

## INVITED RESEARCH PRESENTATION

# Creating Value in ICT-Enabled Business Education

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## Abstract

This article examines the failure of ICT to bring about the widely anticipated transformation of business education. It argues that whilst business collapses and institutional resistance have impeded the uptake of ICT, a more significant reason for its slow progress is the absence of a clear linkage between the deployment of ICT and the enhancement of educational outcomes. The article develops this argument using a heuristic which juxtaposes the unique educational capabilities of ICT with the characteristics of value-adding business education. It shows that the investment in ICT-enabled education to date has favoured capabilities that create insufficient additional educational value and little incentive for consumers to switch from existing products. The article explores why this situation has come about and suggests ways in which future investments in ICT-enabled education can be better targeted at the value creation.

## Keywords

ICT-enabled business education, online education, constructivist learning environments

## Introduction

This article discusses the failure of the internet and associated technologies (otherwise known as information and communication technology – ICT)<sup>1</sup> to bring about a much heralded and widely anticipated transformation of business education based on the creation of new and compelling sources of educational value – ICT-enabled education.<sup>2</sup> The article analyses causes of this failure and suggests a method for identifying better ways of using ICT in business education in the future.

ICT plays a crucial role in virtually all areas of modern business. Not surprisingly, business education<sup>3</sup> has been seen as a field of study that would benefit from the application of ICT. Less than a decade ago the burgeoning of ICT prompted many observers to predict the end of traditional business programs and the demise of long standing arrangements for the supply of business education. Existing providers had to adjust fast or risk being sidelined by whole new cast of players made up of business schools that had successfully reinvented themselves as ‘e-learning providers’ and other institutions drawn from outside the ranks of traditional suppliers but with the capacity to respond more effectively than their established rivals to a changed world (Ives & Jarvenpaa 1996; Noam 1996). Evidence that such views were widely held in business and the academy can be observed in the late-1990s rush of leading business schools to adapt their programs for on-line delivery, set up cross-sectoral partnerships with media,

information technology and consulting companies and use the internet to establish inter-school alliances with global reach (Bradshaw, 2000; Frank 2000 A; Frank 2000 B; Mangan, 2000; Pizzo, 2001; Plomin 2001, Robinson 1999; Schiffman 2000). Where the world's most prestigious and best resourced universities led, others (to the extent permitted by more limited resources) followed. By the early 2000s there was hardly a business school anywhere outside of the developing world that had not initiated, or had plans to incorporate ICT into its programs. Yet, as is now well known, the substantial investment in new courses, staff training, marketing and infrastructure to support the delivery of 'e-learning' has produced largely disappointing and disillusioning results. At one extreme there have been spectacular business failures involving the big financial losses, the abandonment of programs, dismissal of staff and closure of facilities (Carlson & Carnevale 2001; Hafner, 2002; MacLeod, 2004); at the other, ICT-based programs continue to operate but, with a notable exceptions,<sup>4</sup> limp along with far fewer students than once expected (Garrett & Jokivirta, 2004; Zemsky & Massy, 2004).

Of course, ICT is now widely *utilised* in business education but where it is deployed it has tended to supplement rather than displace traditional approaches to teaching and learning. Moreover, use of ICT is concentrated at the certificate and diploma end of the qualifications scale. The more advanced the course the less likely it is to be ICT-enabled (Bonk 2004, 18-25).<sup>5</sup> Not surprisingly management information systems and the now eclipsed e-commerce programs have led the way – it could hardly be otherwise. Elsewhere, scattered anecdotal evidence suggests that ICT usage varies from moderately high (for example, in some financial economics programs) to low (in most management programs). Change has been most evident in the electronic delivery of resources for distance learning including online access to libraries and other sources of information and data stored in electronic formats such as that provided by the publishers of textbooks and study materials provided by external organisations such as government departments and international agencies. ICT has also become important in university-student and student-student communications using email and course management software such as 'Blackboard' and 'WebCT' (Zemsky & Massy, 2004).

Overall, ICT driven change in business education has been piecemeal and very uneven in its impact; change has been characterised not by revolution but by gradualism. New entrants to the business education market are few in number, most of the existing suppliers of business education, along with most of their customers, still go about their *core business* in much the same way as before the advent of ICT. Limiting the application of ICT to course management software and the electronic delivery of course materials and a few 'digital appendages' supplemented by publisher's add-ons and Google is not what the proponents of ICT-enabled education envisaged when it first appeared on the scene. Indeed, this outcome runs so contrary to widely held expectations about the part ICT would play in business education that it deserves examination, not only to avoid a repetition of past failures but also to identify where the opportunities for harnessing ICT to business education and creating educational value now lie.

This article tackles these issues in four stages. First, it outlines explanations for the current state of affairs in ICT-enabled education and identifies a failure to link the application of ICT to the creation of educational value as a prime cause for its slow uptake. Second, it looks for reasons why the creation of educational value was not properly addressed in the initial period of growth in ICT-enabled education and argues that the proponents of these new technologies

failed to distinguish between the capabilities of ICT that create value for students and those that produced only marginal benefits. Third, it proposes a way of identifying value creating opportunities in ICT-enabled business education. It does this by means of a framework that maps the characteristics of 'value adding business education' to the capabilities of ICT and looks for permutations of the latter that seem likely to enhance educational outcomes. The article concludes by arguing that future investments in ICT-enabled education can be better targeted at the value creation by a recognition of the diverse capabilities of ICT and a more systematic approach to matching these capabilities to the needs of students.

