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Handling disruptive innovations in HE: lessons from two contrasting case studies

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This article aims to show how Higher Education Institutions (HEIs) can recognise and best respond to a disruptive innovation. A disruptive innovation creates a new business model using a new process and usually a new technology to offer a product or service with new features and/or lower cost and initially addresses a group of people who are either unserved or overserved by existing offerings. By contrast, a sustaining innovation may use the same technology, but enhance an existing business model. To illustrate this, we set out two case studies that each implement the same innovative model of work-focussed learning differently: one in an autonomous sub-unit of an HEI, while the other sought to embed the same model in existing faculty activities in another HEI. The theory of disruptive innovation (Bower and Christensen 1995) is set out and used to understand types of innovation, from sustaining to disruptive, and to identify the model of work-focussed learning as a disruptive innovation. We then used this to analyse the subsequent trajectories and different outcomes of the two case studies. Our aims then were (1) to show how disruptive innovation theory can be used to recognise different types of innovation and (2) to suggest the appropriate way to organisationally structure disruptive educational innovations as semi-autonomous enterprises. We also note potential constraints that government policy may place on HEIs attempting to respond to disruptive innovations.

Keywords: disruptive innovation; business model; online distance education; organisational change; higher education

Introduction

When planning for curriculum and business model change in universities, it is useful to be able to provide an analysis of proposed curriculum developments to distinguish those that are incremental and sustaining in nature from those which are disruptive innovations, as defined by Bower and Christensen (1995, p. 44). The preliminary aim of our analysis was to understand the kind of innovation, in terms of incremental through to disruptive, that the model of work-focussed learning exhibits in the context of Higher Education Institutions (HEI). In addition, based on these two case study illustrations and the studies that inform the disruptive innovation theory, our second aim was to suggest how this theory can be used to decide the appropriate governance models for successfully handling sustaining and disruptive educational innovation.

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Sustaining and disruptive innovations

Sustaining innovations are those that improve existing, well-tested curriculum delivery models without changing the current ways an institution functions. Disruptive innovations are those that develop new business models to exploit the potential of emerging technologies to serve new types of students, or existing students that current provision does not serve well. Disruptive innovations present a challenge to an institution's existing processes, systems, working practices, and, perhaps most importantly, to its decision-making around appropriate management responses, specifically the allocation of resources.

Future significance of disruptive innovation in the HE context

The theory of disruptive innovation is explained, discussed and applied further in this article, but it is worth outlining why it is particularly relevant now to HEIs. Blackmore and Kandiko (2012) point out that the higher education system is becoming increasingly globalised with more competition nationally and internationally for students, although the impact at the level of a particular institution will be context specific. They also highlight the political desire to open up the HE market to competition through both national and global league table rankings. In the UK, competition has been increased by the current UK government's desire to create new forms of public and private universities (Willets 2011). In addition, the continuous development of technology, infrastructure and tools are opening up the potential for new business, learning and organisational models such as those presented by Massive Open Online Courses (Yuan and Powell 2013).

These factors outlined above are creating a new context for HEIs, in which disruptive innovations may arise, posing a threat to existing models and demanding an appropriate response.

A key strategic challenge for universities is to recognise different types of innovation and be able to determine which are sustaining and which are disruptive. Some innovations may appear to address niche market segments that are at present either not served or little served. They thus seem to be a limited threat to the current business model and safe to ignore. However, they may yet have the potential to grow into a significant disruptive threat in the future.

A second key strategic question for universities is to what extent do they have the structures and processes in place to successfully respond to, or possibly initiate, disruptive innovations. A disruptive innovation often places new demands on staff, budgets and organisational models. These include changes to established ways of teaching, professional development activities, research, scholarly practice, IT systems, decision-making and administrative processes. Any of these may provoke conflict with particular interest groups.

Observation of those cases where market-leading organisations have successfully responded to a disruptive threat have shown the effectiveness of setting up autonomous units (Christensen and Raynor 2003). This prevents the host organisation's current business model, culture, processes, systems and decision making from blocking the actions and resources needed to successfully handle a disruptive innovation.

