will be traded (including exchanged for free). Self-archiving, self-publishing, toll-free access etc will have place in this. However, it is realistic to assume that those individuals and organisations that do own rights in products and services with a significant value, might seek to capitalise on this.
- Institutional control of IPR. What impact might the recent moves among HE institutions to control the IPR of academic research (and by extension teaching and learning) outputs have on the motivation and incentives for academic authors to continue writing and developing teaching and learning materials? Will 'kudos and reciprocal access' provide sufficient incentive?
- Quality and authority in learning and teaching materials. Currently, a level of quality and veracity in textbook content is largely guaranteed by a fiercely competitive (global) market, which provides to academic staff and students a range of textbook and supplementary book choices across subject disciplines and course levels. How will this range and competition be sustained in a not-for-profit model, or what guarantees of sustained quality might be substituted?

¹⁶ <http://www.olf.ac.uk/aboutus/main.asp?debug=>

“Good pedagogic content demands large editorial investment, i.e., more time and money. It was raised that if rightsholders are unable to charge more for better content, they will be less inclined to make necessary initial investment and the result of similar prices will be not just similar content, but cheap content, with all that implies about quality. However, this may not be a bad thing, as those publishers wishing to remain in this market will continue to invest in high quality products, whilst those offering poor quality content will find there is no market for them.” (Oppenheim, C. et al, 2001)

2.6 Stakeholder interests

2.6.1 ACADEMIC STAFF

The role of the academic in e-textbook development is a powerful one, but consensus on the key issues will be hard to reach, given the extreme diversity among academic staff in HE: for instance

- Very different perspectives on learning and teaching materials from different subject disciplines;
- Wide range of IT skills and interests; and
- Related wide range of attitudes towards teaching methodologies;
- A research or a teaching focus in their work.

There is a clear distinction between the academic as researcher and academic as teacher. The academic as researcher focuses very much on the journal market with a need for specific information. The academic as teacher is looking to the provision of electronic material...”. (Oppenheim, C. et al, 2001)

Academic staff ‘adopt’ textbooks for their courses for student purchase, where appropriate, recommend essential and supplementary reading for their students, and increasingly exploit MLEs to develop their own course materials and direct student access to a wide range of internal and external sources. There has always been pressure on academic departments to recommend single core textbooks for economic reasons; however, this is generally unpopular with academic staff in the UK as it is seen as reducing their freedom in teaching.

Many fear the ‘dumbing down’ of teaching and learning and the increasing adoption of a ‘fast food mentality’ especially among first and second year undergraduates, if they are presented with ‘pre-digested chunks’ of text. However, this is not a new issue; it is, and has always been, quite possible for academics to structure courses and written work to ensure that students have to read beyond core texts.

“‘Chunking’ is all well and good to an extent, but unfettered access to a textbook which has been designed as an integrated and academically rigorous whole can encourage students to explore a field further and in more depth than restricting them to the bare bones of what they ‘need’ to see.”

[Comment on a Study discussion paper from Philippa Freegard, Glasgow University Initiative in Distance Education]

The ‘slice n’ dice’ approach to building course packs is increasingly popular as a concept, though not all academics have the skills and / or time to do it themselves. Many enlist the assistance of the library. While it is essential to academics that their students are able to access essential sources and materials, either through purchase

or through the library, they are generally not interested in the operational details of how their institution can purchase or secure licensed access sufficient for their student's needs.

"Academics regarded electronic full text sources as the libraries' responsibility. Further, there appears to be no real awareness among academics regarding the delivery of full text electronic resources.

Academics have a greater concern for technological issues than copyright and licence agreements. This is not to say that academics are not aware of copyright issues. Many are all too well aware and in fact, are perhaps reluctant to provide electronic full text resources to their students in fear of copyright infringements." (Oppenheim, C. et al, 2001)

Academic staff generally do not have budgets for purchasing / licensing 'third party' material, whether in 'chunks' or not, for inclusion in their course packs. Academic departments are constrained by this, and by the ability or willingness of students to pay for learning materials, in taking up licenses direct with publishers for access to e-learning content and whole e-textbooks, such as the deals offered by Pearson and (shortly) OUP (see Chapter 1, paragraph 4.1.1).

Responses in the recent research into MLE activity in HE and FE (SIRU, 2003) leave one in no doubt that academic staff in all subject disciplines feel under considerable pressure to embrace innovation in pedagogy and to provide flexible, individualised learning opportunities for students. The development of e-learning materials – original or 'sliced n' diced' – is very much part of this pressure.

The MLE Study also revealed a current ambivalence in academic attitudes towards sharing teaching and learning resources that staff have developed and / or written themselves. Currently the sharing of e-learning content across departments or institutions – not to mention between different institutions – is a rare occurrence. Apart from a natural proprietary attitude towards their own original material, academics are constrained in sharing by a staunch independence in teaching and reluctance to use material that was 'not invented here'. It will be interesting to see what light the results of the current JORUM+ scoping study will shed on this issue, while the experience of the HERON digital archive seems to indicate a relative lack of overlapping course requirements in the sector.

2.6.2 STUDENTS

"Students' perception of digital resources varies largely by study mode and discipline. Traditionally, distance learning students work a lot more with electronic resources than students in full time undergraduate studies." (Oppenheim, C. et al, 2001)

Over 90% of HE textbook sales are to students rather than to libraries in the UK, which makes them a potentially very powerful market group for e-textbook publishers and for any other creators / producers of e-learning content. Surprisingly little, however, is known about student attitudes to and interest in e-textbooks and e-learning content in general.

Evidence on student spending on books tells us something. From a variety of sources, the CAPP estimates that spending on books in HE in 2000-1 was £114 per full-time student and £80 per part-time student, giving total UK spending on books by

HE students of £159 million. The figures for 2002-3 show average full-time student spending at £133, including £11 second-hand (BML, 2003). Most of this would be spent on textbooks (say £140 million in 2000-1).

A report produced for the CAPP in 1998 showed that over half of HE undergraduates now had course packs, often containing extracts photocopied from textbooks. Most HE institutions charge for printed course-packs (the London School of Economics web site, for instance, shows a range of charges from 0 to £23.00). The situation remains similar in 2003: 43% of all students did not use course packs (BML, 2003). Among those students who did use course packs, the usage score on a rating of 0 to 4 was 2.3, compared with 2.9 for books owned and 2.8 for books borrowed.

The amount spent on textbooks by students varies considerably between institutions and between subjects studied (BML, 2003). Given that for some students the course pack, particularly in its electronic format, contains all that is needed to get through the assessment, and links to external web sites provide access to wider reading. One factor that may support the sale of printed textbook is its perceived permanence. A study for the Publishers Association (PA) in 1998 showed that only a minority of students sold their books immediately after the relevant course was over.

In the USA, where alternative sources of learning material have developed even more than in the UK, sales of books for higher education rose by 87 per cent over the ten years to 2002, with 20 per cent growth in the last two years. Why? The evidence on student use of learning resources all suggests that the application of new technologies has made much less progress in practice than its potential would suggest.

"I asked all the students last year what they thought of e-books thinking that they come in and use the Internet etc., etc. and surprisingly they were a bit wary about it, this was before they'd had experience of it, but I was just interested to find out that if we put money into e-books as opposed to paper books, you know, how they'd feel about that and there wasn't the overwhelming support I thought there would be." (Armstrong, Chris & Lonsdale, Ray, 2003)

There does appear, however, to be a clear trade-off between access to textbooks in the library and the decision to purchase. In the CAPP survey 59% gave availability in the library as a reason for not buying recommended texts (54% in Year 1, rising to 63% in Year 3; 64% at pre-1991 universities, where libraries are generally have wider and larger stocks and 55% at post-1991). However, the degree of satisfaction with library provision is greater in later years at university, with 67% of first year students reporting that they invariably or usually get the books they need, a proportion that rises to 77% in the third year.

The second most important reason for not buying is "can't afford it" (46%, up from 42% in 2001). It is arguable, with the cost of higher education to the student set to rise, that this second factor is likely to increase in impact, putting more pressure on libraries to supply textbooks.

Armstrong and Lonsdale note that the findings of various research projects "have underlined the lack of information skills on the part of many student users" which may underpin problems with the use and exploitation of e-books in general.

"I think you could get quite a lot of students who do get lost. It depends on the student, I mean even with electronic journals you find students who can't actually make up a reference because they get straight to the article in a journal, and they don't know what the journal is, what the issue or [volume] is and you have to show them how to work back to that". (Armstrong, Chris & Lonsdale, Ray, 2003)

There is some evidence to suggest that resistance among students to using e-textbooks also arises from not being able to get access to computers on campus or to access networked resources off-campus.

The JISC MLE Study (SIRU, 2003) concluded that it is too early to make any assessment of the impact of the new learning environments on learning and student achievement; institutions are still grappling with the technological and culture change issues surrounding the introduction of new systems; and there is no critical mass of e-content for learning yet assembled. The impact on students has so far been minimal, but the potential is enormous.

2.7 Librarians

"I think probably library staff can see potential more than academics and students. We can see the potential of solving problems like short term collections and access via e-books whereby you have some.....certainly the students who are – quite a lot of them are middle aged and technophobic and you'd have problems actually conveying to them that this was a good step." (Armstrong, Chris & Lonsdale, Ray, 2003)

Librarians are drawn into the debate on e-textbooks as part of a wider professional concern and interest in utilising electronic information services and resources in general, and through the print-world imperative placed on them to have available short loan collections of recommended and essential reading, which has traditionally included textbook titles.

Armstrong and Lonsdale found that there was a strong sense among their focus groups "that it was the library staff who were not only positively disposed towards e-books but who were actually creating an awareness amongst the various user groups. Indeed it was felt that [information and library staff] had a major role to play in disseminating an awareness of the nature and value of e-books."

There have always been different opinions as to whether HE libraries should provide loan collections of student textbooks, and a certain consensus that HE institutions should generally steer clear from requiring their libraries to substitute for student purchase in textbooks which are course adoptions. Library purchase of other kinds of printed textbooks, as described in 2.1 above, in the categories of essential and recommended or supplementary reading, is usually regarded as an absolute requirement. These materials are just as likely to be e-book monographs as course-related e-textbooks, which may be heavily in demand by students at peak times of the year. In these circumstances, e-book purchasing or licences appear to offer a solution to pressure on resources.

HE librarians generally regard course packs as an efficient way of providing students with key readings. Reasons include¹⁷

¹⁷ according to Leeds Metropolitan University <http://www.lmu.ac.uk>

- growth in student numbers,
- self-directed learning,
- modularisation requiring large numbers to read the same chapter simultaneously,
- the inconvenience of short loan periods for those attending infrequently and
- shortage of resources.

Librarians have built up considerable expertise in purchasing and licensing electronic materials through dealing in e-journals and e-information services. Many librarians anticipate that a blurring between e-books and e-journals is likely, in response to the growing pressure to develop more flexible and 'chunked' e-learning materials.