## **Explanations of the slow progress of ICT-enabled education**

Explanations of the apparent failure of ICT to transform business education in the past decade inevitably include factors that are common to ICT-enabled education as a whole. Leaving aside factors that explain the failure of individual programs (such as inadequate design, poor organisation and technical malfunction) there appear to be three main reasons for the stalled progress of ICT in business education. First, there is the impact of the failure of ventures leading the charge towards implementation of ICT in education (referred to here as the 'U.coms'). During its early years, ICT-enabled education suffered from the same 'irrational exuberance' that afflicted the dot.com sector. Hugely over-optimistic forecasts about the uptake of ICT-enabled programs and the growth of revenues (e.g. Schiffman 2000) led to massive oversupply (referred to here as the 'U.com boom') in what turned out, for the time being at least, to be niche markets. With markets over-supplied and many producers lacking the resources needed to sustain them through hard times shut-downs or scale-backs were inevitable. When such misfortunes affect high profile ventures in an industry they attract a great deal of attention. There is no doubt that the failure of some of the front runners in the online education market was damaging to the reputation of the industry as a whole. It affected potential customers' perceptions of the value of what was on offer in ICT-enabled education and slowed demand – at least until the bad news was out of the headlines (Hafner 2002; Williams 2003). The problem was that, somewhere or other around the world, the bad news kept on coming (MacLeod, 2004). The collapse of so many high profile ventures also affected the range and quality of ICT-enabled education products in other ways. Several prestigious universities withdrew (some only temporarily) from the online education market for fear of what participation might do to their reputations. There is no doubt that these set backs cast a pall over ICT-enabled education. Zemsky and Massy, report that on they affected the market's willingness to accept "new learning modalities" and "jaundiced the academy's view concerning the actual value of technologies promising electronically mediated instruction" (2004, 57).

A second explanation of the slow progress of ICT-enabled education focuses on the institutional factors that have held back change. Such explanations refer to unrealistic timeframes and the inability of individuals and organisations to abandon existing (and quite probably ancient) institutional and real capital overnight in pursuit of uncertain gains. Sometimes the difficulties are organisational and managerial; for example, how to coordinate online offerings in a largely decentralised university such as the University of California (Matkin 2002). Commentators also draw attention to the 'publish or perish' culture of academia and the professional imperative to pursue research rather than teaching. Even enthusiastic proponents of ICT-enabled education foresaw that traditional professional

imperatives would constitute formidable barriers to change (Ives and Jarvenpaa 1996, 39). ICT-enabled education demands a different focus but it may be a long time coming. Zemsky & Massy have concluded that the slow uptake of ICT in education in the USA is largely due to the attitudes of academics towards the task of teaching: “E-learning will become pervasive *only* [our emphasis] when faculty change how they teach – not before” (2004, iii).

With such a wide ranging innovation as ICT, the feasible rate of change is always a consideration. As is well known, the view that institutional change, especially that involving large scale innovation in organisations, is necessarily incremental and evolutionary has a long history in management and organisational theory (Quinn, 1981; Tushman & Romanelli, 1985; Nadler & Tushman, 1990; Mezias & Glynn, 1993). There is no reason why this should not also be the case with academy and ICT. This seems to be the message of Zemsky and Massy who argue that, “In a fundamental way, the boom-bust cycle in e-learning stemmed from an attempt to compress the process of innovation itself”. They argue that change, “... requires a broad willingness on the part of adopting institutions to search for more flexible combinations of inputs: people, facilities, and technology” (2004, 58).

A third category of explanation for the slow progress of ICT-enabled education can be found in the literature of teaching and learning. Considerable energy has been expended in finding ways of making effective use of ICT in all its various guises (see Endnote 1) in business education. This literature dates back to the earliest days of the ICT era (e.g. Ragothaman & Hoadley, 1997; Wood McCarty, D. & Robinson, G.K. 2000) and continues to grow by the year. It is replete with reports on all manner of trials and experiments as well as speculations and anecdotes about what does and what does not work in ICT-enabled education (Smith 2003; Shin & Chan 2004; Hoskins & van Hooff, 2005). However, the overwhelming impression to be gained from this literature is that ICT-enabled education lacks a coherent base of theory and practice and that no reliable framework exists for assessing whether it can make a positive contribution to educational outcomes. This has prompted calls for a more reliable body of knowledge on which to move forward (Bonk 2004, 2-3). As Whitehouse has recently remarked, “It is not that we now know that technology enhanced learning won’t be effective, we simply have not done enough empirical research in the classroom to know what approaches will deliver lasting value” (2005, 22).

If business schools are still groping for understandings about the relationship of ICT to good educational outcomes then it is no wonder that so few of their number are willing to carry experiments with ICT-enabled education beyond course management software. For the same reason it is no wonder that potential consumers of ICT-enabled education do not see much value in what has been offered and have not entered the market at the rate once predicted. Of the three explanations for the slow uptake of ICT-enabled education outlined above, this seems to be the one that has the most traction. The days of the U.com collapses will fade from memory and no longer be an impediment to change; likewise, the institutional factors that have impeded the uptake of ICT-enabled education are not immutable; gradualism will eventually overcome inertia. The failure of ICT to deliver clear educational benefits is far more significant. This is a problem that, if not put right will be a permanent impediment to the adoption of ICT. Fortunately, this is a problem that presents opportunities for taking corrective action. The prospects for such action is the theme of rest of this article beginning with a re-visiting of the initial phase of ICT-enabled business education. The object of this exercise is to uncover the thinking that lay behind the U.com boom, better understand its

character, and explain why so much of the investment in ICT failed to produce educational value.