The following sections of the article first describe the model of work-focussed learning, the two case studies are presented, the theory of disruptive innovation is

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explained and then the discussion explores the model of work-focussed learning as a disruptive innovation, implications are identified and a conclusion offered.

The model of work-focussed learning

The model of work-focussed learning was designed to offer an undergraduate higher education to students in full-time work, paid or voluntary (Powell, Tindal, and Millwood 2008). The target group of students was committed to the work they were doing, wanted to gain an undergraduate degree in 3 years, but were unable to stop working and devote the time needed to obtain a degree via conventional routes. The model offers a new value proposition in that modules are written without specifying discipline or subject knowledge and instead address student capability development in the context of their work to have, 'justified confidence in your ability to take appropriate and effective action to formulate and solve problems in both familiar and unfamiliar and changing settings' (Cairns 2000, p. 1). In practical terms, this means that:

(1) for all of the modules, students are required to identify, negotiate and undertake projects that improve their work practices to benefit their work-place using an action research/inquiry approach;
(2) they gain academic credit from the scholarly practices used to inform and evaluate their activities;
(3) assessment is through Patchwork Media, a development of Patchwork text (Winter 2003), that encourages the use of different media and genre in the creation of products for formative, summative and peer assessment;
(4) it enables students to study at a full-time rate and complete an English University bachelors degree in 3 years through making their full-time work the focus of their study;
(5) the programme is provided wholly online thus allowing learners to study at a time and place convenient to them;
(6) delivery is based around building a community of inquiry where students are required to support each other through peer review and critique; and
(7) academic staff support students through the inquiry process and facilitate online conversations with expert 'hotseat guests' joining the online community to provide subject-specific knowledge directed towards learners' inquiry projects.

From an institutional perspective, this is a new pedagogical model that allows an HEI to address an unserved market segment. Being process oriented, there is not the cost of producing large volumes of content for online learning. Being wholly online, students place no demand on estates, and facilitators can also work largely from home, further reducing demand. The approach thus has the added advantage of reduced infrastructure costs, when compared with on-campus provision. However, student support is the remaining significant cost.

Two work-focussed learning case studies

In this section, we look briefly at how this same work-focussed learning model was implemented in two different institutions, each with different organisational goals.

In later sections, we explore their subsequent trajectories and outcomes, analyse them using disruptive innovation theory and suggest some conclusions as to how such innovations might best be handled by HEIs.

The Ultraversity project

The Ultraversity project started in 2003 and developed an innovative degree programme with two aims. The first was to fully implement the personalised model of work-focussed learning and secondly to develop the university staff working practices needed to support the students in this new way of learning. In addition, it was intended that the successful innovations would diffuse across the host institution's teaching activities. The project was set up as a semi-autonomous unit that developed an undergraduate degree programme with its own marketing, recruitment and enrolment processes, significantly reduced fee structure, and a dedicated staff wholly focussed on supporting students online.

The project had a multidisciplinary team of 24, including tutors, software and technical support staff, and administrators. The staff contributed to the success of the project through developing:

(1) bespoke assessment portfolio software and customisable, proprietary learning environments;
(2) online recruitment and admissions processes;
(3) online pedagogical innovations such as 'hotseat' experts;
(4) an alignment of module requirements, work activities and assessment;
(5) development of the role of academic as learning facilitator; and
(6) organisation of the teaching teams working practices to support the work-focussed learning model (Powell, Tindal, and Millwood 2008).

The impact of this work came through its degree programme, the BA (Hons.) Learning, Technology and Research. This graduated 140 students in its first full cohort in July 2006 and since then there have been over 500 successful graduates.

The IDIBL project

The Interdisciplinary Inquiry Based Learning (IDIBL) project began in 2007 at another UK University. It was an institution-wide change initiative with the aim of taking the successful work-focussed learning approach and creating courses based on it, to be delivered by the various faculties of the institution.

The project first developed and validated the IDIBL framework (Powell and Millwood 2011, pp. 259–62) against university quality regulations. The framework consisted of a generic set of course documentation including a description of the pedagogical approach and a complete set of module descriptions for FHEQ levels 4–7 based on the Ultraversity modules. From this, specific courses could be rapidly developed and validated to meet changing employment demands. The project team then spent 4 years working collaboratively with self-selected faculty to develop and run pilot courses of their own, using the framework.