They are very concerned about the shape of the business models adopted for institutional acquisition of e-textbooks and e-books in general. With the experience of e-journals in mind, HE librarians are seeking more flexible business models and purchasing/access arrangements than seem to be developing through institutional and sector-wide licensing. There is, however, considerable disagreement, depending on size and type of institution, about the pros and cons of various options. For instance the following points have been made:

- The 'bundling' together of e-book titles is not a good idea, as libraries are forced to pay for what they do not want; access to "all or nothing" of the output of a publisher is unattractive as a purchasing model.
- Recurrent costs – i.e. in subscription models – are regarded as restrictive, as they lock up considerable proportions of budgets in a dynamic environment that requires greater not less flexibility.
- For teaching materials (e-books, e-textbooks) the JISC banding is unfair and discriminatory [to smaller institutions]. Numbers taking a particular course bear no relation to the overall size (in student numbers) of the institution. To say that the bigger institutions have more money and therefore can afford prices pegged to student numbers is sophistry because they have to be able to support more courses. This could retard the take-up of e-books in the larger institutions and charges by publishers to smaller institutions could rise as a consequence.
- Usage, potential or actual, is the main criterion that should be considered in pricing models, not student numbers in the institution or on courses. This implies consideration of accurate monitoring of usage, prepayment for anticipated use, paying in arrears, paying from deposit accounts etc.
- Pricing models based on usage would not be popular [at a large HE institution] as these would vary from year to year and resource to resource and make it difficult for library staff to budget. Pricing models based on the JISC banding might be more popular.
- Licence restrictions to single user access to e-book titles do not help libraries to solve the peak demand problems associated with short loan collections; concurrent use by a number of students or unlimited access are sought.

This indicates that the search for a more flexible licensing (and pricing) model needs to continue, perhaps based on institutional (library-managed), rather than sectoral, licence agreements, which use a payment and pricing model that is both more flexible and more sensitive to market influences.

Some progress in articulating such a model was made in the JISC-funded PELICAN Project, originally for digitised text materials rather than 'born-digital' (see Oppenheim, C. et al, 2003 and Appendix 6).

Librarians are also largely agreed that e-book and e-learning materials provided to the student by the institution should remain free at the point of access. They can see that the option of reducing the library budget and allocating money to students to use as they think fit (e.g. for accessing e-learning materials, for downloading and printing out) using smart cards and a micro-payment system will have a measure of appeal elsewhere in universities. There is, however, a perceived danger of the library having to recoup this money to fund the provision of the resources in the first place, thus creating complex bureaucracy.

3 FURTHER EDUCATION MARKET CHARACTERISTICS

Diversity is a fundamental characteristic of the large FE market.

“Further education and training delivers an incredibly broad range of learning to very large numbers of people through a diverse range of providers. It includes:

- academic and vocational learning for 16-19 year olds;
- vocational education and training for adults seeking employment;
- workforce development for employers;
- second chance general education for adults; and
- learning for leisure and personal development.

In England there are some 6 million learners in these types of education and training funded by the Learning and Skills Council (LSC), with public funding of around £7 billion. Many of these learners are disadvantaged. Colleges for example draw 27% of their students from the 15% most disadvantaged electoral wards.

This learning is delivered by a range of some 4000 providers that is rich in its diversity. It includes:

- general further education colleges;
- some higher education institutions providing further education;
- sixth form colleges;
- specialist colleges;
- school sixth forms.”

(DfES, 2002)

3.1 Profile of FE students

Within FE, each different college has very different clientele – some groups studying during the day and then different groups again in the evenings. It is therefore much more difficult to establish sector-wide ‘levels’ of study, apart from courses leading to qualifications such as A-levels, GNVQs etc.

“A fundamental difference between the HE and FE sectors is the inability of the latter to distinguish between particular levels and user groups. It was felt that e-books would be appropriate for the whole spectrum of users in FE, from vocational courses, A-level (mentioned regularly) and International Baccalaureate to undergraduate courses (indeed, the specific issue of franchising HE courses and the implications for e-book provision was mentioned by FE participants):

You’ve got your basic FE for 16 years olds and some graduate levels to business degree, and then you’ve got sort of older students like Access and return to work and you’ve got basic skills .” (Armstrong, Chris & Lonsdale, Ray, 2003)

The range and diversity among FE students of information literacy skills and IT capabilities also add to the difficulties in viewing the FE market for e-textbooks as a unified one.

3.2 The ICT agenda

Capital funding for FE colleges has been relatively abundant in recent years, and much of it has been directed at building ICT infrastructure in colleges, and in IT skills development for both staff and students. Central funding through the LSC was provided 3 years ago for every FE college to purchase / develop a VLE. The government policies for FE place considerable emphasis on e-learning:

“ICT and e-learning have a vital role to play in developing new forms of learning which are stimulating and accessible for teachers and learners alike. We will maintain our drive to support the development of an accessible infrastructure that makes ICT universally available to learners and integral to learning processes... we will develop a coherent national e-learning strategy that is focused on meeting the needs of learners and teachers.” (DfES, 2002)

Outside the college, however, estimates of home access to computers, to college learning networks and the Internet vary widely. This is a real area of concern both as an equity and market outreach issue. Many adult learners are still likely not to have access to the Internet, to prefer printed books, and many will have the disposable income to buy books.

3.3 Textbooks and e-textbooks in FE

Printed textbooks are certainly of great importance in FE. Lower level courses – for instance, basic skills of numeracy and literacy, communications and IT, make more use of textbooks. Lower level course students benefit from the access to textbook materials (for reinforcement and for revisiting elements of their work from school for example).

Academic staff (individually or by department) choose textbooks for the courses. It is quite common for a college to supply a textbook at their cost (perhaps as part of their competitive edge for 16-18 year old students), as well as students buying copies for themselves. Some courses at higher levels also require a lot of theoretical support material (for instance, child-care).

Academic and learning support staff in FE recognise that e-textbooks (of which very few commercially published examples for the FE sector currently exist) might save costs, increase flexibility in teaching and learning and further drive the important ICT agenda. However, there is little enthusiasm for electronic versions of the paper textbooks, despite potential cost and improved access arguments in their favour.

FE colleges are primarily interested in the provision of value-added material additional to the printed textbook; the ‘slice n’ dice’ model, identifying and using learning ‘chunks’, which can be downloaded in formats easily integrated and repurposed within a VLE; and having access to material with a high quality of metadata that allows cross-curricular uses.

In this context, commercial publishers of FE textbooks are considered to have the potential to offer colleges quality assurance, competition and added value (additional exercises, demonstrations, assessment materials etc.)

“It is essential that the new pedagogies for e-learning are developed with the education workforce in the lead. Teachers and lecturers need the creative digital environments that will engage them in using, designing and experimenting with learning and teaching ideas. Commercial suppliers usually employ teachers at some stage in the design process, but unless the partnership is close, and educational requirements lead the development, there is little chance of achieving either good pedagogy or profitable products.” (DfES, 2003b)

3.4 Funding and resource levels

The model for funding textbook provision – where the college covers these costs – may be through departmental budgets, or it may be through the library or learning resources. In many colleges there is a lot of ‘wastage’ (25-35%), not usually recovered, associated with the supply of textbooks to students who do not stay in or complete courses. Funding in FE is tied to student numbers and the retention of students.

Resource levels in FE are dramatically different than in HE. Lacking the research context, libraries in many FE colleges have been under-funded and poorly resourced for decades. Typically a recurrent library acquisitions budget of £10,000 to £30,000 per year is considered good. Considerable problems in learning resources provision are encountered by colleges with a high proportion of students pursuing HE courses.

“Over 10% of higher education is provided in colleges which have an important role in making higher education accessible, particularly to those who have not traditionally seen a university education as appropriate for them. And increasingly, colleges and higher education institutions are developing strong collaborative partnerships to support widened participation and increase progression.” (DfES, 2002)

3.5 E-content development in FE

The substantial investments made in setting up Ufi and in developing the National Learning Network are beginning to pay off in terms of transforming the way individuals learn. Ufi/learndirect is providing significant numbers of learners and employers with more flexible and interactive learning opportunities. Within colleges, ICT has led to more creative learning with staff increasingly using e-learning to enhance the curriculum and to improve the quality of teaching.” (DfES, 2002)

While hardware and software requirements are (gradually) being met by capital funding, colleges turn to external and central sources for much-needed e-content for teaching and learning. Considerable reliance is placed on the National Grid for Learning (NGfL) and Curriculum Online to source materials. Organisations such as Becta and Ferl provide assistance and guidance in developing learning and teaching materials for the new electronic environment, and the National Learning Network (NLN) is gradually building a critical mass of e-content, funded centrally for the FE sector. The National Extension College (NEC) also provides electronic materials as pdf files.

The broadcasting industry also appears to be gaining in influence as a provider of e-content for learning in FE (and in schools). Broadcasting companies, such as BBC Online and Granada, are producing a significant proportion of the content available on the NLN.

There is some criticism within FE colleges about the quality and relevance to college requirements of these centrally developed e-content resources.

One area where e-learning models in FE are really being tested is in colleges offering Microsoft / Oracle / Cisco certified training, using online materials as a norm, and online testing. These training materials, produced by the systems' manufacturers and/or specialist publishers, appear to present an example of an FE market model that works, perhaps because the students are willing to work on-screen and the real / marginal cost of the e-learning material is attractive.

3.6 Integration of e-content with a VLE

Development of and cross-college use of the recently purchased VLEs is proceeding relatively slowly, constrained by the availability of academic staff time, of IT skills and energy, and the expertise and availability of learning development support to develop new curricula and teaching materials to fit into the VLE structure. Current staff payment models, based on staff-student contact hours, are inflexible and militate against this kind of developmental work.

"The whole of the education and training workforce must be fully engaged in order to lead change and deliver effective e-learning. This means high-quality initial training and professional development. We include in this all teachers, lecturers, tutors, part-time teaching staff and enablers and also pre-school carers, teaching assistants, learning support assistants, adult and community support staff, mentors, trainers – all professionals and voluntary workers coming into contact with learners. This also includes Industry trainers are also using e-learning to improve workforce development.

Initial training and professional development providers will need to respond by ensuring that courses include the knowledge and skills needed. The requirements will increase in both volume and complexity as e-learning develops. The education workforce will probably become differentiated with a small cadre of lead teachers and lecturers wishing to lead innovation in e-learning, while all will be likely to want to use and develop e-learning materials and online tutoring, as well as support learners in traditional ways. There could be new types of qualification, career rewards, and career trajectories for educators to choose. " (DfES, 2003b)

Despite these constraints, the development and exploitation of the VLE to enhance learning and teaching remains the key driver in FE. E-content development must be capable of adding to these initiatives and of seamless integration into varied VLE software. E-textbooks in the current, print-related formats do not meet these criteria and the important principle is that the material can be broken down to learning 'chunks', however these are defined.

4 CONCLUSIONS ABOUT THE E-TEXTBOOK MARKET

4.1 Textbook use

The use of student textbooks in FE most closely resembles the US textbook market, where core texts define the course of study in colleges, and where student numbers are very large. For a number of reasons, however, – not least, institutional funding and the lack of a research-based history of using electronic publications – e-textbooks have not emerged as a product for the FE market.

FE colleges are on a ‘fast track’ to the comprehensive use of VLE and e-learning content for courses, and they are not likely now to be interested in e-textbooks that are linked to print, should such products arise.

Libraries within FE colleges certainly will want to have access to a (relatively limited) range of e-books and aggregation services providing wider e-content for reference and supplementary reading, if these can be made affordable.