### **The promise of ICT-enabled business education**

During the latter part of the 1990s and the first years of the present decade, thinking about the impact of ICT on business education was fundamentally informed by the belief that the advent of ICT would result in unprecedented change. Two sets of assumptions appear to have underpinned these convictions: first, that ICT was possessed of unique capabilities that would translate into a multiplicity of compelling new educational products; second, that ICT had developed to a stage where change was both inevitable and imminent and demanding of an urgent response from the existing providers of business education (e.g. Ives & Jarvenpaa, 1996, 40; Noam 1996, 6). The course that ICT-enabled education took in the period of the U.com boom was shaped by these beliefs. It is therefore very helpful to examine their origins. As is noted below, the U.com boom has many similarities with the much better known dot.com boom (of which, arguably, it was a manifestation): both were driven by the belief that the rules governing competitive behaviour in important markets had suddenly changed; both saw business decisions that now seem imprudent; both have left a legacy of scepticism about ICT which is gradually giving way to more realistic appraisals of how it can be deployed to create value. Comparison of these two phenomena can also help explain what took place in the U.com boom and gain a better understanding of its prospects.

#### *The capabilities of ICT-enabled education*

Although there has been a widespread belief in the transformative power of ICT for at least a decade, its proponents have seldom pointed to specific value creating applications. Indeed, the identification of winning products in ICT-enabled education has never been easy because ICT offers a kaleidoscope of possibilities for innovation rather than just one or two lines of development (e.g. see Ives & Jarvenpaa 1996).<sup>6</sup> Merely cataloguing ICT based products is unhelpful since it is difficult to compare the outputs of different suppliers. A more fruitful approach to understanding what has happened to ICT-enabled education is to view it in terms of its unique *capabilities* as compared with its non electronic alternatives. By focusing on capabilities we keep in mind that right up to the present, ICT-enabled education is still fluid, constantly evolving and not yet identified with any particular educational product. As the analysis below shows, many of the U.com ventures were unsure just what it was they were offering by way of ICT-enabled education still less whether their offerings would be perceived as creating value.

So, what are the capabilities of ICT-enabled education which distinguish it from traditional education environments and, potentially, create new forms of educational value? Table 1 below groups these capabilities under seven headings each of which is assigned a contemporary catchphrase indicative of what it entails together with a brief description of its significance.<sup>7</sup> The table draws heavily on the work of Ives and Jarvenpaa (1996) and (with some updating of terminology) also incorporates insights from other commentators (e.g. Noam, 1996; Ragothaman & Hoadley, 1997; Robinson, 1999). It is not intended to be an exhaustive list of the capabilities of ICT-enabled education; however, it does cover all the main areas claimed by the proponents of ICT and is offered as broadly representative of the scope of the changes that would follow from its introduction to business education.

Table 1. The distinctive capabilities of ICT-enabled education.

1	<p><b><i>Flexibility (any time, any place)</i></b></p> <p>ICT removes the physical limitations imposed by traditional styles of business education and replaces them with virtual (or electronic) learning communities.</p>
2	<p><b><i>Customisation (made-to-order)</i></b></p> <p>ICT enables students to take greater control of their studies, combine existing programs in ways that more closely match their personal needs and access executive style programs online. Customisation may be accompanied by non-traditional forms of assessment and non-university certification.</p>
3	<p><b><i>Practicable lifelong learning (programs on tap, just in time)</i></b></p> <p>ICT meets the needs of students that need to engage in continuous or periodic studies in order to upgrade their skills throughout their working lives. 'Digitised' training programs replace the traditional time and place constrained courses of study and enable access to education when needed by the student, not according to organisational imperatives.</p>
4	<p><b><i>Borderless education (any supplier)</i></b></p> <p>ICT enables students to access business programs remote from their home and/or combine offerings from several suppliers into packages tailored to suit individual needs and preferences. Students become better informed about global study choices.</p>
5	<p><b><i>Visualisation and simulation (seeing and doing)</i></b></p> <p>ICT enables a shifts from teaching and learning using text-based materials (usually in print form) towards digital media incorporating realistic simulations, streaming video and other visually rich adjuncts to teaching such as concept mapping and rich pictures.</p>
6	<p><b><i>Business-in-the classroom (direct links between business and the academy)</i></b></p> <p>ICT facilitates low cost, instantaneous communication and overcomes the spatial and temporal barriers to greater collaboration between business and the academy.</p>
7	<p><b><i>Theory-practice nexus (from abstraction to realism)</i></b></p> <p>ICT enables students to move in real time between real world applications and textbook conceptualisations, and from imagined to experienced or actual contexts.</p>

Table 1 illustrates the diverse nature of the changes promised by ICT-enabled education. However, close examination of the contents of the table reveals that the capabilities of ICT fall into two distinct groups termed here *resource and communications capabilities* and *pedagogical capabilities*.

Resource and communications capabilities refers to the capacity of ICT to provide greatly improved access to resources such as class notes, textbook supplements, course schedules, libraries and other material via the internet. It also involves enhanced communications between student, teachers and administrators. Examples of outcomes connected with resource and communications capabilities include: the creation of so-called flexible learning environments (involving opportunities for study any time, any place); customised study

(involving opportunities for personalised rather than standardised programs of study); lifelong learning (access to educational programs on tap, as and when needed) and access to study programs offered at remote locations (so-called borderless education). It is important to note that deploying the resource and communications capabilities of ICT does not necessarily imply any change in the content of what is delivered, merely a change in how this content is distributed. Changes in content and, more importantly, changes in how this content is taught requires the deployment of the pedagogical capabilities of ICT.