This approach had limited impact in terms of numbers of faculty choosing to engage and students recruited onto the pilot courses (20–30s, rather than 100s).

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There were some other course developers who used parts of the framework to inspire their own curriculum developments (Powell and Millwood 2011, p. 268).

"Theory of disruptive innovation as an analytic tool"

The theory of disruptive innovation (Bower and Christensen 1995) identifies the dimensions of product performance over time, from the perspective of customers' requirements, as being the key attribute of innovations. Thus, a disruptive innovation is based on a combination of a technology together with a new business model that exploits both the technology and its potential for rapid further development. Figure 1 presents a simplified model of the dynamics of disruptive and sustaining innovation. Reading the chart, you can see that over time (X axis) a product's performance improves (Y axis), and it is the interplay with customer needs (shown as ellipses) that influences the product or service choices they make. For example, a customer with modest financial resources may chose a less well-performing product, but over time that product may improve such that it is better than existing products attracting more customers and disrupting the market dominated by products following a sustaining innovation path.

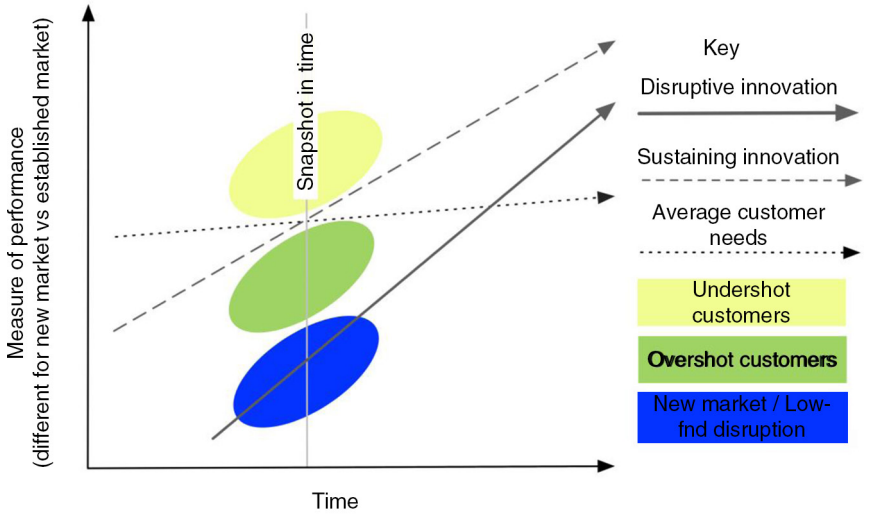

Figure 1. Disruptive innovation (after Christensen and Rayner 2003, p. 44).

The key concepts of the theory of disruptive innovation are:

- Sustaining innovations are typically incremental but may be radical innovations that enhance an existing product or service along a product performance trajectory that meets the demands of existing, mainstream and in particular top end customers.
- Disruptive innovations on the other hand bring new value propositions to the market. At the outset, they may not meet the needs of existing, mainstream customers, but they do meet the needs of either a new market segment (a 'new market disruption') or of existing but overserved customers (a 'low end

> disruption'). This will usually be in terms of factors such as convenience, usability or price. Thus, over time, as the performance of these new products and/or services undergoes rapid improvement, they go beyond meeting the needs of the incumbents' low end customers and increasingly attract their mainstream and eventually, their top end customers as well (Bower and Christensen 1995, p. 44).

By making a degree programme more accessible or convenient to students who would otherwise not be able to attend, it is arguable that technologies that make online, distance-learning possible are a potential source of disruptive innovation in the educational field (Christensen *et al.* 2011, p. 3). The work-focussed learning model has the additional disruptive factor that students can remain in full time employment. However, as the same technology can be used in very different ways, it is not simply a matter of technology, but the overall 'package' offered to a customer that creates either a sustaining or a disruptive innovation.

Why do market leaders fail to respond to disruptive innovators?