4.2 The future shape of e-textbooks

It could be argued that any set of well-defined digital ‘learning objects’, grouped together in a coherent and well-presented way, properly indexed, referenced, etc. within a clear pedagogical framework that addresses a specific community of learners with identified learning objectives, could be called an e-textbook.

However, once the definitive link with a publication originated for print is broken, the term is probably misleading. The adoption of a more general, less restrictive term, such as e-learning content, may be more appropriate.

One important characteristic of an e-textbook that may need to be carried forward into the new e-learning environment, however, is that the content should have some coherent ‘assemblage’ or form, such as a course module, a course pack or themed learning package. That is, a body of unified material, capable of ‘chunking’, but also capable of identifying, tracking through DRM, assuring provenance and ‘authority’, enabling costing and pricing where appropriate, and capable of preservation and archiving in a systematic way.

4.3 Diversity

The diverse requirements for e-content, different drivers and differences in levels of resourcing between HE and FE make it difficult to present it as one market for e-textbooks. Though the underlying technology and IT infrastructure are the same in HE and FE, and there is some overlap in course delivery, these are not sufficient to conceive of unified business models or e-content development initiatives in the short- to medium-term.

4.4 Affordability and equity

Purchasing models for e-textbooks and e-learning content developed for the HE sector are likely to be too expensive and too inflexible for the FE sector (and quite possibly for many less well-resourced HE institutions). FE libraries could not commit to levels of recurrent funding from their relatively tiny annual budgets. The potential lack of choice / range of e-textbooks and e-learning materials in new learning environments could be especially acute for students in less well-resourced institutions if entry into deals which offer that range and choice is based upon being able to pay licence fees.

4.5 Cost-effective e-content development

It is clearly not cost-effective for academics to develop all their own resources in the new electronic environments. Investigation of the economics of shared repositories of e-learning content (as in JORUM+) and cost-effective, flexible access to commercial e-learning content (including e-textbooks) remains a priority. There are, however, some serious questions about the willingness of academics to share proprietary learning and teaching resources and approaches.

4.6 Maximising investment in ICT

It will become an unavoidable test for all HE and FE institutions whether they capitalise on their huge investments (in terms of money, staff time and creativity) in ICT infrastructure and MLE development in particular. Institutions must make the technology work to deliver on strategic learning and teaching goals. Effective and innovative use of ICT (and e-learning) may provide many institutions with the 'edge' in an increasingly competitive HE and FE market.

An increasing investment and interest in developing and obtaining quality e-content fit for purpose, which meets the learning requirements and other expectations of their student clients, will be a major part of this capitalisation.

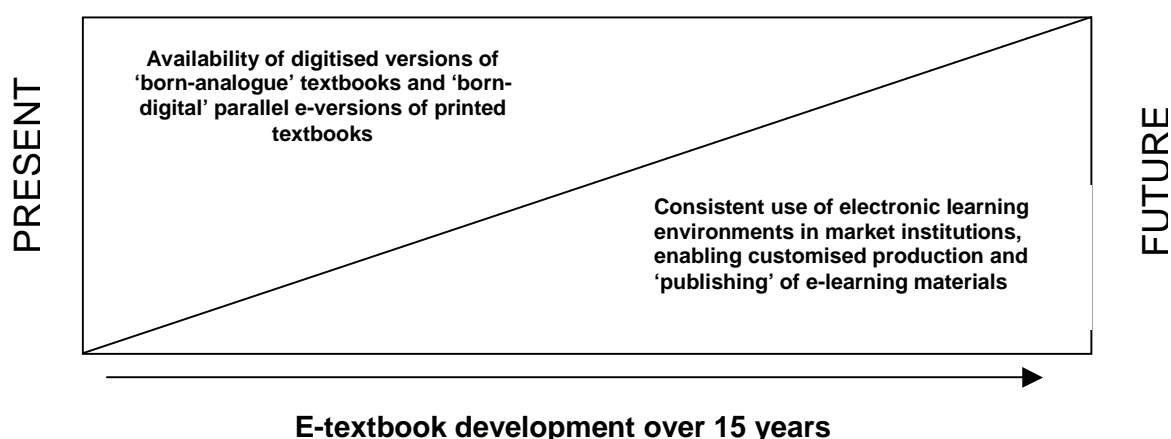
Chapter 3: A Vision for the Future

1 INTRODUCTION : A CONTINUUM OF DEVELOPMENT

In this chapter we try to define a development continuum for e-textbooks within which the industry and market planners may conceptualise new priorities for action and new partnerships. The key to defining this development continuum is the move away from publication of HE and FE course and curriculum related materials (textbooks) for a predominantly paper and print environment, towards a predominantly electronic environment.

This vision of development formed the basis for discussion with and comment from a range of stakeholders in the HE and FE market, including academic staff, students, librarians, information and learning technology (ILT) support staff, curriculum advisers and administrative staff.

We suggest that the development of e-textbooks is on a continuum which, over the next 15 years, will look something like this:



We present below three scenarios to summarise what we know of the likely situation in the next 1 – 3 years (the short-term); what we suggest e-textbook development may look like in 5 – 7 years (the medium-term); and what we hypothesise might be the situation in 10 – 15 years time (the long-term). These scenarios are supplemented with a case study of a new, innovative publishing initiative to support our vision of the future – the new English Campus from Macmillan Publishers.

2 SCENARIO ONE: THE SHORT-TERM (1 – 3 YEARS)

2.1 The products

A large volume of e-textbook content, largely relevant to HE requirements not to FE, drawing on digitised 'born-analogue' and / or born-digital material, which was originated for print, owned by academic publishers, both UK and North American. Features of the product include

- heavy text-orientation
- linear 'book-style' format
- some supplementary materials, such as self-assessment tests, associated with course content and produced for an electronic environment.

Electronic versions of print textbooks are increasingly made available to those institutions' adopting the printed textbooks, as parallel read-only pdf documents or similar platform independent format, accessible via the Internet from publishers or aggregators or archived on the institutional server. Sales direct to students of copies of the printed textbook remain largely unaffected, but the availability of the electronic version goes some way towards solving the problem of HE library purchase of multiple copies of printed textbooks, held on short or restricted loan to ensure equity of access for students to core course materials.

A number of commercial aggregators, and not-for-profit repositories based within the academic sector (e.g Ingenta HERON and the National Repository for Learning Materials), provide access to some copyright cleared e-content for learning and teaching and research. Institutions and departments within HE and FE can access these materials for inclusion in course packs, downloading and printing through a number of payment options offering varying degrees of flexibility.

2.2 Business models

Emerging models for making this e-textbook and other e-content available to the HE sector build on the experience of e-journal publishing; licensing access in a secure environment to institutions with devolved responsibilities for policing rights as part of the license agreement.

The licences (whatever form of payment is adopted) are for permission granted to the HE or (rarely) FE institutions to obtain, store and disseminate through the institutional networks to their own registered bona fide staff and students the e-textbooks. The recipients are able to access and use the materials in a number of restricted ways, such as a limited number of simultaneous users, a percentage of the total which can be printed, cut and pasted into other documents etc. The parallel here is the current restrictions under the Copyright Act on photocopying within educational institutions.

The business model options are:

- Sector-wide deals, as currently being negotiated by JISC with Taylor & Francis and others¹⁸ for institutional access (mediated through the library) to a body of e-textbook titles, the size and range of which being dependent on the institutional banding model already adopted by JISC, based on student numbers.

¹⁸ http://www.jisc.ac.uk/index.cfm?name=coll_consultationonelectronicbooks

- Subscription-based licence agreements between individual publishers / aggregators and HE departments for access to a range of e-textbook titles, 'chunks' of e-learning content and learning objects in key subject disciplines for downloading, printing and assimilation into course packs within departments. Students may be required to pay additionally to access the commercial materials.
- Licensing arrangements by individual institutions, or departments within institutions, either a) through a subscription model in which the institution or department purchases a number of units per year which entitle access to individual texts or 'chunks' of electronic texts for one year; or b) a more flexible direct purchase of a number of units with the same entitlements. The number of units (or value) assigned to each 'chunk' is related to levels of use and may go up or down over time. This would allow libraries, in particular, to target expenditure more effectively.

The setting and control of prices is a problem area for both industry and market. VAT levied at standard rate continues to impact on pricing. Robust usage statistics are not yet widely available, nor are agreed models for integrating usage figures into e-textbook / e-content business models.

3 SCENARIO TWO: THE MEDIUM-TERM (5 - 7 YEARS)

3.1 The Context

In this 'hybrid' phase, a real mix of products, both print / paper and electronic exist side by side to meet an increasingly diverse range of market needs. The key drivers of product development are

- Changes in learning styles and teaching methodologies, with curricula targeted to different student profiles through technology;
- Increasing confidence among publishers and HE / FE institutions in trading in and managing electronic rights.

HE and FE institutions increasingly aspire to offer their students a complete electronic package of learning and resource materials as part of the cost of their education, with no additional requirement on students to purchase for their courses. The aim is to provide 'seamless' learning support to the student whether e-textbook, online course, library resources, Internet resources etc., maximising the potential of the VLE and the MLE.

Economic models for licensing e-content of all kinds are built on robust usage statistics; HE and FE institutions themselves value usage statistics as a powerful planning and management tool.

3.2 The Products

The e-textbook is increasingly seen, by industry and market alike, as really "a portable library of learning objects, chapter sections, illustrations, and charts described individually and stored digitally" (Acker, Stephen R. et al, 2003).

In HE and FE institutions, increasing levels of in-house production of e-learning and teaching materials, which exploit the capabilities of the VLE, mean that academics and teachers are gaining confidence, experience and skills, which in turn drive demand to use publishers' e-textbook content in more customised, 'chunked' ways.

Publishers are responding through more flexible licensing, but DRM systems remain 'clunky' and the effective 'granularity' of rights management (i.e. how small are the digital objects that can be identified and tracked) is not practical or cost-effective for many publishers and institutions.

Sales to students of printed textbooks have declined significantly in some subjects (principally in the arts, humanities and social sciences), while in others (principally science and medicine) they are holding up well. 'Bundling' the electronic version (in pdf or another platform independent format) with an institutional adoption of textbooks for courses is now commonplace. However, lack of access to *affordable*, state-of-the-art reading technology remains a barrier, sustaining the continuing, although diminishing, market for printed textbooks and supplementary books.

Publishing and VLE vendor partnerships, creating whole course modules for institutions, present an increasingly serious market alternative to the textbook (printed) in some subjects.

3.3 Business models

- Sector-wide licensing deals increasingly cover converged 'e-content' (including e-journals, e-textbooks and e-books generally) irrespective of print-world identity; Deals are based on subject discipline, rather than publisher/producer, are increasingly common, providing a more effective element of competition, particularly for e-textbooks (enabling smaller publishers/producers better entry into the market).
- Licensing by individual institutions, or departments within institutions, for commercial and not-for-profit content from aggregators and not-for-profit repositories, has proved a robust and flexible alternative to sector-wide deals.

Setting prices is now based on widely available usage statistics allowing sensitive price controls and flexible payment models. VAT is now levied on e-content at a lower rate (though not zero-rated).