Pedagogical capabilities refers to the capacity of ICT to assist in teaching in the broadest sense of the word and includes anything connected with the facilitation of learning. Examples of the latter include: visualisation and simulation (using visually rich means of instruction such as rich pictures, concept maps embedded with hyperlinks and electronic learning assistants, and games that replicate real world activities such as stock trading). It also includes teaching activities involving direct links between the world of work and the classroom (such as workplace-classroom hook-ups via the internet using streaming audio and video). Table 2 groups the items from Table 1 according to whether they belong to the resource and communications or to the pedagogical categories of ICT-enabled education.

Table 2. Resource & communications and pedagogical capabilities of ICT

Resource & communication capabilities				Pedagogical capabilities		
1 Flexible learning  <i>(any time, any place)</i>	2 Customised study  <i>(made-to-order)</i>	3 Lifelong learning  <i>(just in time)</i>	4 Borderless education  <i>(any supplier)</i>	5 Visualisation /simulation  <i>(seeing and doing)</i>	6 Business-academy partnership  <i>(direct links between business and the academy)</i>	7 Theory-practice nexus  <i>(from abstraction to realism)</i>

Given that the capabilities of ICT-enabled education fall into seven broad groups and that these groups appear to fall into two distinct categories, is it possible to say any more about how the promise of ICT would translate into actual change? First, it is apparent that innovations involving the application of ICT in education environments are likely to comprise permutations of capabilities. For example, exploiting the capability of ICT to provide customised study (made to order) is also likely to involve the use of its capability to deliver programs flexibly (any time, any place); and might involve drawing on the programs on offer at a number of institutions (borderless education). It is also clear that pedagogical innovations such as business-academy collaboration would involve internet communications. Given the large number of possible permutations of capability, where would ICT-enabled education make its mark, where could success be anticipated, and where would college administrators and entrepreneurs choose to make investments? In order to answer these questions it is necessary to step back for a moment from the examination of beliefs about the capabilities of ICT-enabled education and consider the other assumptions that were shaping views about its future impact.

*The timing of and impact of change*

As already noted, thinking about the impact of ICT on business education was informed by the belief that it would be highly disruptive. However, this belief did not rest solely on appraisals of the educational capabilities of ICT, it was also informed by assumptions about the timing, pace and effect of change. Firstly, it was assumed that the application of ICT would sweep away barriers that had long protected the traditional suppliers of business education and allow firms ranging from cable operators to telecoms, textbook publisher and even manufacturing enterprises and consulting companies to offer web-based training and education (e.g. see, Ives & Jarvenpaa 1996, 33; Noam 1996, 3). Secondly, it was assumed that change would necessitate writing-off substantial amounts of institutional and real capital and its replacement by large scale investment in new skills and technology (Noam 1996, 6). Thirdly, it was assumed that the application of ICT would produce substantial economies of scale and fundamentally alter cost structures in education (Noam 1996, 8). Fourthly, it was assumed that there would be significant first mover advantage in ICT-enabled education. First mover advantages are a corollary of the third assumption, but they also derive from a separate assumption about the brand recognition gains that accrue to first movers (Ives and Jarvenpaa 1996, 40).<sup>8</sup> These assumptions had a strong influence on the business strategies adopted by universities and other organisations that entered the global ICT-enabled business education market. Taken together they add up to a belief that to ‘get into the game’ both the traditional and new suppliers of business education enter the ICT-enabled education market as quickly as possible and strive for market share (Ives & Jarvenpaa 1996, 39).<sup>9</sup> With this mindset prevalent, conditions were right for a U.com boom in the world of business education and that is exactly what the United States, followed by Europe and, to a lesser extent Australasia, experienced.<sup>10</sup>

The character of this boom, insofar as it was linked to choices about investing in the capabilities of ICT-enabled education, can now be better understood. Universities and their new business allies/competitors had to invest in capabilities that seemed likely to produce quick pay-offs and result in early gains in market penetration and brand recognition. How could this be achieved? The obvious way of doing this was to exploit ICT’s capability to distribute *existing* resources rather than delay whilst untried pedagogies were worked up into new products. This meant that virtually all the investment in ICT-enabled education was directed to utilising the resource and communications capabilities of ICT – i.e. in delivering materials that the universities already possessed in huge quantities such as electronically stored (but hitherto not electronically distributed) course materials already developed for classroom teaching and print based distance learning.<sup>11 12</sup> The pedagogical capabilities of ICT would take far longer to explore and develop. Given the novelty of ICT, very few reliable trials of the technology in educational settings had been conducted and in any case (as noted above) no one was really sure what they were attempting to achieve. Table 3 below summarises the situation.

Table 3. Investment in ICT-enabled education capabilities during the ‘U.com’ boom

Resource & communication capabilities				Pedagogical capabilities		
1 Flexible learning	2 Customised study	3 Lifelong learning	4 Borderless education	5 Visualisation /simulation	6 Business-academy partnership	7 Theory-practice nexus
Substantial investment in infrastructure to support distribution of existing materials; investment in marketing and course management software				Little or no investment in developing new pedagogies		

The typical product of a U.com venture was a course aimed at meeting the demand for ‘any time, any place study’ and to some extent this was a promise fulfilled. The promise of borderless education was also to some extent fulfilled via the creation of international alliances such as Universitas 21 and Cardean University; and, of course, students anywhere in the world with access to the internet and the necessary funds could enrol at any one of the numerous universities that made their individual programs available online. It could also be claimed that students availing themselves of ICT based study could customise programs to suit their personal circumstance and move in and out of education as required (the beginnings of lifelong learning). However, it is difficult to avoid coming to the conclusion that, faced with a number of ‘thin markets’ many U.coms tried to cover all bases and be all things to all people. These are separate products involving different groups of customers with differing needs. The fact that they are so ill defined is evidence that the supplying organisations were not sure what it was they were offering; nor were they sure for whom their products were intended. In any event, the critical problem faced by the U.com industry was this: did the ICT-enabled education products on offer amount to something that students actually wanted and were prepared to pay for? The evidence of enrolments suggests that it was not (Garrett & Jokivirta, 2004; Zemsky & Massy, 2004).