Next, we look at the fundamental question that Christensen's theory addresses. It asks why well-run market-leading companies (the incumbents) can still be overthrown by upstart new companies (the disruptive innovators)? Why does this happen even though, as market leaders, they listen to their customers, innovate accordingly, have good marketing and are financially well managed? Moreover, why does it happen when they are aware of the disruptors, can see what they are doing and increasingly feel their impact?

According to the disruptive innovation theory, derived from observation of many cases drawn from different fields, the reason why market leaders can be overthrown by these new upstarts is that they have strong inbuilt filters that weed out any innovation proposals that do not directly enhance the current products or services they offer to their existing markets. Any proposals to counter the disruption do not fit the elements of the existing business model and do not enhance existing offerings. This is applied to our case study in Table 1 'Comparison of Functions' later in the article.

The filters are not only derived from the application of economic arguments and analysis of business models but are also cultural in the broader sense of incumbent employees wanting to further develop rather than abandon existing knowledge and skills, processes and practices. However, the arguments used when applying the filters are couched in terms of looking after the interests of established customers based on sound market research, supported by well-prepared business cases and are thus hard to argue against as exemplars of good business practice. In addition, from a financial perspective, disruptive innovations 'look financially unattractive to established companies' (Bower and Christensen 1995, p. 47) as their potential profit margins appear relatively small. Furthermore, the incumbents' existing cost structures, required to support and innovate existing products, are high. However, their enhancing innovations are justified by the premium prices that their most demanding, top-end customers are prepared to pay. Any disruptive innovations that do manage to escape

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the inbuilt filters are quickly deprived of the resources needed to get to new markets, in favour of more 'important' existing products and markets:

> Innovations that conform to the business model are readily funded. Organizations sometimes reject an innovation that emerges to address a new need in the market, but doesn't fit ... the [organisation's] business model. But the organization more frequently co-opts such innovations by forcing them to conform to the business model in order to get funded. When this happens – funding only flows to innovations that sustain or fit the business model – the organization loses its ability to respond to fundamental changes in the markets that it serves. This is what has happened to many universities. (Christensen *et al*. 2011, p. 32)

The model of work-focussed learning as a disruptive innovation

Both case studies had parallel action research projects gathering data using qualitative and quantitative research methods. These contributed to the peer-reviewed publications cited in this article. We subsequently found it helpful to use the disruptive innovation theory to explain the contrasts and similarities between the two experiences and draw conclusions on how such innovations may best be implemented.

We are now in a position to see the underlying model of work-focussed learning as set out above, shared by both cases, as a classic instance of a disruptive innovation:

(1) it seeks to serve a currently unserved market segment;
(2) it allows students to continue working full time whilst simultaneously studying full time;
(3) it has the potential to offer students a lower price alternative as it has inherently lower costs; and
(4) being fully online, scaling numbers does not correspondingly increase estate costs.

We can also begin to understand why the characteristics of this model might clash with the existing academic culture and ways of doing things, thus creating strong barriers to adoption:

(1) it is work-focussed rather than discipline/subject focussed, placing less emphasis on learning existing knowledge, and more on capability development, performance and knowledge generated in the action research/inquiry process;
(2) for delivery, it depends on staff who are comfortable working online in a facilitative way rather than delivering their expert content knowledge;
(3) it is work-based rather than campus-based; and
(4) it is run completely online, rather than face-to-face.

Because of its lower cost model (little estate costs and limited resource development), it creates the possibility of a lower fee structure, but this, from our case studies, has conflicted with institutional pricing practices. The uniform pricing approach exposes institutions to disruption by providers that price according to cost.

Further, it creates new demands for most academics: rather than lecturing, it demands facilitating a discovery process, situated in the real world; rather than a single discipline focus, it generally requires supporting a broader range of knowledge and skills; rather being than campus-based, it is work-based; rather than face to face, it requires providing online support. Arguably, this demands both downplaying content knowledge and teaching skills, and acquiring a new set.