4 SCENARIO THREE: THE LONG-TERM (10 - 15 YEARS)

4.1 The Context

The “notion of teaching and learning connected within a repository of learning objects, with content in multiple modalities” (Acker, Stephen R et al, 2003) is now the norm across the HE and FE sector. Reading technology has developed to make e-paper and other options to emulate the portability and usability of a printed textbook affordable. E-books, images, multimedia and graphics are now routinely downloaded by students via their HE and FE institutional networks.

HE and FE institutional MLEs provide a total integrated package for students – enrolment, assessment, e-learning, information and learning resources, access to external and internet resources. DRM and reporting on usage is now seamlessly embedded in MLE systems. It is now the norm for academics and teachers to write and structure courses and learning materials from the start in the electronic environment; POD technology allows local print publishing options for selected materials.

4.2 Business models

Several possible business models are in play, many of which are radically different than the dominant author-royalty-publisher-sales model that was current in the era of printed textbooks.

- E-learning packages (for courses, on subject themes or customised to meet institutional and departmental needs) come bundled with licensed access to a range of other ‘supplementary’ e-resources (e.g. e-journals, multi-media, themed chunks of content) from more than one publisher; for example:

“[a] 2002 summer offering of one of Rissing's courses replaced a \$105 textbook with learning objects selected from XanEdu's digital content library. For \$28, each student received a code that unlocked a digital reading pack in three sections—universal course readings, readings specific to students in different groups, and access to a search engine to target course content to individual research topics. The model equates course content with the economic notion of “utils.” Each student draws equal utility (\$28 worth), but from different subsets of the library. Although each sale returns less revenue, the lower price and greater value encourage more sales of the publisher's content.” (Acker, Stephen R et al, 2003)

- Publishers develop e-learning material in partnership with large academic institutions or consortia of HE or FE institutions. The role of the institution or consortium of institutions (Institution / consortium A) might be to provide authors, to pilot the materials, and/or to provide a ‘quality mark’ making the resulting material more marketable. Institution / consortium A gets paid in access rights, reduced prices for the use of the materials in its courses or royalties (related to usage) on all future sales. Materials comprise a ‘generic’ core, customisable modules and access to a wider ‘library’ of e-content. Publisher then sells packages on to other institutions, customising to suit Institution B's needs, and priced to relate to the number of students on the course or courses, and so on.
- Web-based micropayment systems linked with DRM systems are now sophisticated enough to enable sale of e-content ‘chunks’ direct to individuals by publishers.

MACMILLAN ENGLISH CAMPUS – THE BEGINNING OF ELECTRONIC PUBLISHING?

Introduction- the concept

According to David Worlock¹⁹, the Macmillan English Campus (e-Campus)²⁰ is one of the first examples of mature e-learning, combining “pedagogy, management and technology in a seamless combination that fitted the diverse demands of pupils, teachers, administrators”.

The e-Campus was launched for its first major customer – Cultura Inglesa in Brazil – in March 2003. It is a complete online learning environment, equipped with effective course management software and a flexible database of Macmillan’s content suitable for English language students of all levels. It has been co-developed with the Cultura Inglesa as a 'blended' learning environment “supporting local non-e-learning resources and being supported by local tutors and a structure of learning administration. Macmillan insists on this, and stresses the primacy of the local tutor.”²¹

The market

With over 50,000 students **Cultura Inglesa São Paulo** is one of the world's largest language schools. Its reputation for academic excellence means that Cultura Inglesa has high standards to maintain. It has always recognised the potential of online learning but in 2001 its staff realised that no existing e-learning environment offered the unique selection of resources or the flexibility that their institution required. Rather than install an e-learning package that would restrict its users, Cultura Inglesa chose to work with Macmillan to develop a new service that would best suit its needs. These included:

- Flexibility: the freedom to create its own online practice courses. The e-Campus provides tools for course administrators to create courses using the Macmillan materials in the resource database.
- Freedom and structure: Cultura Inglesa wanted to offer its students unlimited access to all learning resources in the Campus as well as structured courses. All users have access to the full database of learning resources.
- Fully customized: Macmillan produced a graphic design that is unique to Cultura Inglesa and incorporates its own branding throughout the web-site. Macmillan’s editorial team worked with Cultura Inglesa’s academic staff to ensure that the learning resources in the database suited the age, language level and experience of its students.
- Cost effective service: highly competitive prices and minimal infrastructure requirements have made it easy for Cultura to integrate the e-Campus into existing courses. Macmillan is providing an ongoing technical service and training.

[extract from Macmillan’s English Campus promotional literature]

¹⁹ Worlock, David. *Macmillan: e-learning on the English Campus* EPS Update Note: 9 July 2003. Electronic Publishing Services, 2003. [Subscription based news and alerting services]

²⁰ <http://www.macmillanenglishcampus.com>

²¹ Worlock, *ibid*

Following the launch of Cultura Inglesa's e-Campus, Macmillan envisages four kinds of customers for their product, and recognises the importance of working with customers who are commercially minded:

- Other private language institutions
- Private universities, who are relatively commercially minded and need to demonstrate to their market that paying for education is worthwhile.
- Education and training departments in governments, who are seeking content for hi-tech infrastructure created for schools and colleges, such as classroom materials and teacher training for English language teaching.
- Large corporations with language training requirements.

The challenges for potential customers are considerable. These are principally pedagogical challenges relating to culture change, persuading teachers to change the way they teach, and recognising that once they make this change going back to more traditional methods is not an option. Macmillan has found that they can only innovate so much – especially in learning pathways - before they begin “to terrify their customers.”

The content

Macmillan sees its strength in e-learning fundamentally as a publisher and content provider, not as a platform provider. Unlike many e-learning packages, the e-Campus does not require the school to follow prescribed language courses.

“Content includes conventional exercises and tests, and less conventional material like games (which reference current games culture without losing the educational thread). The whole structure is supported by Macmillan's own dictionary reference shelf, and by news stories and weblinks sourced from The Guardian newspaper. Methodological packages for teachers are delivered by pdf, and the full range of administrative support materials - from the mark-book onwards, are available to ensure that the solution becomes embedded into classroom practice. Each pupil and teacher has their own space and their own desktop.”²²

From the desktop students have access to

- Resources, the whole database of language resources;
- My Course, materials matching the syllabus;
- Tests and exams;
- Games;
- a bookmarking facility, which allows Macmillan to monitor its use by all students over time and to develop the website accordingly.
- Universal tools, such as a help function, a word list, the Dictionary, grammar reference, and an e-tutor capability connecting the student direct to their teacher.

²² Worlock, *ibid*

Every tagged learning resource has about 20 options in capability level structure, e.g. intermediate, pre-intermediate etc. The Resource finder remembers all the students' levels and all material is then filtered to that level. "The mark-up and metadata (and the taxonomic structure) must be good enough to allow some types of pupils - adult learners, perhaps to create their own pathways, increasing difficulty and concentrating on acknowledged weaknesses in their own time."²³

65 authors have contributed to e-Campus. Author royalties are paid by volume of content used; each piece of work is assigned a 'learning object' value, for instance, the Dictionary is worth 250 'learning objects'. Currently all the content and resources are Macmillan's; they agreed in principle with Cultura Inglesa to allow other content providers to put material into e-Campus. However, this is not yet being pursued since the volume of available Macmillan resources is so large.

The technology

Macmillan looked closely at all the commercially available virtual learning environment packages (e.g. WebCT, Blackboard, Lotus Notes etc.). With all of these applications it was not clear how to make the *content* the focus, rather than the tools. Macmillan also did not require a number of the tools on offer, such as bulletin boards and chat functions, and they were sceptical as to how the applications would work for younger students. A decision was taken to develop a proprietary platform that makes the content the focus with the tools there to support it.

Mac holds the e-Campus on their own server, hosted in Texas and customers access the database through the web: customer support is out-sourced in Baltimore and technical maintenance out-sourced in Germany.

In the Cultura Inglesa not every student has a computer. In every classroom they have a computer projector and the class works together on exercises. The students then work on assignments and use the resources independently at home, in Internet cafes etc. Cultura Inglesa also has multimedia laboratories in each branch offering 30-50 computers for student use. These are also an important access point to the e-Campus, especially for those students who do not have access at home.

The economic model

Macmillan has invested significant sums in e-learning research and development, at a time when costs are high, to develop the e-Campus – costs which, over time, will inevitably reduce. Macmillan's economic model, therefore, is based on large institutions with high-volume requirements who can pay relatively high prices. It has deliberately tried to keep their prices per student very low (lower than their competition) in recognition that investments are still experimental in many cases and tuition fees are already high. They have achieved substantial contracts by approaching high-volume customers, not by loading prices.

In the economic model upfront costs are about 50% higher in the first 2 years to accommodate extra editorial capacity and platform development. Every subsequent year 25% of costs will be for platform maintenance and in the 3rd year they will renew the platform completely. Macmillan charges the customer a student per capita charge, with an undisclosed time frame for investment costs to be recouped

²³ Worlock, *ibid*

Macmillan recognised that they needed to make prices make sense to the customer in the current (print publishing) context. They set the price per student to emulate the existing 'one student book + workbook per year' formula. This per capita charge can be increased or decreased annually. Some extras are priced additional to the per capita charge, such as additional training, or the use of pre-configured courses. No attempt is being made to measure usage online and relate it to pricing, mainly because of complexities surrounding how to define usage, e.g. different types of essential learning resources are used differently.

[Macmillan's e-Campus marks] "the beginning of electronic publishing. It is customer-centric and part of a customer networked partnership. It uses the technology to support the customer in access and in contextualised content usage - this is not a machine for throwing more and more content at unmonitored and unmediated users."²⁴

²⁴ Worlock, *ibid*

Chapter 4: Conclusions and Strategic Recommendations

In this Chapter we draw some broad conclusions about the implications of the developments we foresee, and describe in this report – implications for the academic and educational publishing industry, for institutions in HE in particular, and for JISC and other sector-wide organisations.

We follow these with a set of recommendations for the e-Books Working Group and the JCCS.

1 CONCLUSIONS

1.1 E-textbooks and the HE library

E-textbooks as they are currently configured most closely meet the demands of the HE market as a supplement to the printed textbook, available mainly online through libraries, who will pay a licence fee related initially to student numbers but probably subject to modification according to student usage, allowing restricted use of the material. The publisher may obtain additional revenue by allowing access to text on a pay-as-you-go or whole purchase basis, probably through a commercial aggregator.

The economics of this model will not be attractive to the industry if availability of the e-textbook in libraries, networked throughout the institutional site and accessible to registered external and part-time students, leads to some loss of sales of the printed text. This threat might be real but, probably because of restrictive licence terms and the unattractiveness of reading technology, there is no evidence to support it as yet. However, there is evidence that shows that students are more likely to buy books if they cannot borrow them from the library. The loss of as little as 10% of printed textbook sales to students would require a doubling of income from libraries to maintain the same revenue to publishers overall.

Herein lies a fairly intractable difference in philosophy and points of view between the publishing industry and libraries in HE.

The reality is that, although electronic delivery may have different cost models, the pot of money available for libraries to spend on textbooks (print or electronic) will almost certainly not increase. Current licence models are not the way in which libraries wish to access e-learning content on behalf of their students. From the librarian's point of view publishers risk slowing the inevitable change from print to electronic in delivery of learning and teaching, while at the same time undermining some of the print sales they are fighting to retain, as libraries are forced to retrench (and buy even fewer printed books) as a result of directing more of their resources to overpriced electronic delivery.