### **The U.com boom and the creation of value in ICT-enabled education**

Although taking place at a somewhat later date, the U.com phenomenon bears a striking similarity to the dot.com boom. Of the latter Porter cautioned, “... many have assumed that the Internet changes everything, rendering all the old rules about companies and competition obsolete. That may be a natural reaction but it is a dangerous one” (2001, 63). Substitute the word ‘universities’ for ‘companies’ and Porter’s warning could just as well apply to the U.coms as the dot.coms. Perhaps the most surprising and unedifying feature of the U.com boom was the behaviour it elicited from some of the worlds leading business schools and other less august institutions that followed in their wake (that, of course, includes the vast majority of business schools). Business schools everywhere seemed to abandon the very principles they taught in class: ill-thought out projects received substantial funds which were then squandered in pursuit of false hopes. We can now see what was wrong with the thinking that led to this outcome. The barriers to entry in the business education market did not substantially weaken; the capital that was about to be written off had to be retained (it was investments in new ICT based courses and infrastructure that *was* written off); the hoped-for economies of scale did not eventuate because markets did not grow and overheads were high;

finally, whether they existed or not, first mover advantages proved to be illusory in markets with little or no growth. Referring to the dot.com boom, Porter asserts,

“It is hard to come to any firm understanding of the impact of the Internet on business by looking at the results to date. But two broad conclusions can be drawn. First, many businesses active on the Internet are artificial businesses ... propped up by capital that until recently had been readily available. Second, in periods of transition ... it often appears as if there are new rules of competition. But as market forces play out ... the old rules regain their currency. The creation of economic value once again becomes the final arbiter of business success” (2001, 65).

It is apparent that the U.com ventures lost sight of the need to link their investments in ICT to the creation of educational value. Without the creation of value, the factors that the U.coms believed would lead to a reshaping of business education – reduced barriers to entry, obsolescence of capital, economies of scale, and first mover advantage – do not come into play. Yet many U.com ventures behaved as though the latter would have effect independent of the former!

How is value created in ICT-enabled business education? The first point to notice about this question is that it is a variation of one that can be asked of any product. Porter defines economic value as “... nothing more than the gap between price and cost” (2001, 65). This definition provides no problems for the non-government providers of business education, they create value when they sell product at a price that consumers are prepared to pay and which more than covers their costs. In for-profit organisations the bigger this gap the better; in not-for-profits the gap may simply have to be large enough to satisfy the organisation’s stakeholders and sustain operations. However, many suppliers of business education are state funded and have their prices regulated; how do they create value? It turns out that they too create value in much the same way as commercial ventures. The difference is that, given revenue constraints, their attempts to create value will be focused on providing product that is acceptable to customers whilst holding down costs. Regardless of how a business school is funded, value creation depends on a gap between customers’ perceptions of benefit as indicated by what they are prepared, either directly or indirectly, to pay and the resource costs of what is provided (the latter being borne by the supplier). One of the interesting things about the failure (or at best marked underperformance) of the U.Coms is that it did not seem to make much difference whether the organisation concerned was privately owned and charging commercial prices or was state subsidised – few ventures in either sector were able to create value, and with the absence of customers both had their share of business folds. Regardless of ownership and control, in order to survive U.coms need to create educational value; that is, they need to open up a gap between the benefits delivered to consumers of ICT based education products (as indicated by the price consumers are willing to pay) and the resource costs incurred by the supplier.<sup>13</sup> Students’ willingness to accept ICT-enabled education products depends upon their perceptions of the value of what is delivered as compared to alternatives. Since the products emerging from U.com ventures consisted largely of the online distribution of existing product it appears that the electronic distribution of such product contributed little by way of additional educational value.

The U.coms failed to recruit anywhere near the numbers of students they had been expecting, and in many cases nowhere near enough to cover the costs of delivering programs. Where did the process of value creation fail? Did the deployment of ICT somehow detract from material

designed for delivery via different means? It was pointed out above that the ICT-enabled education delivered by the U.coms largely consisted of a recycling of existing product. This leaves open the possibility that it was the content of what was delivered rather than the mode of delivery (the internet) that failed to create value. Disentangling the two would be difficult were it not for the fact that during the period of the U.com boom business schools continued to deliver the same product by traditional means. Content was *not* the problem – at least not in the sense that the customers of business education were no longer willing to pay for it. Enrolments in programs offering traditional business education experienced strong growth both during and after the U.Com boom (Pfeffer & Fong, 2002 1-2)<sup>14</sup>. Indeed it may well be that the distribution of so much material electronically that needed to be printed before it could be read and digested was a turn off for students rather than a boon. Materials not designed to be read on a computer screen and which failed to make use of the other capabilities of ICT have been termed ‘shovel ware’ (Bonk 2004, 2-3).

The problem facing ICT-enabled business education is clear – the electronic distribution of existing material simply did not add enough value to the product to tempt consumers of the traditional product to switch allegiance. Yet the question of how value is created in ICT-enabled business education remains an important one because, in the absence of a clear and unambiguous answer, it is very difficult to make choices about how to utilise the ICT and where to make strategic investments in programs and infrastructure. In the next section of this article an heuristic for identifying value creating opportunities in ICT-enabled business education is proposed.

