Chapter 1

Introduction

“Well begun is half done.”

~ Aristotle ~

The rapid and on-going changes in computer and communications technology, combined with the increasingly globalised nature of business, have put considerable pressure on providers of education of all types — both commercial eLearning providers, endeavouring to assist companies with their day-to-day learning needs (Reckmann & Swatman 2003) and the “traditional” providers of advanced education, the universities — to keep their offerings consistently up-to-date. Universities, in particular, are finding the pressure to constantly amend their educational offerings in ways dictated by the market-place a considerable challenge. The issues facing today’s universities are particularly well-described in a list of key concerns produced by York University in Ontario, Canada:

“Changes and restructuring in higher education -

We are witnessing fundamental changes in [the] higher education system, fueled in part by series of government decisions (private universities, etc.). Little help is coming from government and most of the new funding that is coming is tied or targeted. The government priorities for education are also heavily guided by a focus on job training and employment after graduation.

These pressures coincide with the convergence of a multitude of key pressures including, a growth in demand for University education, faculty recruitment requirements and on-going demand for innovation to drive efficiencies in the system.

These changes and pressures are not all unique to Ontario or Canada and we are seeing trends and strategies in other jurisdictions:

- Increased competition amongst institutions for best students and best faculty members.
- Need for educational institutions to focus and define their “niches”, their “best practices” in order to excel within their strategic framework. Try not to be all things to all consumers of education.
- Removal of bureaucratic boundaries within institutions in order to become more nimble.
- A rise in collaboration at multiple levels, in many cases enabled by technology: at an administrative level between departments; between faculties; between
institutions at a programmatic level as well as in libraries, support and services; amongst students for learning.

- Students will require diverse education due to “life-long learning” needs, multiple careers, changing workplace, etc.
- Increasing influence of “for profit” business elements - new and increased competition coming from the likes of ... I.T. learning institutes, e-colleges, etc.”

(York University 2001)

In much of the world, universities are also becoming dependent on fee-based educational programs, as government funding support is steadily eroded by the competing demands of the other, increasingly-expensive programs for which today’s governments must provide, such as health, defence or transport. Cost-recovery-based education programs, of course, are naturally market-driven to a greater extent than the purely educationally-focused programs which universities have offered in the past. In Australia, for example, “selling education overseas is now worth A$5 billion a year to the Australian economy, while universities earn more than A$1 billion in fees from the 150,000 foreigners they enrol” (Maslen 2003) and the New Zealand education export market earns more than that country’s wine exports (New Zealand Ministry of Economic Development 2003).

The domestic fee-paying education market is also becoming increasingly important to universities – with graduate course-work programs, in particular, being seen as the major vehicle for attracting interest from local students willing to pay fees for further education. Until now, little research has been undertaken into new educational offerings – although the theory of new service product development, which stems from the marketing discipline, has much to offer a researcher interested in the development of new educational programs at the tertiary level (Swatman & Chan 2001).

An excellent example of the need for rapid development of higher education programs is the relatively recent emergence of electronic commerce as a key global business strategy, and the consequent sudden need for educational EC programs in the higher education sector. When I commenced this research project in 1998, I began by investigating the phenomenon of EC education at the higher education level. Two years later, my research program changed direction, focusing on the advantages to be gained by a consideration of the development of EC program offerings as new service product development.
This research project involved an in-depth investigation into the nature, development and marketing of Electronic Commerce (EC) and Electronic Business (EB) tertiary education programs, in four countries within the Asia-Pacific (AP) region: Australia, New Zealand, Hong Kong Special Administration Region (Hong Kong) and the Republic of Singapore (Singapore), during the period 1999 to early 2003.

1.1 Background to the Project

My original research project, which commenced in August 1998, was entitled ‘An Electronic Commerce Curriculum Model in Higher Education’. At that time, relatively few universities were offering EC programs/degrees in the AP region. The purpose of the original project was to provide a curriculum model which could be widely adopted by universities for developing their own EC programs. Eighteen months later, however, in early 2000, the state of the tertiary EC education market had changed dramatically. A survey I conducted of universities within these four regions in early 2000 suggested the rate of development of EC degree offerings (at both undergraduate and post-graduate levels) was explosive. Many universities in the region now offered EC degrees or subjects, while EC program diffusion in North America was higher still (Chan and Swatman 2000a). The need for a specific curriculum model for EC programs – my original research topic – was clearly no longer of such importance.