1.2 Reassessing the role of the library

The library's current central role in relation to e-textbooks (in HE) is based on an institutional purchase / licensing model which sees e-learning and teaching content as essentially no different than any other e-content, such as e-journals and databases. Libraries in HE have arrived at this point from the development of electronic services in response to research needs, not learning and teaching needs.

Because of librarians' considerable expertise in the licensing of electronic products, they have been formative in shaping the dialogue with the industry on business models, the nature of e-book products, and in developing their institution's strategic responses. In many HE institutions, library and information services are expanding their role in response to changes in the delivery of learning and teaching and the increasing variety and overlap of e-publishing products: they are becoming a one-stop-shop for all electronic content and learning support, often including the development of institutional MLE and portals.

However, other stakeholders in the sector have different perspectives and see several reasons why the position and role of the library may need to be re-assessed in the medium- to long-term. For instance,

- Previous and existing licence agreements (including NESLI) for e-journal and electronic information services have been licences for **access** to e-content and (in some cases) archiving the original e-document. The new generation of licence and purchasing agreements, relating primarily to e-learning materials (including e-textbooks in their current configuration) must be licences for **use** and re-use, not just for access, in order to accommodate new approaches to learning and teaching which will seek 'learning objects' for multiple uses. This makes it much more difficult to define and manage licence terms, to establish fair pricing related to real costs, and to monitor usage and evaluate, and the scope may be beyond the remit of a library / learning resources centre.
- Many publishers would prefer to licence their e-learning content directly to academic departments, using student numbers as a starting point, as this most closely emulates the current market for textbooks as they see it and approach it. From the librarian's perspective, this model has the potential to undermine the hard-fought centralisation of institutional purchase for learning and research resources through the library and militates against the cross-institutional sharing of learning and teaching e-content. Academic departments, however, might enter into consortia of institutions, collaborating with other departments in the same subject area, and sharing resources between institutions rather than (or as well as) across their own institution. Future publishing models might build on direct relationships between publishers and academic departments or subject-based consortia.
- Developments in e-commerce, which will make micro-payment systems much more attractive and affordable to institutions, may soon underpin a move to pass the cost (and choice) of e-learning materials on to the student, through, for instance, the use of smart-cards and e-accounts. Individual institutions may choose to subsidise these costs (or not), but may choose to place the subsidy with the end-user (the student) rather than centrally (the library), for instance, by giving matriculated students a certain amount of money as a micro-payment bank for the year for information needs. This would make the library into more of a middle man, the interface between publisher and student. That middle man role might equally well be filled by a commercial aggregator, in which case the Library may gradually be marginalized in the area of undergraduate provision.

These and other real and potential implications of trading in e-learning content need consultation, consideration and testing in pilot projects to shape appropriate, varied sectoral and institutional responses.

1.3 Moving away from the link with print

Currently, the electronic versions of textbooks differ little from the printed ones. It is clear from market feedback that, if e-textbooks were to offer advantages such as regular updates, links to other sites or greater scope for interactive learning, they would present a more attractive prospect, but once again publishers fear they might lose revenue from student purchases of the printed textbook.

At some point, academic publishers will need to make the 'leap of faith' and make significant investment in some quality e-learning materials that – while they may draw upon and re-purpose content originated for print – are de-linked from the printed versions, to meet, and generate increasing market demands for quality e-learning content. If they do not do this, the dominant driver of change in HE and FE – ICT and information and learning technologies – will anyway erode their markets for printed textbooks and other e-content producers (commercial and not-for-profit) will gain market share.

1.4 New partnerships in the industry

The industry currently lacks a range of intermediaries – aggregators, packagers, specialist e-content developers - that would contribute to a wider range of commercial supply chain alternatives. There is no solid basis of understanding and confidence in the medium-term and future markets for e-learning content in HE and FE; there are still too many questions over the security and integrity of trading e-learning content in ways to suit the new approaches to learning and teaching. The economics of, and business models for new ways of publishing and supplying e-learning content have not been tested, in part because there are so few commercial intermediaries based on new partnerships.

“A thriving market means creating value for suppliers and value for money for consumers. Suppliers need to perceive that the market will give them a return on investment and development. Equally, we need to ensure that funding models and procurement mechanisms achieve economies of scale. Affordable, scalable and sustainable e-learning, based on generic activity-based design tools for teachers and learners, would benefit all stakeholders.” (DfES, 2003b)

JISC could help to break the impasse, in the context of the government's new e-learning strategy (DfES, 2003b) through sector-wide research, partnership brokering and market information activities, but the publishing and bookselling industry must also commit to investing in market research, new product development and new partnerships if they are to be significant players in the future HE and FE learning and teaching market.

1.5 Recognising diversity

Currently the HE and FE market cannot be considered to be a unified market for e-textbooks, nor should JISC try to treat it as such. There is too much diversity among institutions in HE itself, too great a difference in resource and funding levels between HE and FE and a quite different key players and products in HE and FE e-learning.

In the short- to medium-term what is needed is not a 'one-size-fits-all' national framework for e-textbook acquisition, but the development and monitoring of a range of different business models and trading relationships between commercial and not-for-profit producers and sector-level organisations, institutions, departments within institutions, academic staff and students.

The goal should be to widen the opportunities to enter the e-learning market not to reduce them, both for smaller, specialist and new producers currently unable to compete with the larger (global producers); and for smaller, specialist and relatively under-resourced institutions and end-users. We need innovative new publishing models that serve the diversity in HE and FE.

1.6 Common learning and teaching goals

Despite their diversity, HE and FE institutions have common goals for learning and teaching, philosophically driven by the government's widening participation agenda and the need to raise quality and choice in learning.

In practice it is the massive investment in ICT infrastructure and the capabilities of the technology that will underpin the inevitable shift towards online and networked learning and the use of 'chunked' e-learning materials, particularly in the early undergraduate and FE courses.

There are many different agencies in the sector involved in promoting and supporting institutions to develop learning and teaching practice and content, with different approaches, priorities and cultures. For instance:

- different historical interests in FE and HE (e.g. LSC, Becta),
- emerging technologies (e.g. other JISC committees and programmes, such as the Committee for the Information Environment (JCIE) and the MLE Programme),
- different institutional focuses (e.g. academic / teaching and library / learning support)
- commercial and economic interests (e.g. CAPP, CLA, PALS and JISC's e-Books Working Group)

The convergence of the learning and teaching goals and requirements of HE and FE, in the medium- to long-term, demands a more holistic approach from JISC and the various sector-level bodies concerned with and directing e-learning, and more effective sharing of understanding, perspectives and expertise. The government's new consultation document on its e-learning strategy (DfES, 2003ab) supports this holistic approach:

"The partners we will be working with to take forward these proposals [for Building a Better e-Learning Market] include: Becta, BESA, broadcasters, BSG, Content Advisory Board, Digital Content Forum, DTI, HEFCE, ICT industry bodies and forums, JISC, LSC, media organisations, NLN, publishers, and Ufi." (DfES, 2003b)

2 STRATEGIC RECOMMENDATIONS FOR THE E-BOOKS WORKING GROUP

2.1 Future role for the e-Books Working Group

The Working Group is just one of many members of the JISC family concerned with and active in many aspects of e-learning content development. Its current remit is closely associated with the translation of the print-world publishing model into the (HE) electronic environment. If our assessment of the medium- and long-term future of the e-textbook and e-learning content is correct, the Working Group needs to widen its range of enquiry and its remit to be able to respond more effectively to developments.

We recommend that the Working Group's role should be widened to facilitate a more constructive and forward-thinking forum on the development of a viable market for quality e-learning content, which will ensure that the skills, capacity and content of the publishing industry are fully engaged with other sector developments. This forum would need to take account of the views, and draw on the expertise of

- publishers for both FE and HE,
- authors and content developers from within the sector
- other content industry stakeholders, such as broadcasters,
- the HE and FE sector wide agencies, such as Becta, other JISC programmes, and
- key individuals and institutions in HE and FE.

As part of this facilitation role, the Working Group should:

1. Seek members representing some of these stakeholder groups, as well as academic teaching staff from key subject disciplines.
2. Establish effective working relationships with other JISC Programmes and Working Groups, e.g. in the Learning and Teaching and MLE Programmes.
3. Focus more carefully on the current state of, and trends in e-learning content development for FE, through a dialogue with key agencies and JISC Regional Support Centres.
4. Commission and manage a range of cross-cutting research and information activities. Priority recommendations for these are described in the following paragraphs.

From what we know, the Working Group, which meets relatively rarely, is not well-resourced to undertake this expanded role, which may be a matter for consideration by JCCS.

2.2 Purchasing models and licensing

In the Brief for this Study we were told the "Working Group wishes to be advised on how it can influence the development of e-textbook provision in UK further and higher education: what is the possible impact of national agreements on e-textbook provision – are they desirable and what are the benefits or drawbacks? Can and should a national framework be agreed on for purchasing models and licensing?"

The Working Group has a wider remit than e-textbooks and e-learning content; it extends to the collection and promotion of e-publications for reference and research and the support of academic authors. As part of this wider remit the Group has already initiated a sector-wide licensing exercise currently under negotiation with three academic publishers covers e-books in general and it will be instructive to see

what kind of take-up results among HE institutions, and what feedback is received from the HE and FE sector relating to e-textbooks.

We have the following recommendations on the issue of national frameworks for purchasing and licensing:

1. The Working Group should not seek to develop a 'one-size-fits-all' licensing model specifically for e-textbooks as they are currently configured.
2. Rather, the Working Group should use its expertise and position to develop a programme of activities with the following priorities:
 - 2 Widening the range and choice of e-textbooks currently available in the HE and FE market, through more detailed research into current and planned 'e-textbook' activity among publishers (including the smaller, specialist publishers) and other industry partners in key subject areas in which the textbook is an essential part of course delivery. This would include an investigation of pricing and business models currently in use or under consideration
 - 3 Monitoring and evaluating over time a range of pricing and business models currently in use for e-books in general and e-learning content in particular, gathering and disseminating data, feedback and views on these models from a range of stakeholders in the HE and FE sector.

2.3 The real costs of developing flexible e-learning content

There is considerable debate and controversy, particularly within the HE community, about the real costs of developing and producing quality learning materials, and where those costs lie. Commercial publishers have, no doubt, robust cost models for printed textbook publishing, and can translate those costs into publishing e-textbooks, as they are currently configured.

However, as e-learning content development progresses, these models need to be revisited, both in commercial and not-for-profit contexts, in order that information and understanding can be built up on appropriate pricing and remuneration within a range of market situations. For instance, how much time is required to write learning materials for different levels and courses? How does that time translate into costs if materials are to be generated inside the institution? How do the costs of authoring, designing and developing e-learning content compare with those in the print world?

We recommend that the e-Books Working Party should define the terms of reference for, and commission a research study on cost and remuneration issues, in order to clarify and establish benchmarks of direct and indirect costs for commercial and institutional guidance. The work will underpin further debate and discussion on pricing and market controls.