### **An heuristic for identifying value creation in ICT-enabled business education**

The problem of value creation in ICT-enabled business education is an intriguing one. Few students engage in business studies for its own sake, they study in order to gain employment on terms more favourable than if they had not undertaken such a course of action (Pfeffer & Fong 2004, 1506-8; Lauder, Egerton, & Brown 2005). For that reason business education (in common with other vocational studies) has two levels of customer; the student who is the immediate customer, and the student’s ultimate employer who can be regarded as the final customer. The latter is prepared to pay a premium in order to access the knowledge and skills the student has acquired in the process of study (e.g. Brown 2005). Accordingly, business education fails to create value when graduates are no more productive in the workplace than non-graduates. In such a situation no gap appears between the perceived benefit of the program of study and the resource cost of providing it – employers will not pay a premium to employ graduates and students will not pay for the course of study. If the electronic distribution of existing product does not create sufficient value to open up a gap between the perceived benefit of a program study and its resource cost, what can be done?

To date, the pedagogical capabilities of ICT have been neglected in business education. Although the importance of pedagogy has been recognised since the dawn of the ICT era attention has typically been focused on the novelty of ICT rather than its capacity to create value (e.g. Ragothaman, S., & Hoadley, 1997, 215). Little thought been directed at finding ways of bringing the two dimensions of successful ICT-enabled education together – that is marrying its unique capabilities to the creation of educational value. The authors propose that the way forward for ICT-enabled education lies in the identification of approaches to teaching and learning in business that can benefit from the unique capabilities of ICT. Recent interest

in constructivist theories of learning can inform such an heuristic, particularly as they relate to the design and implementation of student centred and realistic learning environments (Brown 1998; Herrington and Herrington, 2006). Such environments are highly relevant to ICT-enabled business education. A characteristic feature of these environments is that they attempt to align learning in the academy (whether this be the ‘virtual – online’ or ‘real’ academy) with the way that learning takes place in real life settings. As noted in Table 2 above, the pedagogical capabilities of ICT offer the prospect of close interaction between the workplace and the classroom; indeed, specific applications of ICT (such as streaming video) provide far more realistic settings for study than has hitherto been possible in traditional business education environments. By harnessing these capabilities ICT can create educational value in ways not easily replicable in traditional environments. This is the key to creating a sustainable business model for ICT-enabled education. Three desirable characteristics of learner centred and realistic learning environments are emphasised below: authenticity, engagement and professionalism.

*The characteristics of learner centred and realistic learning environments*

Constructivist philosophy has had a substantial impact on ideas about teaching and learning in recent decades. Its central tenet is that people learn more effectively when they become active participants in the learning process, drawing on their own experiences, interacting and collaborating with other students and constructing their own understandings of what is being taught (Brown 1998, 5-9). Constructivism is sometimes labelled by the epithet, ‘student centred instruction’ and contrasted with ‘instructivism’ or ‘teacher centred instruction’; the latter suggestive of a learning environment where the student is the passive recipient of instruction delivered by the teacher (Reeves, Herrington, & Oliver 2002). The growing influence of constructivist philosophy has led to interest in authentic learning environments (Herrington & Herrington 2006). In authentic learning environments the emphasis is on realism, active student involvement in the learning task and demonstrated mastery of meaningful and useful skills and knowledge. Given the different ways individuals experience and react to ‘real life’ situations, there is some debate in the literature as to whether, authentic learning environments can be pre-ordained. Also, given the wide variety of milieus that exist in business (e.g. banking, marketing, human resource management) there is doubt as to whether it is possible to extract anything worthwhile from real life situations that are inherently unique (Petraglia, 1998). Nonetheless, it does seem possible to characterise authentic learning environments in ways that do distinguish them from more teacher centred approaches to teaching and learning. The following list is based on the work of Reeves, Herrington and Oliver (2002), and Herrington & Herrington (2006). Authentic learning environments are characterised by real world relevance, open ended problems, sustained periods of study, time for reflection, assessments integrated with authentic tasks and the production of meaningful finished products. As Reeves, Herrington and Oliver (2002) and others, Herrington, Oliver, & Stoney, (2000) have shown, these characteristics are perfectly compatible with ICT-enabled education.

It follows from the constructivist philosophy that informs authentic learning environments that such environments require engaged students. As the focus of teaching and learning shifts to the student, so the student must become more actively involved in the learning process and responsible for the learning that takes place. The idea that students need to be engaged if learning is to be effective is perhaps one of the oldest concepts in education (Bowen, 2005, 4; Smith, et al. 2005, 90). It is unsurprising to discover that research confirms that this idea is

correct; however, research also provides a substantial amount of evidence that "... there are instructional and programmatic interventions that not only increase a student's active engagement in learning and academic work but also enhance knowledge acquisition (Pascarella, 1991, quoted in Smith, et al. 2005, 88). In the context of the present discussion the significance of this finding is that student engagement is not a parameter of the learning environment but, along with authenticity, is something that can be designed into teaching and learning frameworks.

There are many dimensions to student engagement (Bowen 2005) and instructional and programmatic interventions will not overcome all problems associated with motivation (Herrington, Oliver & Reeves 2003). Nevertheless, it is possible to specify the type of activity that are likely to improve student engagement. The following list is drawn from a definition supplied by the US North Central Regional Educational Laboratories (quoted in Theroux, Carpenter & Kilbane, 2004, 74). Engaged learning is characterised by students: taking an active role in meaningful tasks and activities; being responsible for their own learning; bringing their own experience to their studies; seeking out and using a variety of resources; seeking ways to apply what they have learned to their own lives; and, able to demonstrate understanding and mastery of what they learned. Clearly, authenticity and student engagement go hand in hand.