To ensure that my research project retained its currency and relevance, I modified my research topic to focus on program development of EC/EB programs using the Marketing paradigm of New Service Product Development, as it appeared that the phenomenon of rapid development of EC/EB programs and the reactive nature of many of the EC/EB offerings had more in common with the development of new service products as addressed in marketing theory and practice, than it did with pedagogy.

1.1.1 Introduction to the Internet and EC/EB

The Internet has revolutionised computing, communications, business, government, individual existence and indeed, virtually every facet of global society, in a truly remarkable fashion. The Internet has a world-wide broadcasting capability, and is a mechanism for information dissemination, and a medium for collaboration and interaction between individuals and their computers without regard to geographic location (Leiner et al. 2000). The history of the Internet can be traced back to 1969,
when the US Defense Department commissioned ARPAnet to research computer networking. Later that same year, the first five nodes (UCLA, Standford Research Institute, UC Santa Barbara, University of Utah and BBN1), went online. In 1972, Kahn and Cerf developed the Transmission Control Protocol / Internet Protocol (TCP/IP) which enabled network-based processing. In 1983, TCP/IP was approved as the communications standard for ARPAnet, which led to the first definition of an Internet as a connected set of networks using TCP/IP. In 1988, the first businesses began to connect to the system for research purposes. In 1990, ARPAnet ceased to exist, and the network was officially referred to as the Internet (Applegate et al. 1999, pp.94-97; Cerf 2001; Leiner et al. 2000; Slater III 2002).

In 1989, Berners-Lee created the World Wide Web (WWW), a hyperlinked interface to the Internet which drove commercial use of the Internet and has been a key component of EC since 1993, when the first graphics-based browser, Mosaic, became available. EC emerged from the convergence of several major information technologies (for example, the WWW) and business practices (Zwass 1996, p. 4). Figure 1-1 summarises the evolution of the Internet.

Figure 1-1 A Brief Summary of the Evolution of the Internet
Reproduced from: Slater III (2002)

1 BBN - a group headed by Frank Heart at Bolt Beranek and Newman
An Australian government publication (Commonwealth of Australia 1999) noted that the spread of the Internet around the globe occurred in four ‘waves’:

- **Wave One** – the USA, Canada and the Nordic countries. These countries have almost achieved critical mass as information societies.

- **Wave Two** – the rest of the European Union, Australia, New Zealand, Japan, The Republic of Korea, Taiwan, Singapore and Hong Kong. These economies took up the Internet enthusiastically in the 1990s and some are now virtually indistinguishable from Internet pioneers in Wave One countries.

- **Wave Three** – developing counter across South East Asia, China, Brazil, Argentina, South Africa, Egypt, and smaller island states such as Tonga, Fiji, Barbados and French Polynesia. Uptake of the Internet has been growing rapidly for the past two or three years, albeit from a low base.

- **Wave Four** – least developed countries or countries that deliberately shun Internet use. It seems unlikely the Internet will have any significant impact on these countries during the next few years.

(Commonwealth of Australia 1999, p. xxii)

The Internet and the WWW quickly became the major drivers of EC which, following the creation of the NASDAQ index, has become one of the most widely-discussed and rapidly-growing phenomena of the business world. New types of business have continued to evolve within this New Economy and, with them, new business models (or modified versions of traditional business models) to cater for the new business activities and transactions which are taking place. Along with the many positive developments have come some issues and concerns, such as security and privacy threats extending to levels previously unanticipated. In later years, the term Electronic Business became fashionable, as an alternative to — or according to many, encompassing - Electronic Commerce. These days, both terms are commonplace and well-accepted in both practice and theory, although formal definitions differentiate the terms and their meanings (see Chapter 4 for a detailed discussion of this topic).