2.4 Use of metadata tagging

Awareness of the importance of metadata tagging of e-books content, to a sufficiently granular level, and to meet standards which will enable e-content use and re-use with adequate DRM, pricing control and tracking usage, needs building among a very wide range of academic, educational and not-for-profit publishers serving the needs of HE and FE. We recommend that the Working Group should play an active role in advocating and raising awareness.

The JISC is well placed to go beyond advocating and awareness raising and to be active in or even lead the development of standards – e.g. via the MLE programmes, Interoperability Focus etc. On JISC’s behalf, the Working Group could also commission practical experimentation and evaluation of standards to achieve proper mark-up of e-learning 'chunks' to underpin, e.g., micro-payment, use-based trading models, re-purposing and re-configuration of e-learning material, discovery and long term preservation. It could also involve bringing together communities with different approaches and traditions in metadata development and application (e.g. librarians, educationalists, VLE developers, academic publishers).

2.5 Measuring use of e-textbooks and e-learning content

We recommend that the Working Group should collaborate with other JISC Programmes and projects to define and commission work from an appropriate consortium of organisations – commercial and HE / FE sector-based - on tracking and measuring online usage of networked e-books and e-learning content, building on the work of the COUNTER Project. The aim would be to develop and test a similar Code of Practice for e-learning content, and the outcomes would need to be promoted widely in the HE / FE market and the industry.

2.6 Pilot projects to build new publishing partnerships

“Our best understanding of how to improve practice comes through learning from others – from experimentation, collaboration, and dissemination. We need an active, practice-oriented R&D forum to bring together teachers, lecturers, researchers, and industry to develop the leading edge applications. It would combine the practitioner knowledge of teachers and lecturers with the specialist knowledge of learning technologists and industry suppliers. It should help to build the evidence-base for the value and impact of e-learning.” (DfES, 2003ab)

Taking a lead from the government’s view, we recommend that JISC should fund a series of substantial research and development projects, designed to develop an evidence-base on the feasibility and market success of new e-learning content publishing partnerships and business models. These would be projects that would build partnerships from among commercial, not-for-profit and HE / FE institutions, and publish quality commercial e-learning products to meet real market needs with a range of business models. The projects would help to test market responses and develop sustainable models for replication or adaptation across the sector.

JISC’s investment would need to cover, at least, the feasibility and planning work, evaluation and monitoring. Commercial and other partners would need to commit to substantial investment of resources, including staff time and technical expertise. The project outcomes would be marketable products sold to the HE / FE sector at non-subsidised prices. Each project would need to have a realistic timescale (3 – 5 years) to enable effective monitoring and evaluation of market responses.

We recommend that these projects are selected and developed through a Call for Proposals, for which the Working Group would be responsible for developing and defining the terms of reference, managing the Call, overseeing the implementation of the projects and commissioning the appropriate evaluation and monitoring work.

THE BRIEF FOR THE STUDY

A STRATEGY FOR ELECTRONIC TEXTBOOKS IN UK FURTHER AND HIGHER EDUCATION

Introduction

The Joint Information Systems Committee (JISC) is a committee of the UK further and higher education funding bodies and is dedicated to helping institutions exploit the opportunities of information and communications technology. One of the cornerstones of JISC strategy is the creation of a managed environment for accessing quality assured electronic information resources. Electronic books represent a core strand of this collection development strategy, and include major reference works, monographs and textbooks. The JISC E-Books Working Group, with a membership of key stakeholders, is responsible for leading the development of electronic books for the benefit of UK further and higher education communities. For further information on the JISC and on the activities of the Working Group, see <http://www.jisc.ac.uk/>.

Purpose of tender

The JISC E-Books Working Group wishes to commission a study which will define the business and market context for a national collections strategy in electronic textbooks for UK further and higher education. Please note that other types of material, for example, reference and monographs, are *not* included. The aim is to produce a broad analysis of the market and of the industry, with the identification of barriers to uptake and ways of overcoming these, particularly with regard to business models and access. The report will shape the acquisitions policy of the Working Group for e-textbooks and the role the Group should adopt in relation to partnership building for the successful take-up of e-textbooks within the academic sector.

Background and context

Textbooks have traditionally been seen as the core resource that supports teaching in our universities and colleges. For this reason, a national strategy on e-textbook provision must ensure that students have access to essential course material at the right time and at the right price. There are some key influencing factors within the market place - the role 'essential and recommended reading' plays, for example is crucial, possibly accounting for up to 9 out of 10 of student book purchasing²⁵. Other important factors include perceptions of value for money and relevant content.

Currently, students have a choice on how to access printed textbooks. Many opt to buy new, probably from a campus bookshop or, less likely, online, but they might also purchase second-hand copies or borrow them, either from the library or from an individual. Increasingly, libraries have been buying multiple copies of core texts (but often not enough to satisfy demand at peak periods), and the current market mapping study being undertaken by the Working Group clearly shows that the acquisition of this type of material is number one on librarians' wish-list for e-books. Librarians, of all key groups in the academic sector, have been particularly interested in e-book development but still await the major break-through in terms of an

²⁵ Survey of student book buying 2001/02, Gold Leaf, 2002

appropriate (defined as affordability and access) business model and pricing. The 'just-in-time' approach is also an important one to consider, particularly content 'chunking', as students may photocopy individual chapters or receive them as part of a course pack produced on their behalf.

The changing structure of course delivery could well impact on the role of textbooks. It may be that, in the electronic environment, other modes of course support emerge that move the current paradigm beyond the textbook. This is the focus of a further in-depth study to be commissioned by the JISC E-Books Working Group.

This study builds on previous JISC research in the area of digitised textbooks and the acquisition of electronic resources. The Pelican project²⁶ examined pricing options for the provision of digitised textbooks and other teaching materials within higher education, concluding that pricing was the biggest issue in the provision of digitised text and that institutions are struggling to provide a service at what is deemed to be an appropriate cost. It in turn was partly based on an earlier report, *Charging mechanism for digitised texts*²⁷, which put forward two basic models for digitised texts – the textbook substitution and library substitution models. Finally, the *Purcel report*²⁸ examined different models of funding within higher education institutions to determine their impact on the uptake of electronic information services.

Core components

Within the overall aim of a broad perspective on electronic textbooks, proposals should cover the following key elements:

Market analysis – current situation and trends

- The impact of a changing academic sector, for example, growth of student numbers and increase in part-time and distance learning, new approaches to teaching and course delivery. The report should summarise similarities and broad differences between the higher and further education communities in relation to textbook demand and provision and what this may mean for electronic delivery.
- Organisational strategies which influence access to textbook material, for example, at institutional and library level. Assessment of current textbook provision and opportunities afforded by electronic access, including course packs, library short-loan collections and campus bookshops.
- Behaviours and motivations of individual and groups in regard to textbook access and use, including academic staff and students, and how these may affect electronic textbook take-up. These will include, for example the impact of reading lists and prescribed reading by academic staff.
- Cost structures for textbook provision within the academic sector, including costs to the library in providing short-loan collections and technology provision. Assessment of possible costs for e-textbook provision, including the possible impact of hand-held devices or other new forms of technology.

²⁶ Hardy, Rachel, Oppenheim, Charles and Rubbert, Iris. *Pelican project: pricing experiment library information cooperative network*. Loughborough University, 2001. Available from:

<http://www.lboro.ac.uk/departments/ls/disresearch/pelican/indexpage.html>

²⁷ Bide, Mark, Oppenheim, Charles and Ramsden, Anne. *Charging mechanisms for digitised texts*. 1997. Available from: <http://ukoln.ac.uk/services/elib/papers/pa/charging/>

²⁸ PURCEL: *purchasing decisions of electronic resources in higher education institutions: report on a research study for JISC JCALT*. 2000. Available from: <http://www.library.sunderland.ac.uk/jisc/>

- Current and future pricing structures from the perspective of the market. The role of the student, library or institution in the purchase of e-texts. An assessment of current library models for e-textbooks, including control circulation, subscription, short-term licensing and transactional. Recommendations on future models.
- An indication of the demand for e-textbooks. Broad perceptions of e-textbooks from the academic sector, such as pedagogic value. Possible competition from new and established information sources as an alternative to the textbook.
- Assessment of new approaches to content packaging e.g. the chunking of courses into smaller modules and how this will impact on e-textbooks; the impact of VLEs and other online learning environments.
- Possible new approaches to marketing and promotion

Industry structure – current situation and trends

- Review of industry structure and key environmental factors, for example, technological and legal constraints or opportunities. An analysis of key players within the industry and impact of ownership structures.
- Current and future cost structures for electronic textbooks. The role of authors in e-textbook provision and pricing. An indication of any possible risk for the e-textbook industry and its market.
- Mapping of the supply chain for e-textbooks and an assessment of the current and future roles of key stakeholders – academics, academic librarians, booksellers, other intermediaries, publishers. Possible future roles for established and new intermediaries.

Recommended strategy for the JISC E-Books Working Group

Within the context of a full assessment of changing market conditions and industry structures, the Group would like to explore future roles for itself, including the setting of acquisitions priorities and the development of appropriate business models. The Working Group wishes to be advised on how it can influence the development or e-textbook provision in UK further and higher education: what is the possible impact of national agreements on e-textbook provision – are they desirable and what are the benefits or drawbacks? Can and should a national framework be agreed on for purchasing models and licensing?

Annex 1 – additional study components

Electronic textbooks: shaping a vision for the future

Core components of the proposed study

It is expected that the study would cover the following key aspects:

1. *Use of textbooks in teaching and learning*
 - A detailed assessment of the role of textbooks within teaching and learning, including their use within the classroom and outside. Review of current teaching practice and how this is supported by textbooks.
 - Definition of a textbook within the electronic environment and how learning might be approached using an e-textbook. Practical insights into how the teaching and learning experience might be changed by the introduction of electronic textbooks and the possible impact of the e-textbook on a changing relationship between tutor and student.
 - Determination of the extent to which the increased use of online teaching and learning, both on and off-campus, will require a wider range of electronic content and services and the role of e-textbooks within these. An overview of trends in the development of teaching and how this may shape or be shaped by electronic media and the electronic textbook in particular.
 - Attitudes of learners towards textbooks and new forms of electronic textbook. An assessment of key factors, such as age, subject studied, course or level.
 - The 'e-textbook experience' for the student – perceptions of its impact on learning and its effectiveness.
 - Alternatives to electronic textbooks, such as course packs and tutor-created material, and their role within teaching and learning. New forms of learning communities and their possible impact on the textbook.

2. *New forms of material, production and authoring*
 - Broad assessment of current forms of textbook publishing, including content, structure, presentation and design. Assessment of current textbook publishing within key subject areas and the impact of technology on these.
 - Opportunities for innovative approaches to content, structure, presentation and design made possible by new technologies. In some respects, this part of the study will build on elements of the Eboni project, which recently reported to JISC, and which focused on best practice for the design on electronic textbooks.
 - Possible roles for electronic textbooks within or sitting alongside other forms of material. The appropriateness of a bespoke, tailored approach by institution or by course, or a standard approach.
 - Possible barriers to change, such as technological issues and cost.
 - Analysis of roles of key stakeholders, including authors, publishers, software developers. An assessment of institutional capabilities for e-textbook production and whether this option should be targeted for investment, left to commercial publishers or partnerships sought. Are there examples of partnership between institutions and commercial players for the development of e-textbooks and how effective are they?