The subsequent trajectory of each case study

Ultraversity

The Ultraversity innovation was initially launched as a separate unit with the autonomy needed to set up and develop an appropriate operational model. This it did with success in terms of the institution's quality assurance mechanisms, the numbers of students graduating and the reported student experience (Powell, Millwood, and Tindal 2008, pp. 74–79).

The data for Figure 2 were obtained from the institutional student records system. It shows that the relative success, as measured by student graduation, of the programme has declined over time. The graduation numbers are a lagging indicator and reflect the relative decline in recruitment. The low number of graduations for 2007 is explained by not recruiting a cohort of students in the September three years previously.

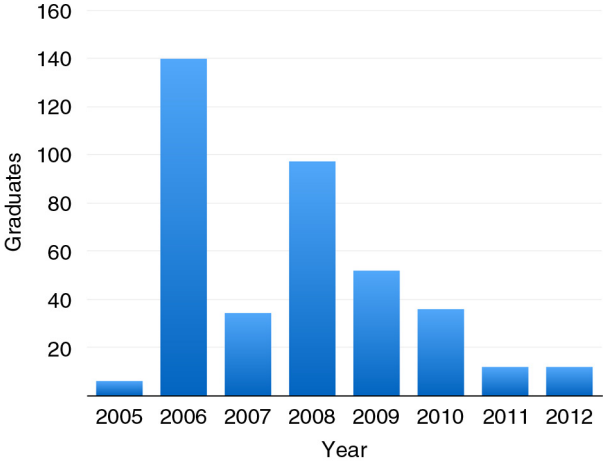

Figure 2. Number of student graduations by year.

The authors attribute this pattern to an institutional reorganisation when, from 2006, Ultraversity was drawn into the main body of the HEI where it has had to move towards the norm in terms of fees, rules and regulations, and the organisation of the teaching team. However, most significantly perhaps, marketing of the course was absorbed into the existing university marketing, which was targeted at its traditional student recruitment, and no longer the unserved customers who need this unique approach. This corresponds with observations in support of disruptive innovation theory that there are strong inbuilt filters that weed out any innovation proposals that do not directly enhance the current products or services offered to

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their existing markets and/or do not fit the elements of the existing business model (Johnson, Christensen, and Kagerman 2008, pp. 3–5).

IDIBL

Responding to the Leitch Report (2006), which proposed a close working partnership between employers and universities, the senior champion of the IDIBL innovation saw it as a way of broadening the capability of existing faculties to address work-based learning. While it ran reasonably successful pilots, the framework was never embraced by the majority of staff as an internal model, the reaction ranging from interest but uncertainty as to how to engage, through to outright hostility. The rejection it faced from staff, and the retirement of its senior champion, has resulted in poor take up (Powell and Millwood 2011, p. 266).

Given the different pedagogical model and value offering, it required quite different teaching capabilities for lecturers to be confident enough to adopt the approach and successfully deliver it. For some, it required a new mindset about what a higher education is. It also required very different marketing and promotion from normal courses to recruit sufficient students.

At present, while the IDIBL Framework's individual modules recently succeeded in being revalidated, the actual pilot courses that were derived from it were not, given current stringent economic criteria, the demand for full fees and no budget for marketing.

Analysis of the case studies using the theory of disruptive innovation

In both the Ultraversity and IDIBL projects, the aim was to develop the work-focussed approach to learning for new groups of learners who do not currently access higher education. In terms of the disruptive innovation theory, these are very similar new market disruptions, both using the online work-focussed learning model, attractive to new, unserved customers. However, in terms of their success as measured by recruiting viable numbers based on the institutions' financial models, the experiences were very different.

Table 1 identifies and contrasts the key functions, identified by the authors based on their experience of the projects that were developed and operated in the Ultraversity and IDIBL cases. The approaches developed for IDIBL can be seen as a compromise when compared to the original model, but even so, when taken as a whole, are significantly different to the typical organisation and working practices that support taught provision. A disruptive innovation analysis suggests that many of the functions identified could act as filters that result in a rejection of the IDIBL innovation, but in the case of Ultraversity, an autonomous unit hosted the project, and in operational terms this is similar to an 'independent organisation' (Bower and Christensen 1995, p. 52).