I leave the topic of EC and EB until Chapter 4, and proceed to look at the types and development of EC/EB programs at tertiary levels, created to address the sudden market demand which followed the rise of the dot.com phenomenon.
1.1.2 Types of EC/EB education programs

In this section I provide some background relating to the different types of programs available outside formal tertiary institutes, because EC/EB programs are typically offered by both academic and non-academic institutions.

Programs offered outside the traditional academic environment are generally short term – typically ranging in duration from several hours to several months. Such programs are often provided to employees in the form of in-service training, increasingly as elements of company organisational learning strategies. These short courses also target those who want to learn particular new skills and knowledge within a short time period (C3 Digital 2002).

EC/EB short courses were designed for people with a computing background looking to learn some business skills, people with business backgrounds looking to improve their IT knowledge, and even for complete beginners in both areas. The contents of such programs provided an overview to course attendees on subject such as, for example, introductory EC and how EC might be useful in business. Advanced topics covered typically included e-marketing, technologies such as the WWW, electronic payment systems and payment security. These courses are frequently offered as face-to-face workshops, or in online delivery mode by e-learning companies, EC solutions companies or what in Australia is known as Technical and Further Education (TAFE) (Australian Correspondence Schools 2003; IBM Virtual Campus 2003; IGNITE 2000 and WorldWideLearn 2003). Such courses are often ad hoc in content, and highly flexible.

Tertiary institutional EC/EB programs, on the other hand, typically target people desiring or requiring specialist qualifications for their future or current vocation. Since 1998, many new academic programs in EC/EB have been developed globally, a number of these in the region studied – the AP. Not all institutions have developed entire, distinctive specialist EC/EB programs, however. Some institutions chose to add EC as a specialisation within existing bachelors and undergraduate degrees programs (Chan 2003).

1.1.3 Introduction to EC/EB tertiary education

Many new EC/EB programs were offered to the market during the years 1998 to 2000. Research investigating these programs and their concepts included work by Hampe (1998), McCubbrey (1999) and Wang and Williams (1997), as well as my
own publications from this research (Chan & Swatman 2000a; Swatman & Chan 2001). I investigate and report a representative range of this earlier research into EC/EB higher education in greater depth, in Section 2.2.

1.1.3.1 EC/EB education in North America

In North America, one of the earliest resources for EC/EB education was (and still is) ISWorld Net. Its e-commerce website provides information on selected EC/EB courses in the United States, books and teaching cases for EC/EB. The University of Vanderbilt launched its first Master of Business Administration (MBA) EC Major in 1995 (Vanderbilt 2002). Thereafter, EC courses emerged quickly with Davis (1998 et al., p.36) identifying nearly 50 United States and Canadian university-based EC courses for which syllabi were available on the WWW from 1995-1998. Nickell (1999) reported that while in 1998 only two American universities offered accredited degrees in EC, by 2000 there were 7 bachelors degrees with a major in EC, 15 EC/EB masters programs, and 47 masters degrees with an EC/EB concentration (AACSB 2000a; 2000b; 2000c).

There have been many researchers concerned with EC/EB education during this earlier period – among whom are included Professor James Dutt of Bloomsburg University (Dutt 1997) and Professor Shouhong Wang of the University of Massachusetts Dartmouth, U.S.A. (Wang 1998). Recently, the Americas Conference on Information Systems (AMCIS) held a Workshop on Teaching EC in Dallas in August 2002. Some useful research into EC education was reported by Dean and Nasirin (2002).

1.1.3.2. EC/EB education in Europe

A good source of information about EC/EB education in Europe can be found at European Union Online (European Commission 2003).

A common EC curriculum at post-graduate level, possibly the best-known EC/EB education program in Europe, is shared by several international business schools, and organised by the Global eManagement (GeM) consortium. GeM’s EC program is run through official co-operation between a number of high-status business schools and universities (mainly in Europe, although there are also a small number of American

2 ISWorld Net's EBusiness Course <http://www.magal.com/iswn/teaching/ebusiness/index.cfm>
participants). The program has been endorsed by the European Commission and by G7’s Information Technology group.