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The economics of supplying e-textbooks

This Appendix contains an illustrative analysis of the profitability of an imaginary economics textbook. With about 100,000 students in higher education each year beginning a course in higher education with an economics content, we assume a market share of 25% at the peak. In addition we have assumed

- (i) a six-year textbook life
- (ii) a revised edition after three years, reflecting the necessity for updates in this subject;
- (iii) recommended retail price of £20.00 throughout; retailers may, of course offer discounts from this price.

Table 1 shows estimates of the publisher's gross margin over six years when only a printed version is produced, given the cost assumptions shown. The bottom line (16) shows the net present value of this gross margin discounted over the six years by 10% (an arbitrary but commonly used value), in this case close to £523,000.

Table 1: Revenue & cost from textbook (£20 retail) over 6 years (printed version only)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Over 6 yrs	% of retail value	% of publisher's revenue	
1 Sales volume	10,000	20,000	20,000	25,000	25,000	20,000	120,000			
	£	£	£	£	£	£	£			
2 Total retail value	200,000	400,000	400,000	500,000	500,000	400,000	2,400,000	100.0		
3 Retailers' gross margin (32% x 2)	64,000	128,000	128,000	160,000	160,000	128,000	768,000	32.0		
4 Net revenue to publisher (2 - 3)	136,000	272,000	272,000	340,000	340,000	272,000	1,632,000	68.0	100.0	
5 Production volume	20,000	25,000	15,000	30,000	30,000	10,000	130,000			
	£	£	£	£	£	£	£			
6 Payments to authors (7.5% x 2)	15,000	30,000	30,000	37,500	37,500	30,000	180,000	7.5	11.0	
7 Marginal print & bind (£0.85 x 5)	17,000	21,250	12,750	25,500	25,500	8,500	110,500	4.6	6.8	
8 Marginal distrib costs (40p x 1)*	4,000	8,000	8,000	10,000	10,000	8,000	48,000	2.0	2.9	
9 Variable costs (6 + 7 + 8)	36,000	59,250	50,750	73,000	73,000	46,500	338,500	14.1	20.7	
10 Sales and marketing	70,000	55,000	40,000	55,000	50,000	30,000	300,000	12.5	18.4	
11 Fixed costs of print & bind	30,000			25,000			55,000	2.3	3.4	
12 Distribution (fixed) & storage*	20,000	20,000	20,000	20,000	20,000	20,000	120,000	5.0	7.4	
13 Editorial costs	25,000	0		10,000		0	35,000	1.5	2.1	
14 Direct fixed costs (10 to 13)	145,000	75,000	60,000	110,000	70,000	50,000	510,000	21.3	31.3	
15 Gross margin (4-9-14)**	-45,000	137,750	161,250	157,000	197,000	175,500	783,500	32.6	48.0	
	Year	1	2	3	4	5	6			
16 Net present value of 15 at 10%		-40,909	113,843	121,150	107,233	122,322	99,065	522,703		

* May be contracted to distributing company, in which case may be converted all to marginal cost

** Before recovery of general overheads.

Table 2 shows what would happen if only an electronic version were produced, sold at the same price with identical sales volumes (these assumptions are unrealistic but the object is to demonstrate profitability). The economics of this option are adversely affected by two factors: (a) the 17.5% VAT currently applied to electronic, but not to printed books and (b) the likelihood that margins conceded to retailers (“aggregators”) and distributors would not fall much below those applied to the printed version, despite much lower costs with the elimination of physical handling. The retail margin is assumed to fall in absolute terms by 17.5% because it would be related to the ex-VAT price. Although substitution of the electronic for the printed version would replace costs equivalent to 11.6% of retail sales value with new costs equivalent to only 4.5% (a net saving of 7.1%), the profitability to the publisher would be slightly lower: net present value over the six years at 10% would be just below £486,000. This table seems to refute the notion that e-textbooks should be less expensive than their printed equivalent.

Table 2: Revenue & cost from textbook (£20 retail) over 6 years (electronic version only)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Over 6 yrs	% of retail value	% of publisher's revenue
1 Sales volume	10,000	20,000	20,000	25,000	25,000	20,000	120,000		
	£	£	£	£	£	£	£	100.0	
2 Total retail value	200,000	400,000	400,000	500,000	500,000	400,000	2,400,000		
3 Retail value less 17.5% VAT	165,000	330,000	330,000	412,500	412,500	330,000	1,980,000		
4 Retailers' gross margin (32% of 3)	52,800	105,600	105,600	132,000	132,000	105,600	633,600	26.4	
5 Net revenue to publisher	112,200	224,400	224,400	280,500	280,500	224,400	1,346,400	56.1	100.0
	£	£	£	£	£	£	£		
6 Payments to authors (7.5% x 2)	15,000	30,000	30,000	37,500	37,500	30,000	180,000	7.5	13.4
7 Distribution costs (40p x 1)*	4,000	8,000	8,000	10,000	10,000	8,000	48,000	2.0	3.6
8 Variable costs (6 + 7)	19,000	38,000	38,000	47,500	47,500	38,000	228,000	9.5	16.9
9 Sales and marketing	70,000	55,000	40,000	55,000	50,000	30,000	300,000	12.5	22.3
10 Digitisation/Distribution set-up *	30,000			30,000			60,000	2.5	4.5
11 Editorial costs	25,000	0		10,000	0		35,000	1.5	2.6
12 Direct fixed costs (9 + 10 +11)	125,000	55,000	40,000	95,000	50,000	30,000	395,000	16.5	29.3
13 Gross margin (5-8-12)**	-31,800	131,400	146,400	138,000	183,000	156,400	723,400	30.1	53.7
	Year	1	2	3	4	5	6		
14 Net present value of 13 at 10%		-28,909	108,595	109,992	94,256	113,629	88,284	485,847	

* May be contracted to distributing company, in which case may be converted all to marginal cost

** Before recovery of general overheads.

Table 3 shows the profitability of incremental sales of the electronic version with no loss of revenue from the printed book. Although these sales are only five per cent of those of the printed version and both the print and electronic set-up costs are incurred, the net present value of this outcome is greater than that of the printed version alone. It is this prospect, with the assumption that seepage will be minimal, that encourages some publishers to venture into e-books.

Table 3: Revenue & cost from textbook (£20 retail) over 6 years (printed & e-versions with incremental sales)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Over 6 yrs			
1 Sales volume	10,500	22,000	22,000	27,500	27,500	22,000	131,500			
2 Of which: printed	10,000	20,000	20,000	25,000	25,000	20,000	120,000			
3 electronic	500	2,000	2,000	2,500	2,500	2,000	11,500			
	£	£	£	£	£	£	£	% of retail value	% of publisher's revenue	
4 Total retail value	210,000	440,000	440,000	550,000	550,000	440,000	2,630,000	100.0		
5 Revenue after VAT on electronic	208,250	433,000	433,000	541,250	541,250	433,000	2,589,750			
6 Retailers' gross margin (32% x 5)	66,640	138,560	138,560	173,200	173,200	138,560	828,720	31.5		
7 Net revenue to publisher (5-6)	141,610	294,440	294,440	368,050	368,050	294,440	1,761,030	67.0	100.0	
8 Production volume (printed)	15,000	15,000	10,000	20,000	20,000	0	80,000			
	£	£	£	£	£	£	£			
9 Payments to authors (7.5% x 4)	15,750	33,000	33,000	41,250	41,250	33,000	197,250	7.5	11.2	
10 Marginal print & bind (£0.85 x 8)	12,750	12,750	8,500	17,000	17,000	0	68,000	2.6	3.9	
11 Marginal distrib costs (40p x 2)*	4,000	8,000	8,000	10,000	10,000	8,000	48,000	1.8	2.7	
12 Marginal distrib costs (40p x 3)*	200	800	800	1,000	1,000	800	4,600	0.2	0.3	
13 Variable costs (9 to 12)	32,700	54,550	50,300	69,250	69,250	41,800	317,850	12.1	18.0	
14 Sales and marketing	70,000	55,000	40,000	55,000	50,000	30,000	300,000	11.4	17.0	
15 Fixed costs of print & bind	30,000			25,000		0	55,000	2.1	3.1	
16 Distribution/digitisation set up (electronic)	30,000			30,000			60,000	2.3	3.4	
17 Distribution (fixed) & storage (printed)	20,000	20,000	20,000	20,000	20,000	20,000	120,000	4.6	6.8	
18 Editorial costs	25,000	0		10,000		0	35,000	1.3	2.0	
19 Direct fixed costs (14 to 18)	175,000	75,000	60,000	140,000	70,000	50,000	570,000	21.7	32.4	
20 Gross margin (7-13-19)**	-66,090	164,890	184,140	158,800	228,800	202,640	873,180	33.2	49.6	
	Year	1	2	3	4	5	6			
	Net present value of 20 at 10%	-60,082	136,273	138,347	108,463	142,067	114,385	579,452		

Table 4 shows that parallel production of printed and electronic version would reduce profitability significantly if there were no incremental sales and there were a substantial switch from print to electronic. Net present value would fall to just under £472,000. It may be argued that the comparison presented here does not reflect the lower resource costs of electronic publishing. The 17.5% VAT applied only to electronics is obviously anomalous; it is possible that within the next few years a reduced rate of VAT will be applied *both* to printed and electronic versions of educational and cultural material. The retail margin is assumed here at 32% of the retail price for printed books and 32% of the post-VAT price for electronic (26.4% of the inclusive price). The electronic version requires no physical handling or storage and it may be argued that a retail margin of around 10% would suffice to give a satisfactory return on investment in electronic facilities on the part of the retailer. However, the retailing of academic books is highly concentrated and in the short-term powerful retailers would resist imposition of lower margins on electronic books.

A comparison of costs without these two market imperfections would, of course, be much more favourable to the electronic version, but, in the short-term, there can be no doubt that there are commercial barriers to the launching of electronic textbooks, quite apart from the apparent lack of enthusiasm on the part of most ultimate customers.