The key structural difference that can be identified is that the Ultraversity project operated outside of the constraints of the rest of the university working as a semi-autonomous sub-unit. The IDIBL Framework was by contrast specifically designed to work within the existing university mechanisms. The contrast between Ultraversity and IDIBL illustrates just how different the model of work-focussed learning is from normal university teaching.

Table 1. Comparison of functions, showing three key filters highlighted.

Function	Ultraversity project (2003–2007)	IDIBL Pilot project (2007–2012)
Marketing	Carried out by project team, targeted to appeal to individual students in specific employment contexts; this included teaching assistants in schools mailed nationally, and health workers recruited through the National Health Service	Consulted with university marketing department, advice offered by marketing department to the project on development of marketing materials. Limited numbers of employers mailed directly by the project team significant engagement with professional bodies, but no clear university message
Admissions	Each student interviewed with the aim of ascertaining if they had a suitable work context and understood the unique pedagogical approach	Centrally controlled, decisions based on application against university standard criteria
Student support	Notable peer support in large online community supplemented by project team	Limited peer and project team support with smaller numbers involved
Pedagogical approach	Work-focussed learning using an inquiry-based pedagogy	Work-focussed learning using an inquiry-based pedagogy
(1) Pricing	Proposed and accepted lower than normal – defended by the project in terms of detailed accountancy to achieve project sustainability	Proposal to lower fees not accepted, despite lower costs and need to reach unserved students – university norms maintained
(2) Productivity model for teaching staff	Newly designed on a student-centred basis to fit open and distance learning conditions, derived from sustainable business model	Struggled to meet departmental norms for staff that were contact time and timetable-centred, but which did not fit open and distance learning conditions
Virtual learning environment and assessment e-Portfolio system	Designed for purpose, drawing on a range of online tools, fluid and agile to respond to developing needs including assessment feedback, tracking and reflection on progress	Mainstream university VLE, limited scope for development, design decreed for all university online offerings
Quality assurance procedures	Normal validation, course committee, assessment and progression boards with external examiners. Adapted quality processes to reflect online nature of course; committees held virtually via Skype or conference call	Normal validation, course committee, assessment and progression boards with external examiners attending face-to-face
Model of teaching practice	Online team-teaching with students allocated on a productivity model of the numbers of students per teacher required to make the programme financially viable	Online team-teaching and personal tutors aligned with University work-allocation model based on contact time
Management and organisation	Shared leadership, mainly flat structure, fluid teams, participative decision-making	University hierarchy within departmental silos
(3) Teaching staff	Dedicated team with little experience of working in Higher Education, but extensive experience as school teachers and working online	Staff of current HE teachers and Graduate Teaching Associates, but with experience of action research/inquiry

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Three key filters applied by a university to radical innovations, identified by number in Table 1, are further explained:

(1) the pricing of IDIBL courses fails to take account of the reduced resource requirements (cost) of wholly online delivery, unlike the Ultraversity experience, and thus diminishes the offer;
(2) the productivity model, based on simplistic measures such as contact hours and timetabled sessions, does not fit with online, asynchronous facilitative teaching approaches; and
(3) teaching staff's conservatism regarding pedagogical beliefs and values. The beliefs that exams are the most reliable form of assessment and that quality for undergraduate courses is best assured through delivery of good subject content, are challenged by the work-focussed model's requirement for learning facilitators assuring quality through a rigorous process.

Taken together, there is a strong case for the model of work-focussed learning being a classic example of a disruptive innovation, with the basic approach having success in one context but making limited progress in another, being dependent on finding existing members of staff already in tune with its way of working and willing to take it on and hampered by existing institutional processes.

Institutional implications

The theory of disruptive innovation, as noted above, predicts that disruptive innovations, when proposed internally, will almost always be rejected by an incumbent organisation, even when it is clear that an external disruptive innovator is beginning to attack the low end of their existing market.

Therefore, the question then raised is how should an incumbent respond in the face of a threatened disruption? The conclusion that Bower and Christensen (1995, p. 52) reach, informed by observations of successful incumbent responses, is that this has been done by setting up an independent organisation, or an autonomous subunit, which can then develop without the cultural rejection and resource battles it would otherwise face.