An international EC conference has been held in Bled, Slovenia every June since 1988. This conference focuses on topics of importance to both EC/EB research, as well as education, with a specialist workshop on graduate programs in Electronic Commerce having been run every year since 1999. Various issues, including the content, organisation and marketing of EC/EB graduate programs, are widely discussed during these workshops. At the 2002 Bled EC conference, a workshop on the future of EC education programs was held, with several participants suggesting EC programs had unlimited lifespan, while others believed the programs’ heyday was over, forecasting only several years left for such programs to run. In 2003, for the first time in four years, there will be no EC/EB education workshop (which may or may not be significant).

1.1.3.3 EC/EB education in the AP Region

As mentioned in Section 1.1.1, AP countries are represented within the second and third waves of Internet diffusion and, as one would expect, EC/EB education in this region was slower to emerge than in either North America or Europe. EC research, however, is conducted at many universities in the region, including (inter alia) research into smart cards and on-line innovation at the University of Wollongong; EC security at the University of New South Wales; applications of EC in small business at the University of Southern Queensland; and EC in New Zealand at Massey University (ColLECTeR 2002). The Australian federal government’s National Office for the Information Economy (NOIE 2002) examined the role of EB in education sectors by presenting several established cases. Other research papers on EC education in AP are numerous, including (for example) Braithwaite, Fountain and Joyce (1997) and Zhang and Chau (2002). Little research, however, has been undertaken into the provision of a comprehensive picture of EC higher education programs in the AP overall – which is a focus of my research project.

3 GeM consortium, the participating universities are:
   Athens University of Economics and Business in Greece;
   Copenhagen Business School – Denmark;
   Erasmus University Rotterdam - The Netherlands;
   Monterrey Tech – Mexico;
   Norwegian School of Economics and Business Administration – Norway;
   University of Cologne – Germany; and
   Reykjavik University – Iceland.
   <http://www.gem.cbs.dk/>
1.1.4 EC/EB educational programs as service products

A considerable amount of research has been undertaken in the area of new product and new service product development since the beginning of the 1990’s (for example, Mahajan & Wind 1991; Wind & Mahajan 1997; Lovelock 1991). I will review this research extensively in Chapter 2. For now, I simply introduce the concepts to enable reader to understand the development of my research question.

Johne and Storey (1998, p.185) define a service product as:

*the predominately intangible core attributes which customers purchase.*

To distinguish these from physical products, they suggest that the characteristics of service products include the following:

- **Service products are predominantly intangible** (even though efforts may be made to make them more tangible, for example by supporting financial service products with attractive looking plastic cards).
- **Service products are predominantly process rather than “things”**.
- **Service products are often variable in quality** because service is commonly produced and consumed simultaneously. Customers of services risk buying an outcome and/or experience which they cannot fully assess prior to purchase.

Johne and Storey (1998, pp.187-188)

Figure 1-2 shows that universities, too, have a value chain which must be considered by the developers of new programs and courses. Universities which do not consider the ‘purchaser’ behaviour of their ‘service product’ (in this case, both the student and the ultimate employer of that student) run the risk of creating a valueless product.

![The Tertiary Education Value-Chain](image)

*Figure 1-2 The Tertiary Education Value-Chain
Reproduced from: Clarke (2000)*
Universities have gradually moved toward a fee-for-service mode of operation, over the last decade. For example, the Australian government recently suggested a change to its existing Higher Education Contribution Scheme (HECS), which will increase still further the amount students are expected to contribute to the cost of their own education\(^4\) (The Age, 14 May 2003, p.8 of the Budget 2003 special section), and Hong Kong (The Government of Hong Kong Special Administration Special Region 2003) cut university grants by 1% in 2003-04, with some reports suggesting a further large reduction of the tertiary education budget in 2004 (Wenweipo\(^5\), 6 Mar 2003).