Constructivist philosophies have an obvious relevance to vocational education. As already noted, business education is a preparation for the workforce; although drawing upon the social sciences and other disciplines such as engineering, it is unashamedly about the application of the knowledge derived from these disciplines for business ends. Brown (1998, 27) makes the point that approaching vocational education from a constructivist viewpoint requires that instructors prepare their students not only to 'do' but to know under what circumstances and in what way the knowledge they have acquired should be applied. In this article the term professionalism is used to stand for a range of understandings connected with the *effective* application of knowledge gained from business studies to the real world of business<sup>15</sup>. Professionalism implies mastery of the appropriate field of knowledge and the possession of competencies and attitudes consistent with expected norms and standards of behaviour. The characteristic behaviours associated with professionalism therefore include being: able to operate effectively within a body of knowledge; able to approach problems systematically employing a recognised 'tool-box' of techniques and methods of inquiry; able to communicate effectively about the field of knowledge in question with peers and non experts; and, committed to lifelong learning.

#### *Matching learner centred and realistic learning environments to ICT-enabled education*

We are now at the stage where the ideas put forward in this article can be pieced together in order to obtain an overview of how the capabilities of ICT-enabled education relate to value creation in business education. It has been argued that the first phase of ICT-enabled education (the U.com boom) has been characterised by an over reliance on the resource and communications capabilities of ICT and the neglect of its pedagogical capabilities. This failed to create sufficient educational value because the product was already available in a tried and tested form and because much of the product was not designed for ICT delivery; indeed, its very distribution via ICT probably detracted from its usefulness. The pedagogical capabilities of ICT-enabled education are as yet relatively unexplored. With specific reference to business education this article has suggested that constructivist philosophies of teaching and learning

offer a way forward. Having identified authentic learning, student engagement and professionalism as the desirable features of a teaching and learning oriented to the achievement of value adding outcomes in business education, the article is now in a position to map one against the other. Table 4 presents these element in the form of a matrix that matches the capabilities of ICT-enabled education (columns 1 to 7) against the characteristics of a value adding in business education (rows 1 to 3). The table helps identify ICT-enabled education activities that are more or less likely to meet with success in the sense that they make a strong contribution to educational outcomes and value creation in business education.

Table 4. Matching the capabilities of ICT to value-adding business education

		Capabilities of ICT-enabled business education						
		Resource and communication capabilities				Pedagogical capabilities		
		1 Flexible learning environment	2 Customised study	3 Lifelong learning	4 Borderless education	5 Visualisation /simulation	6 Business-academy partnership	7 Theory-practice nexus
Characteristics of value-adding business education	3 Authentic learning	<i>No necessary connection</i>	<i>No necessary connection</i>	<i>No necessary connection</i>	<i>No necessary connection</i>	<i>Direct connection</i>	<i>Direct connection</i>	<i>Direct connection</i>
	2 Student engagement	<i>No necessary connection</i>	<i>Likely connection</i>	<i>Likely connection</i>	<i>No necessary connection</i>	<i>Direct connection</i>	<i>Likely connection</i>	<i>Likely connection</i>
	1 Professionalism	<i>No necessary connection</i>	<i>No necessary connection</i>	<i>No necessary connection</i>	<i>No necessary connection</i>	<i>Likely connection</i>	<i>Direct connection</i>	<i>Direct connection</i>

Of course, since this is an heuristic, the picture of ICT-enabled education presented in the table is meant to be suggestive rather than definitive. For example, the table indicates that there is no *necessary* connection between flexible learning environments and any of the desirable characteristics of learner centred and realistic learning environments. The article has already pointed out that flexibility alone is not enough to create value in ICT-enabled education; the table facilitates a refinement of this point. The reason why flexibility alone is not enough to create value is that there is no fundamental link between education ‘any time, any place’ and more effective education. Of course, that is not to say that for some students personal circumstances make flexible learning environments very useful. It is merely to note, that of itself, flexibility adds little to effective business education. By contrast the pedagogical capabilities of ICT-enabled education all have either a likely or strong connection with the

desirable characteristics of learner centred and realistic learning environments. This indicates that deployment of these capabilities in a well designed program is highly likely to lead to educational outcomes that create value.

The table suggests areas where investment in ICT-enabled business education is likely to create value and be successful. Ultimately students (and their employers) decide whether a particular mode of business education is worth the time, effort and expense involved. The resource costs of the different types of ICT-enabled education will also need to be taken into account. The table provides no indication of costs and assumes that they are comparable. However, there might be substantial differences. As was noted above, value creation requires a gap to appear between price charged for a program (however, that is worked out) and program cost and it could well be that some applications of ICT, desirable though they may be, may not attract prices sufficient to cover costs.

## Conclusion

Some twenty years ago in a review of the impact of technology on the classroom Clark (1984) wrote that "... technology will make as little difference to education as the bread truck that delivers bread makes to the quality of the bread ". Clark's observation is a salutary reminder of the limitations of ICT-enabled education. However, the prospects for technology enabled learning have changed considerably in the past two decades. Electronic aids to teaching and learning now have the potential to transform many areas of teaching. What has not changed so much over this period is the pedagogical understandings that need to accompany the developments in technology for teaching and learning. These shortcomings have resulted in waste of resources and missed opportunities.

