



## The emergence of social networking through the communal annotations of an e-book system

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Work-in-progress is reported, taking a case study approach to investigate the delivery of an e-book which is constructed based upon the customisation of an existing Pearson Education text. Of particular interest is that the customisation will include a capability for dynamic highlighting and annotating of the e-book text to reflect activities stipulated in the course guide, and to facilitate interchange between students and the lecturer and between students and their student colleagues - a form of social networking. The data collection and evaluation of the impact of the e-book will provide insights into a number of aspects including: learning resource uptake; effectiveness of the resource suite components; and the means of staff instruction to students as facilitated using e-book resources.

Keywords: e-books; social networking; resource effectiveness

### Introduction

Publishers, authors and institutions have invested heavily in the development of suites of resources that use a range of new technologies to facilitate learning in traditional educational environments, homes, workplaces and more recently in transit between these diverse settings. This variety of learning materials and delivery modes provides choice for students, but also might potentially cause fragmentation of the learning narrative, information overload, confusion about teaching and learning activity scheduling, and wastage of university and publisher resources, including the wastage of time spent on the development of unused resources. Improved knowledge of the use of such emerging components of text and online resource suites is required to streamline production, simplify students' choice, and enable academics to provide an improved ordering of the delivery of teaching and learning activities.

One such emerging technology, the e-book, offers many opportunities to facilitate learning in diverse settings. The e-book allows for just-in-time and customised delivery of text and graphics to flexible,

full colour screens (via notebooks, netbooks, iPhones, laptops and desktop computers), and has the potential to provide audio and video components, the ability for recording handwriting, as well as margins for note-taking and text highlighting (Egan, 2009). E-book technology also provides opportunities for social networking through the creation of informal communities of shared interest. Specifically, dynamically-created annotations to e-books made by the academic prescribing the text and coordinating the subject can be automatically shared with students. Further, students can share their own annotations made to their e-books with their student colleagues.

The present project focuses on the delivery of an e-book, constructed based upon the customisation of an existing Pearson Education text. Copies of the e-book can currently be downloaded to PC's, Notebooks and Mac's. Once the e-book is hosted on a device annotations are synced to that bookshelf each time it is opened. If the owner of an e-book wishes to have the annotations as they are created they can download an i-phone application that enables deliveries of annotations to their phone as well as the e-book itself. Vital Source has also developed an Apple application to enable download to iPad technology that is not yet in the marketplace. Of particular interest is that the customisation will include dynamic highlighting and annotating of the e-book text to reflect activities stipulated in the course guide, and to facilitate interchange between the lecturer and students, and between students and their student colleagues.

## Background

One can argue for the adoption of e-books in educational settings on economic grounds, and on ease of acquisition. Specifically, the cost of an e-book is approximately 55% of the price of a traditional text. Further, publishers can provide easy selection of titles via a joint web-based delivery ('Vital Source'). Certainly, the sales of e-books are rising rapidly, possibly driven by these considerations (Egan, 2009). Arguing for e-book adoption on such grounds alone, however, ignores the important potential of the e-book to support social networking between the student and lecturer stakeholders.

Previous research of e-book usage has explored initial user perceptions of the use of Amazon's Kindle e-book reader (Clark et al., 2008). Extending such research, in the course of the present study, the capacity of an annotated e-book to enhance digital story telling and the 'voice as documented' as has been reported for e-portfolios, will be investigated (Hallam et al., 2008; Barrett, 2006). An ePortfolio is a purposeful collection of work that demonstrates effort, progress and achievement over time stored in an electronic container (CD, DVD, WWW). In this context and in terms of the technology, a digital story is a digital video clip, pictures, audio, or pictures and text where the story is told in the author's own voice. A digital story provides that voice: 'listening to the author, we hear a real person, getting a sense of their unique personality' (Barrett, 2006). Such considerations should underpin and add a personal individualized note to the academic annotations shared with students in this project as they progress through the course using an e-book.