While the majority of European governments (with the notable exceptions of Britain\(^6\) and the Republic of Ireland) continue to provide free education at the tertiary level, governments in the much of the rest of the world (and particularly in the AP region) are increasingly placing the responsibility for funding education on the shoulders of the universities themselves. Students must now, more than ever before, be prepared to pay for their own education. The universities, under increasing pressure to fund not just major capital works but even day-to-day running expenses, have endeavoured to enrol as many students as possible to cover costs and make sufficient profit to allow expansion and development. This process is complicated by governments’ growing awareness of the possibilities of educational self-funding. For example, a special report on the Australian Federal Budget for 2003, in the specialist higher education newspaper Campus Review, notes that:

> “The federal government’s plans to meet much of the cost of its increased spending on higher education by charging students more have been extended to the burgeoning education export industry. Education Minister Dr Brendan Nelson's promise of an extra A$113 million to "support and expand" international education will largely come from the foreign students he hopes to recruit. Critics say the industry will suffer as a result of the sharp rise in student fees and higher registration charges for institutions. Chief operating officer for [commercial overseas student recruitment firm] IDP Education Australia, Greg Gallaugher, said that while it was pleasing the government was introducing a number of initiatives, particularly low interest loans to assist Australian students study overseas, the industry was effectively being levied to fund in large part the package of programs.”

(Maslen, 2003a).

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\(^4\) Note that Australian tertiary students now pay one of the highest rates in the world for their education.

\(^5\) Wenweipo is a Chinese local newspaper. The comment in this article suggests that the budget for university grants for 2003-04 was promised by the government in 2001 for a period of 3 years. Hence there is a small amount (1%) cut in 2003 budget. In 2004, with the new ‘three year’ budget for university grants, there may be a big cut.

\(^6\) And even the British government is beginning to debate the issue of free tertiary education once more.
The overall implications of fee-for-service education\(^7\) for academic program development has placed pressure on university administrations to offer programs which are as attractive as possible to prospective students, and which promise the best possible outcomes (generally interpreted by students as meaning the best future employment prospects) in a bid to increase enrolments. This has led to a switch from the traditional model of pedagogically-oriented new degree program development towards one which focuses on student numbers as its primary objective:

> “Universities will continue relying, ever-increasingly, on non-government sources of income - most notably that provided by their students. And, because of the reforms outlined in the budget, the students will also continue, ever-increasingly, to be dominated by the well-to-do”

(Maslen 2003a).

As universities target the domestic market, they find themselves increasingly forced to provide educational programs which meet the needs and desires of working people, who focus almost exclusively on degrees and diplomas which will assist them in gaining new jobs, or will help them to do better in their current positions. Clearly, such programs are likely to be more market-oriented than those of the past – and it became increasingly obvious to me, during the course of my research project, that universities wish in to successfully target this market would gain from taking a new service product approach. EC/EB educational programs, being particularly subject to market perception (a topic I discuss in greater detail in Chapters 6-8), made an especially good exemplar of this trend.

1.2 Research Questions

Having described the background of this research project in Section 1.1, I am now able to formulate the research questions for this project.

**Are universities flexible enough to develop their EC/EB programs effectively through:**

a) **explicit recognition of their market-oriented nature; and**

b) **engagement with the concept of new service product development?**

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\(^7\) The Australian Treasurer announced the budget for education as: *From 2005, universities will have flexibility in setting fees for Commonwealth-support places. They can cut fees. Except for teaching and nursing, they can increase fees to a maximum of 30% above HECS. It is up to the institution whether it wants to attract students, and up to the student as to whether the course offers value. Universities will be able to specialise in their areas of strength.* (The Age, 14 May 2003, Budget2003 p.7)
In order to answer these principal research questions, I found it necessary to further sub-divide the major question into a number of subsidiary research questions (SRQ), as follows:

**SRQ1.** What are the relative roles of pedagogy and market orientation in constructing EC/EB tertiary educational programs?