Table 4: revenue and costs from textbook (£20 retail) over 6 years (printed and e-versions with 'seepage' of sales to e-version)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Over 6 yrs			
1 Sales volume	10,000	20,000	20,000	25,000	25,000	20,000	120,000			
2 Of which: printed	9,000	16,000	14,000	15,000	12,500	8,000	74,500			
3 electronic	1,000	4,000	6,000	10,000	12,500	12,000	45,500			
	£	£	£	£	£	£	£	% of retail value	% of publisher's revenue	
4 Total retail value	200,000	400,000	400,000	500,000	500,000	400,000	2,400,000	100.0		
5 Revenue after VAT on electronic	196,500	386,000	379,000	465,000	456,250	358,000	2,240,750			
6 Retailers' gross margin (32% x 5)	62,880	123,520	121,280	148,800	146,000	114,560	717,040	29.9		
7 Net revenue to publisher (5-6)	133,620	262,480	257,720	316,200	310,250	243,440	1,523,710	63.5	100.0	
8 Production volume (printed)	15,000	15,000	10,000	20,000	20,000	0	80,000			
	£	£	£	£	£	£	£			
9 Payments to authors (7.5% x 4)	15,000	30,000	30,000	37,500	37,500	30,000	180,000	7.5	11.8	
10 Marginal print & bind (£0.85 x 8)	15,000	15,000	10,000	20,000	20,000	0	80,000	3.3	5.3	
11 Marginal distrib costs (40p x 2)*	3,600	6,400	5,600	6,000	5,000	3,200	29,800	1.2	2.0	
12 Marginal distrib costs (40p x 3)*	400	1,600	2,400	4,000	5,000	4,800	18,200	0.8	1.2	
13 Variable costs (9 to 12)	34,000	53,000	48,000	67,500	67,500	38,000	308,000	12.8	20.2	
14 Sales and marketing	70,000	55,000	40,000	55,000	50,000	30,000	300,000	12.5	19.7	
15 Fixed costs of print & bind	30,000			25,000		0	55,000	2.3	3.6	
16 Distribution/digitisation set up (electronic)	25,000			25,000			50,000	2.1	3.3	
17 Distribution(fixed) & storage (printed)	15,000	13,000	11,000	9,000	8,000	7,000	63,000	2.6	4.1	
18 Editorial costs	25,000	0		10,000	0		35,000	1.5	2.3	
19 Direct fixed costs (14 to 18)	165,000	68,000	51,000	124,000	58,000	37,000	503,000	21.0	33.0	
20 Gross margin (7-13-19)**	-65,380	141,480	158,720	124,700	184,750	168,440	712,710	29.7	46.8	
	Year	1	2	3	4	5	6			
	Net present value of 20 at 10%	-59,436	116,926	119,249	85,172	114,715	95,080	471,705		

Display Readability and On-screen Navigability

DISPLAY READABILITY

What are the key factors that determine readability?

Luminance and contrast are the two principal factors that determine readability for an electronic display. Luminance is the amount of light coming from the display surface - the light that ultimately reaches the user's eye. For an emissive display, luminance is generated by the display itself. But for a reflective display, luminance is determined by ambient illumination and the reflectance of the display's white state. Since ambient illumination varies widely, the key luminance metric for reflective displays is white state reflectance. Contrast is defined as the ratio of the white state to the dark state reflectance of the display - contrast enables the eye to easily distinguish between light and dark. To be readable, the display must offer both sufficient luminance and contrast.

Why are reflective displays better suited to reading applications?

Given that emissive displays produce their own light, they work well when there is limited illumination, such as in a darkened room. However, as ambient light increases, emissive displays can be washed out. This occurs because light reflected from the display surface increases the luminance of the dark state, thereby reducing contrast. This is why a laptop computer is very difficult to read in direct sunlight.

Reflective displays generate images using ambient light, and the luminance varies as the eye adapts to changing lighting conditions. In addition, the contrast is insensitive to variations in ambient lighting because both the white and dark states are equally affected. This makes reflective displays readable under a wide variety of lighting conditions, provided there is a basic minimum of ambient light; much like ink on paper. In real-world reading applications, ambient light intensity varies greatly from a low light level in a home, to the intermediate lighting at the office, to very bright lighting outdoors. For an emissive display to be readable under this range of conditions would require a bright display, significant battery power, high cost, and substantial weight. For this reason reflective displays are better suited than emissive displays for reading, especially in portable devices that will be used under a wide range of lighting conditions.

How should we measure readability of reflective displays?

As explained above, the key readability factors in a reflective display are (1) white state reflectance and (2) contrast. But one must be careful in comparing quoted specifications as the measurement conditions greatly affect the data. This is especially true for LCDs, due to their high degree of angular dependence. Both the angle of lighting (which can be direct or diffuse) and the angle of view play a role. Finally, a touch screen on the front of the display will absorb light and reduce overall reflectance, greatly changing the result. For portable devices, the user is typically holding the device. Therefore the angle of illumination from light in the room can be more important than the angle of view. An appropriate controlled test condition is to assume that the user is looking straight at the handheld display, and to then measure the reflectance from a single, direct light source at different angles of illumination.

[Extract from leaflet on *Display Readability* Version 051702 E Ink Corporation, 2002]

NAVIGABILITY

One of the key questions that haunts traditional readers who grew up with print on paper is the navigational issue.....they move back and forth with ease of recall through navigation channels that the technology of print books have seemingly embedded topographically in their brain. With an e-book or e-text on screen all these navigational aids are gone.

Given the ubiquity of desktops and laptops, of online public access catalogs and campus networks that provide e-journals and e-books, researching and writing a paper has become a different exercise. The pre-computer and pre-xerox mode of reading a book with a pen or pencil in hand, note cards stacked alongside a book is nowhere to be found. Reading the book from 'cover to cover' – sequential reading – likewise has taken a back seat to segmental reading. (Brown, Gary, 2001)

Reading on a computer screen is not the same as reading from print. For the latter, we have come to rely on a wide range of skills, such as holding a book or a journal at a comfortable angle, scanning from right to left, and observing section headings and page layout to distinguish important information. We are also very adept at turning pages and scanning backwards and forwards through them to find specific or half-remembered bits of information. Where there is a research need, people will have several books or magazines open at different pages and are very quick at navigating between them – usually using both hands. All this affects the speed of reading, the length of the pauses, concentration time, skipping, skimming or re-reading and eye comfort. Most people have subconscious strategies for reading that are possibly acquired in childhood.

By contrast reading on the web is slower. ... Response time for computers moving on to a new page can be cumbersome (especially with the graphics-rich pages of some experimental works), and navigation is controlled by dragging or clicking with the mouse. Quite often, in order to move about between the different electronic windows, the user has to try to find the right one from an overcrowded task bar, or close or re-size some windows. These tasks, being one-handed, mean that navigation is performed serially rather than in parallel with other activities and therefore slows the reader down. (Dorner, Jane, 2002)

Readers perceive one of the main advantages of presenting educational material in the electronic medium as being the ability to exploit multimedia elements such as video and audio, and interactive elements in the form of experiments and quizzes, all of which provide an effective alternative learning environment to print publications. Interactive quizzes are popular in mathematical subjects in which accurate feedback can be provided automatically, while multimedia can be usefully exploited in medical, engineering or science subjects in which complex concepts can be communicated in alternative ways.

Inclusion of elements such as these can increase a reader's "sense of engagement" with the book, enhancing likeability and their ability to remember the information being conveyed. However, multimedia and interactive elements can make it more difficult to scan material in search of specific facts; therefore, textual equivalents for all information conveyed via these means should be provided (this is also good practice in terms of accessibility) and multimedia and interactive elements should be used to supplement and enhance, rather than replace, text. (Wilson, Ruth et al, 2002)

The PELICAN Project pricing model

We reproduce here Model 1 of the PELICAN Pricing Models from the PELICAN Project Final Report (Oppenheim, Charles et al, 2001), in order to clarify points raised in this Study report and to inform possible further consideration of the lessons learned from the PELICAN pricing models.

The problem PELICAN attempts to address is to achieve agreed charging mechanisms for the distribution electronically of such born analogue materials. However, we recognize that any solutions that we may come up with may well also apply to the future generation of born digital materials. (p. 3)

The models are intended for use in the digitisation of chapters of textbooks, but could be extended, of course, to cover entire textbooks and/or journal articles if the publishers so desired. (p. 79)

Our aim was to develop one or more charging algorithm(s). (By “algorithm”, we simply mean a model for calculating prices.) These algorithms would have to satisfy everyone. The proposed algorithms are for permission granted to the HEI to obtain, store and disseminate to its own registered bona fide staff and students digitised materials, and for the recipients to make a single print out of the materials. This is referred to below as “the minimum”. Rightsholders may or may not choose to offer further permissions, e.g., permission for students to amend the data, permission for the HEI to allow access to walk-in users, permission for students to download, to make multiple print-outs. (p. 58)

Pricing model 1

Pricing model 1 involves a basic administrative system of purchasing units against a subscription fee. The HEI has full control over the subscription rate it chooses. The units would be for a year and could be ‘topped up’ if required. The units cannot be carried over to the next year because of practical problems: HEIs budgeting systems are not geared up to this type of carrying over from one year to the next. Thus, the HEI must be careful not to “over-spend” on units at the start of the year.

An advantage of this system is that costs could easily be devolved, e.g., each department could purchase a number of units to spend or the students could be charged individually.

Table One shows the basic model, with imaginary figures:

Table 1: Subscription for pricing model 1

No. of units	Fee per annum
100	£50
500	£225
1000	£400
1500	£550

The HEI would decide the number of units required and the fee to pay. The Table shows a discount offered for more units purchased, encouraging HEIs to purchase more. We commend this idea, but of course it is not an essential component of the model.

This model allows the publisher to retain complete control over pricing. We propose that each text available under the system would be assigned a number of units by the publisher, according to the revenue they felt was required. Each item available is then added to a catalogue or database (run by the administrative body), to which all HEIs subscribed would have access.

The HEI would search the catalogue and select the texts required based on the unit price quoted. We anticipate that the publisher will have to provide the number of units required under various scenarios. For example, imagine a publisher decides to add a chapter to the database of items for which it is giving HEIs “the minimum” permission. The text is submitted with corresponding units assigned by the publisher. The publisher might decide on three levels of pricing. The first is if the text is to be used only by a class of up to 50 students. Another if it is to be used only by a class of up to 100 students; whilst the third, ‘Open Access’, means that all students in the subscribing HEI can access the text. This would be appropriate for general texts likely to be of use to a wide range of students, or for texts used by very large classes. Table 2 shows a short extract showing how the database would look.

Table 2: Pricing of texts, pricing model 1

Item	Up to 50 students	Up to 100 students	Open Access
<i>Research Methodology</i> Chapter 5	5	10	20
<i>Information and Publishing</i> Chapter 3	8	12	30
<i>Publishing Economics</i> chapter 7	10	15	25

This model offers several advantages in addition to the obvious one of simplicity. The HEI has full control over how much it is spending on these electronic texts. The units are purchased at the beginning of the year; the library can therefore budget for the resources. It makes the process simpler, rather than paying small amounts each time an individual text is required.

The model is much like the current HERON model, except that each publisher provides the text by choice and assigns the number of units before the HEI selects the text. Therefore the HEI has full control over which texts to choose based on the price being available. It also leaves control with the publisher whether or not the text is placed on the database and control with the HEI in that if a text is too expensive, it can search for an alternative. The publisher will also be able to monitor which texts are selected and which are not and alter its pricing accordingly. Publishers could also inspect the database to assess how their texts are priced compared to those of the competition.

The publisher retains control over pricing and which texts are available. Prices and texts available can be altered according to revenue gained, access made, etc. Each HEI pays one annual fee and can therefore budget appropriately. Each HEI can search the whole database, sees cost previous to purchase, and purchases accordingly.

PLS recently announced²⁹ a new pricing scheme for digitised texts. This provided for a choice of pricing options: either the “textbook model” at 5p per page per student; or a flat fee model at £5 per page irrespective of numbers of students accessing the material. The choice is left to the publisher. This PLS price of £5 per page gives a clue regarding how publishers are likely to set their unit prices should Model 1 be adopted. (pp 59 – 61)

²⁹ Publishers Licensing Society Ltd., *PLS Mandate handbook* (June 2001), paragraph 11.



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