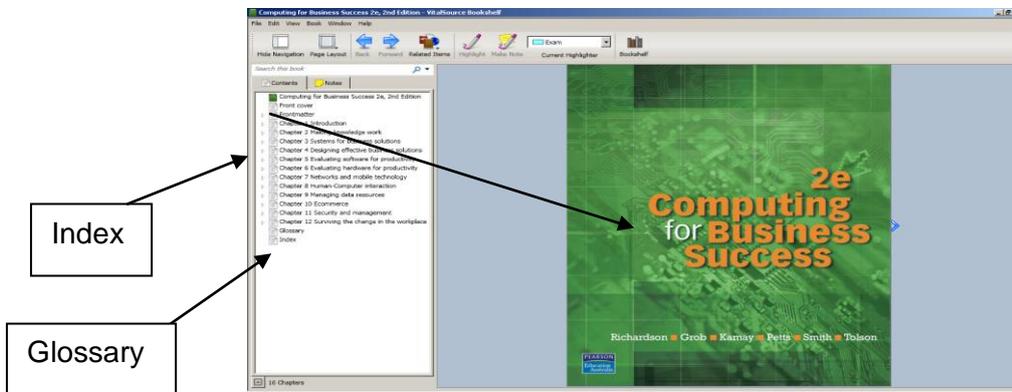
Hallam et al. (2008) reports the improvement of information technology skills, connections among formal and informal learning experiences, the enabling of an archive of individual artefacts and reflections and efficient management of students' work as benefits of e-portfolio use. Annotation of the e-book by the student cohort and the capacity to share their notes with their selected peers in this study may mimic the functional characteristics of 'communities of practice' described by Hallam et al. (2008) in relation to emerging changes in practice driven by the use of e-portfolios.

Several studies support the concept of aligning assessment with learning (Ramsden, 1992; Biggs, 2003; Henderson and McWilliams, 2008). A constructivist approach to learning fits well with the concept of assessment for learning (Ramsden, 1992). Reflecting this literature, the e-book annotations created by an academic coordinator should highlight learning activities and their links to assessment tasks and developing student capabilities. Annotation categories enabled by the software application are "**Exam**", "**Need Clarification**" and "**Important**". Owners of e-books whether they are staff or students can use the designated annotation categories or develop their own.

## The research project

The research in progress takes a case study approach (Yin, 1994), centred on a large common core first year course at RMIT University (Business Computing 1), and to students studying off-shore at partner institutions. The students are being given the option of using a hardcopy text and CDROM, or an e-

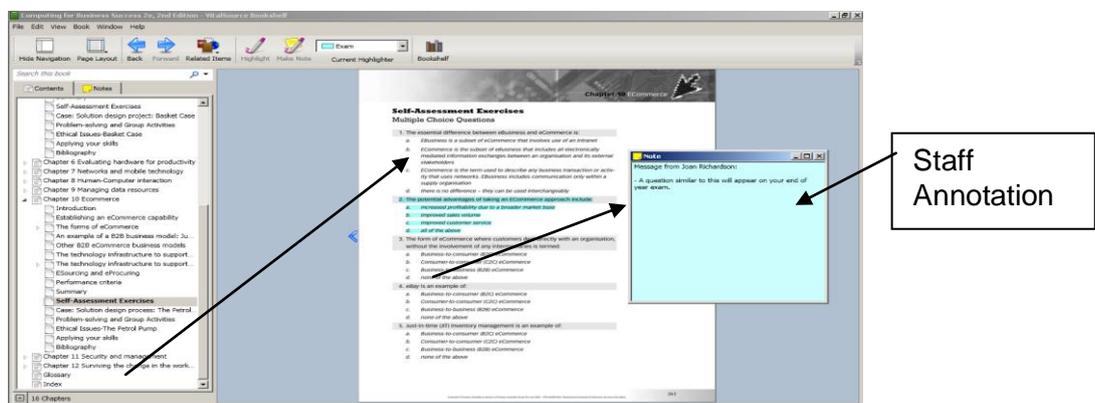
book (see Figure 1). The e-book will facilitate students *pulling* information without direct access to teachers (Huang et al., 2005) via an electronic index and glossary. Further, academic use of the highlighting and annotation features of the e-book application is being explored to potentially improve the uptake and use of available resources both within and outside the classroom (Richardson and Lenarcic, 2007).