**SRQ2.** What are the features of the development of educational service products — the degree programs?

**SRQ3.** What is the nature of EC/EB degree programs?

**SRQ4.** Are EC/EB programs service products?

**SRQ5.** How have universities made use of new service product concepts in creating EC/EB programs?

**SRQ6.** How could new service product development be better used in creating programs?

### 1.3 Scope of the Research

As already mentioned in Section 1.1.1, there have been four “waves” in the development of the Internet and the World Wide Web. When this research project started at the end of 1998, EC education was available mainly in the United States and Canada, both heavily involved in the first wave of Internet development (refer to Section 1.1.3.1 above). Australia, New Zealand, Hong Kong and Singapore came into their own in the second wave, at which time EC education was still in its infancy. With my background of significant involvement in tertiary education, both in Hong Kong and Australia, coupled with my academic network in tertiary education within Singapore and New Zealand, I chose to restrict the project scope to these four countries/areas.

As mentioned earlier, EC education ranged from half day short courses for industry, to postgraduate programs at universities. Since the majority of short courses were (and are) *ad hoc* and thus fairly dynamic in terms of content, they presented great difficulties for my project in that they represented moving targets, rather than stable foci of study. I therefore excluded short courses from my domain of study. In addition, Masters by research and PhD courses are individually tailored by
supervisor and student to suit the particular needs of the student – and I have therefore excluded them from my research scope, too. Hence, this research project focuses on EC/EB education in the following types of programs: Bachelors, Masters by course-work, Graduate Certificate and Graduate Diploma, presented by universities in Australia, New Zealand, Hong Kong and Singapore – that is, four major, well-developed countries/regions within the AP.

1.4 Limitations of the Research

The limitations of this research project are:

1. Only four areas Australia, New Zealand, Singapore and Hong Kong were selected to be studied as representing the AP region, and I excluded other countries such as Japan, South Korea, Indonesia, the Philippines, Thailand or Vietnam. The major reasons, in addition to those I have already stated in 1.3 above, are that these countries do not fall within the second wave of Internet development; and that limitations in the resources and the language ability of the researcher precluded my studying all the countries within the AP.

2. The project participants were EC/EB academics, a group of busy people, and it was very difficult to get them involved whole-heartedly in the surveys and interviews. Moreover, not all of them could afford to spend time participating in the second round of interviews or in filling out the survey forms after they had completed their first round participation.

3. New EC/EB academic programs emerge at an extremely fast rate and, as a researcher, it is difficult to keep up with the latest information. In fact, in these past few years, I have spent endless hours to monitor the launch of all new EC/EB programs in a non-stop manner. Nonetheless, the reader should note that I cannot claim to be aware of every individual course or program – particularly after May 2003, when I stopped gathering data.

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8 My web site listing the EC/EB programs in the AP region can be found at www.deakin.edu.au/~elsie or www.elsiechan.com
1.5 Outline of Thesis

This Thesis comprises nine chapters, as outlined below:

- **Chapter 1** overviews the background to this research project and provides the research rationale, research questions, scope and limitations.

- **Chapter 2** reviews existing literature in the areas of curriculum development, EC/EB education, and new service product development, establishing a theoretical foundation for the empirical work which follows.

- **Chapter 3** describes and justifies the research methods employed in this research project.

- **Chapter 4** reviews EC/EB, and develops a component model of EC which serves as the foundation for the study of EC/EB academic programs.

- **Chapter 5** analyses the advantages and disadvantages of existing new service product offering models. Based on these models, I derive a new educational service product offering model (NESPO).

- **Chapter 6** presents results from three major surveys from 1999 to 2001 and a follow-up survey in 2002, which provide an understanding of EC/EB educational programs during that period, and suggest how these programs incorporate elements from the NESPO model.

- **Chapter 7** comprises an analysis of two major components of the NESPO model: a study of EC/EB careers and a study of EC/EB degree program web sites. The data for both these studies were gathered via the Internet. This analysis provides readers with an understanding of the EC marketplace, and suggests how these programs incorporate elements from the NESPO model.

- **Chapter 8** consolidates results from the multiple case studies of EC/EB degree programs and discusses findings relevant to the NESPO model.

- **Chapter 9** provides findings and draws conclusions for the project, as well as suggesting future research directions.