Perhaps the most important of the assumptions made a decade ago about the future of ICT-enabled education was that pedagogies would emerge that would support the adoption of the new technology and drive market acceptance of ICT-enabled education as well as provide an incentive to the academy to create attractive new learning products. This did not happen. Putting the student at the centre of ICT-enabled education is now the key to its future prospects. Bonk has recently argued,

"There is a need to know how to build effective interaction, collaboration, and engagement with online learning technologies that foster two-way, not just one way interactions. There is a movement from technologies that attempt to replicate a teacher-centred past to those that nurture a learner-centred present or future. Instead of technologies that manage online learners, there is a focus on facilitating and scaffolding them to peak learning experiences .... instead of a focus on shovelware, there is an emphasis on mindware" (2004, 2-3).

We assert that putting such sentiments into practice and achieving a wide ranging and successful implementation of ICT in business education requires that choice-matrices such as that shown in Table 4 be drawn up and evaluated with the goal of better matching the distinctive capabilities of ICT-enabled education to the needs of students and their future employers.

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## Endnotes

**1** The acronym 'ICT' is used in preference to 'the internet' because it includes *any* technology that stores, retrieves, manipulates, transmits or receives information electronically in digital format. Thus it includes computers and associated software, plus other technologies such as streaming audio and video as well as the infrastructure of the internet itself.

**2** The term 'ICT-enabled education' is used in preference to online learning (or education) or e-learning because it encapsulates the technological, pedagogical and product aspects of ICT in education. ICT-enabled education includes: (i) electronically mediated distance education; (ii) the use of course management software such as Blackboard-WebCT for programs offered in full online and classroom mode; (iii) the use of other electronic aids to teaching via the web such as streaming audio and video, games, simulations and electronic supplements to textbook.

**3** We define 'business education' as the organised dissemination of knowledge about business by individuals and organisations specialising in education services. This definition *excludes* the dissemination of knowledge about business that is an incidental by-product of non educational activity such as the provision of financial services, market research, news and media comment but *includes* the supply of textbooks and other media such as DVDs and TV dedicated to business education.

**4** The University of Phoenix (Bonk 2004, 18) and the University of Athabasca (Weissling n.d.) are prime examples of institutions that have bucked the trend and developed successful ICT-enabled programs.

**5** Bonk (2004) notes that the use of ICT is concentrated in certificate and associate degree level programs.

**6** Ives and Jarvenpaa identify no less than thirteen "... assumptions that will characterize the new environment" (1996, 35). Each of these assumptions is actually comprised of an amalgam of subordinate assumptions that, in practical terms, point the way to new educational products.

**7** Some of the names assigned to these categories are quite recent and their long term currency may be in doubt (e.g. borderless education). Others such as life-long learning and customisation pre-date the ICT era but seem well suited to ICT-enabled education.

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**8** Paradoxically, switching costs for students were assumed to be lower in ICT-enabled education [see Table 1, Item 4]. Ordinarily this would dilute first mover advantage (see Porter 2001, 68-9) but presumably the lowering of such costs did not outweigh the effects of market presence and brand.

**9** The impact of ICT on the traditional suppliers of business education would be profound and in some cases it would be dire. Age and venerability would provide no protection: "... nothing will protect the business school from being swept into the current of technologically driven change" (Ives and Jarvenpaa 1996, 39). Those institutions that did not meet the challenge would see, "... many of their traditional functions ... superseded, their financial base eroded, their technology replaced and their role in intellectual inquiry reduced" (Noam 1996, 4). Time was short, "... the soil is [already] crumbling around us" (Ives and Jarvenpaa 1996, 39).

**10** Substantial investment in new courses and infrastructure to support electronically mediated education was undertaken by universities such as Carnegie-Mellon, Chicago, Colombia, MIT, Stanford, Tufts and Wharton in the USA and INSEAD, Glasgow, Edinburgh, Lund and the LSE in Europe. Elsewhere universities began setting up regional, national and global partnerships, some with the involvement of publishing and media corporations such as Thompson Learning, other with partners drawn from business consulting such as PwC, to share the costs of entry into the ICT-enabled education market place (Bradshaw 2000). New names such as Cardean, Fathom and Knowledge Universe appeared in the hitherto slow-changing landscape of the academy. Most of these new arrivals were based in the USA, although some such as Scottish Knowledge were European, and others like Universitas 21 had membership drawn from several continents. Many of these ventures offered courses ranging across a number of disciplines, however, most viewed business education as the area where ICT was most likely to take off and concentrated their activities accordingly.

**11** This is confirmed for the USA by Zemsky and Massy (2004). Similar findings apply to Commonwealth countries report to the Observatory on borderless higher education (Garret R., & Jokivirta, L., 2004).

**12** An alternative strategy was to form an alliance with external content such as Thompson Learning. This was the strategy adopted by Universitas 21 Global.

**13** Since students are asked (either directly or indirectly) to pay for this product for the purposes of this article there is no real difference between economic value and educational value – they are both measured in the same way.

**14** Business education (particularly at the MBA level) has been subject to strong criticism during this period (Jones, 2004; Mintzberg 2004A, 2004B; Pfeffer & Fong, 2002A, 2004) but does not reduce the force of this point. Customers continued to pay for traditional business education, debate over its quality is a separate issue.

**15** Robson, Bailey & Larkin (2004) capture the ideas expressed here succinctly when they refer to the "discourse of professionalism" as applied to vocational education. An alternative term is 'competence' (Hodkinson & Issitt 1995); however, the authors believe that the term 'professionalism' better conveys the notion of the range of behaviours, attitudes and competencies associated with effective business education.