**Figure 1: The eBook – Electronic index that facilitates access to content and glossary**

Specifically, the focus of this project is on identifying ways of utilising e-book highlighting and dynamic annotation to guide students through the prescribed resources. Key features of the project include:

- The creation and trialling of an e-book based upon the customisation of an existing Pearson Education text used for Business Computing 1 (see Figure 1).
- Associated self-diagnostic questions (see Figure 2) and workshop instructional resources currently housed on a CDROM that accompanies the book are being integrated within the e-book



**Figure 2: The eBook – Integrated self-assessment exercises, with staff annotations**

The impact of the innovative use of e-book technology, as a vehicle to increase uptake of digitised learning tools outside traditional classrooms is being investigated. Of particular interest is that both staff (see Figure 2) and students can dynamically highlight and annotate text using iPads, phones and mobile computers (including during lectures) and can share their annotations as they add them.

## Data collection and analysis

Both the perceived ‘usefulness’ and the students’ perceptions of the impact of e-books on their use of available resources is being evaluated (Davis, 1993). Data collection involves a student survey and a focus group to ascertain the reasons for the choice of the e-book rather than traditional prescribed texts.

At the conclusion of the pilot, an academic and a student focus group will be conducted to probe the extent and usage patterns of the e-book and academic perceptions of the impact on learning outcomes. Sample annotations created in the first 8 weeks of the pilot are displayed in Table 1.

**Table 1: Annotations - Samples and number by category (Week 1 – 8)**

Number of Annotations	Sample Academic Annotations
26 x Alerts	This whole section through to page 94 is important. The five step problem solving approach is often on the exam. Make sure that at each step you understand and can name the techniques that can be used.
13 x Clarifications	Read this Rich Pictures are about capturing the symptoms of a problem situation and this is a technique that can be used as part of the problem-analysis step in the Problem Solving process.
4 x Extensions	You may like to look at the “Interface Hall of Shame” ( <a href="http://homepage.mac.com/bradster/iarchitect/shame.htm">http://homepage.mac.com/bradster/iarchitect/shame.htm</a> ). It will convince you of the importance of Usability Evaluation and will give you a good laugh.
5 x Connections	This is related to your spreadsheet assignment. Spreadsheets are a Decision Support tool for doing “What-If” analysis which allows the user to explore the impact of available options or decisions

The annotation categories designed for this project were:

- “**Alerts**” to remind students to read resources that will assist them with their assessment,
- “**Clarifications**” which amplify difficult concepts with which students may struggle,
- “**Extensions**” which link students to rich resources available in the digital marketplace that illustrate the concepts, theories and skills being taught in alternative contexts
- “**Connections**” which make relationships between lecture resources in the text and practical workshop activities that develop the skill base visible

The “**Alert**” and “**Clarification**” annotations enabled staff to focus on the delivery of the learning designed to support the subject capabilities. “**Extensions**” and “**Connections**” categories support the relationship between learning activities and assessment tasks described by Bigg’s (2003) constructional alignments and enable transfer of concepts learnt between contexts. The number of “**Alert**” and “**Clarification**” annotations created to emphasise components of the curriculum covered in class for which the e-book provides extra reading material was much larger than “**Extensions**” and “**Connections**”.

### Anticipated outcomes

This pilot of the e-book application at RMIT provides an opportunity to evaluate the impact of dynamic information transfer on resource component usage and student learning outcomes. The use of the e-book to support learning complements students’ social involvement, as they can access annotations to the textbook added dynamically by staff. Further they can access and add to the e-book, sharing their own annotations with their fellow students. The data collection and evaluation of the impact of the e-book will provide insights into learning resource uptake, the effectiveness of resource suite components and the method of staff instruction to students.

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