Part I
Introduction: The Power of Technology for Learning

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It is hard to imagine a room in a college or university that does not have at least one computer in it, and a college or university without a computer laboratory is unthinkable. Technology surrounds us and pervades all aspects of university life. However, although most educators have adopted e-mail and web technologies into their teaching, it would appear that they have been slow to adopt other technology supported learning activities within business and economics subject areas (Goffe and Sosin, 2005; Kuratko, 2005; Salmon, 2000).

Interactive on-line activities have the potential to enhance business and economics education and can add to our repertoire of available and appropriate teaching tools. Benefits to learning and teaching can demonstrated through the use of the communication, co-operation and collaborative aspects of online working (Salmon, 2000) with communication tools such as those within Virtual Learning Environments (VLEs) improving learning relationships between the tutor and student and between student peers as they become members of a knowledge community or community of practice. Students report benefits of using learning technologies such as the ability to learn at their own pace, to learn independently, and to have fun (Hegarty, 2006). Elsewhere, computer simulations have been shown to offer students risk-free and multiple experiences of new venture decision making, helping to develop skills in complex decision making and providing instant feedback (Solomon, Weaver, and Fernald, 1994; Brawer, 1997).

Enterprise and entrepreneurship education is an interesting area for illustration and one we might expect to embrace learning technologies due to its stress on innovation (Kuratko, 2005). Uptake, as with many subject areas within business and economics, has been slower than might be expected. A survey of entrepreneurship education in the United States by Solomon, Duffy, and Tarabishy (2002) found that "only" 49% of 240 college and university respondents offered information about entrepreneurship on the web, with 12% offering internet-based distance learning. Fifty-three per cent of respondents reported that they required web-based assignments from their students. The

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authors found these results surprising "given the tremendous growth in personal, business, and academic technology" (p81). They called for increased use of internet-based assignments, knowledge portals, online chat rooms, and distance learning.

A recent survey of Higher Education Institutions (HIEs) in the United Kingdom conducted by McKeown and colleagues (2006) found similar results in that only 32% of pre-1992 (old) and 52% of post-1992 (new) of the responding universities used technology to support enterprise education programmes of study. Most of these programmes where based within Business Schools. The most common type of learning technology used was a VLE which can potentially present content and provide opportunities for self-directed learning, formative assessment, and discussion tasks; it is not clear which from the McKeown study whether VLEs were used simply as content providers, or to support more interactive forms of learning. The authors, however, were disappointed to note that PowerPoint and spreadsheets were being cited as learning technologies for action learning. They suggest this may be "an indicator of the lack of awareness of wider learning technologies or of more active and experimental forms of learning" (p. 609) that might be facilitated by such technologies.

At an institutional level, learning technologies may be considered a cost-effective teaching method (e.g. Botham & Mason, 2007), as large numbers of students can be taught en mass without the need for intensive tutor input although the degree of tutor-student interaction will depend on the type and level of learning required. However, learning how to use the available range of technologies effectively, and developing tasks and activities for use within them can often be a costly process. Two of the greatest costs, and therefore barriers to uptake of learning technologies, are for staff time and for training to acquire the necessary new skills (Arbaugh and Duray, 2002; Davies & Smith, 2006). Other barriers to the uptake of learning technologies include questions about the quality of learning and teaching that can take place compared with more traditional routes.

The five chapters in this section build on papers presented to recent ED*i*NEB conferences. Two chapters focus on case studies and practical examples, two present formal research findings, and one discusses the implications of changes in working practices and policy across Europe on education practice. All of the chapters demonstrate the benefits that learning technologies can bring and make recommendations to overcome potential problem issues as outlined below.

The first two chapters in this section add to our repertoire of learning and teaching support, providing of practical examples of the use of learning technologies. In Chapter 1, Rimbau-Gilabert and Ficapal-Cusí describe how online learning has been used to support a postgraduate Business course at the Open University of Catalonia. The authors are particularly interested in how learning technology can be used to support an increasing cohort of non-traditional students entering higher education through a "recognition of prior experiential

learning" route. Rimbau-Gilabert and Ficapal-Cusí argue that such students are more easily supported through the flexibility offered by online learning which releases time for other responsibilities related to work and family. Although the technology required to support such students does not need to be particularly sophisticated, the authors explore how educational considerations, such as the role of the on-line tutor and tutor-student and student-student interactions, need to be taken into account.

In Chapter 2, Thijssen, Vernooij, and Stein describe their use of two economics games, one with a group of 20–25 year old students learning about entrepreneurship at the Vrije University in the Netherlands, and a second with an older group of professional innovation consultants working for the Dutch Government. Each game required differing levels of engagement with technology. The authors describe the games used, with particular emphasis on pedagogic and media characteristics, and suggest that games can provide both cognitive and regulative learning in a motivating and engaging way.

The second set of chapters, Chapter 3 and Chapter 4, present research to inform our knowledge and future use of learning technologies within business and economics subject areas. First, in Chapter 3, Rienties, Tempelaar, Dijkstra, Rehm, and Gijselaers compare the short- and long-term effects of two online remedial economics or mathematics courses for first-year foreign students studying bachelor-level International Business at Maastricht University. The two courses the authors compared were informed either by problem-based learning (economics) or by cognitive learning theory (mathematics). The results suggested that both problem-based learning and cognitive learning can be successfully supported through learning technologies with learners showing both short-term and long-term benefits to study performance. The authors conclude that as long as sufficient expertise and resources are invested, learning technologies and remedial courses can help overcome the problems accompanying the increasing internationalization of students.

Castelijn and Janssen explore the effectiveness of blended learning in a distance education setting in Chapter 4. The authors compare the exams scores of two groups of Masters-level students on two different distance learning and blended learning financial accounting courses. The exam scores are also separated into knowledge, application, and insight components. The results suggest that overall exam performance is not improved by the addition of additional small-scale group meetings enjoyed by the blended learning cohort. There are, however, differences when the exam questions are broken down into the knowledge, application and insight components. Castelijn and Janssen discuss possible reasons for these differences and the implications for the addition of face-to-face interactions to a distance learning paradigm.

Chapter 5, the final chapter of this section written by Lenz and Machado, provides a discussion on the rise of virtual teamwork and globalization on university education, emerging from the principles and framework of the Bologna Process. The authors explore how technology, particularly through collaborative computer supported learning, can support students and inculcate

the social skills and media and methodological competencies required to work in virtual and geographically separated teams.

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