A difficult task, however, is to identify what is truly a disruptive innovation and what is a sustaining or potentially sustaining innovation. Often, the same technology can be used to both ends, so a new technology alone, even with potential, does not provide a sufficient decision criterion. Approaches such as the Gartner STREET (Scope, Track, Rank, Evaluate, Evangelise, Transfer) process (Fenn and Raskino 2008) provide a useful decision-making framework for the identification of sustaining innovations that address, 'the challenge of reaching the adoption of the deployment stage' (Fenn and Raskino 2008, p. 97). However, to systematically identify disruptive innovations requires a different approach.

The disruptive innovation theory identifies a typical series of reactions to a disruptive innovation. Looking for these typical reactions can help identify the presence of a disruptive innovation.

At first, the innovation is seen as 'rubbish', bearing no comparison with the incumbent's current high-quality offering/s. Then, as the innovation begins to improve and enter the bottom end of the incumbent's market, the reaction is that

this low end of the market is also low margin and so it can be abandoned in favour of the more profitable high-end.

As the disruption then develops further and begins to erode the core market, there is a flight to the top end 'where the real profits are', but, with the loss of the main source of income, and a shrinking, if profitable, high end. The market leaders either become confined to small niche markets, or they cannot survive without the large middle market and go out of business. So observing these reactions within an organisation is an indicator that it is suffering from an external disruption.

Better, however, is to use the theory to spot the threat early and respond in time. In their book, 'Seeing What's Next', Christensen, Anthony, and Roth (2004) put forward a set of tools for analysing emerging technology-based business model innovations. These can be used to determine whether an innovation is sustaining or disruptive. Where it is potentially sustaining, it can be co-opted and thus incumbents are likely to win in a competitive battle. Where it is potentially disruptive, the disruptors are likely to win and thus require a more radical response from incumbents if they are to counter it effectively. Christensen, Anthony, and Roth (2004) use the 'Power of Good Theory' argument that theory is better than trend analysis, the latter being always based only on past data, to both understand the past and look into the future. They set out and illustrate the use of three theories:

(1) Disruptive Innovation Theory;
(2) Resources, Processes and Values Theory; and
(3) The Value Chain Evolution Theory.

These theories provide a strong basis for analysing and deciding how best to respond to the increasing adoption and use of Internet technology to provide new forms of higher education.

In the case of work-focussed, or even work-based learning at HE level, we recommend this be handled in an autonomous unit. Once established, this unit may then offer its services to the rest of the university, where it is desired that traditional, primarily taught courses should incorporate work-focussed modules. In such cases, the unit could also offer training and support for academics who wish to work through the unit directly with students while on work-focussed modules.

A last note of caution offered is that, once established, the temptation is to merge the offshoot innovation unit back into the parent organisation. The above cases and analysis show that this should be resisted to avoid the resulting clashes about which model gets resources at the expense of the other, or the model undermined by attempting to constrain it to the norms of the incumbent's existing ways of operating.

Policy implications

When considering the US Higher Education System, Christensen *et al.* (2011) are sceptical that existing publicly funded universities will be able to take on board disruptive innovations, as they are only familiar with delivering sustaining innovations to their existing business model. In their view, the action needs to be taken at a higher level:

> Policymakers must first address higher-education budget constraints by helping low-cost disruptive universities – public and private – gain market share by eliminating barriers

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> and partnering with them to grow enrollments and capability. These partnerships should foster new models of higher education in autonomous business units separate from the existing institutions. (Christensen *et al*. 2011, p. 42)

In the UK context, we are starting to see this kind of action being taken with the changes to funding of teaching in higher education from September 2012, as the government seeks to ease the entry for new private providers and generally introduce more competition into the market.

Higher education market places are typically not free and open and instead operate within a myriad of different financial and regulatory controls. For example, in the UK, we note a significant constraint, now being lifted, was placed by the current UK government policies on universities wishing to set up innovative low cost units, namely that any students recruited will have to be counted as part of the university's existing student number allocation, and thus can only be set up at the cost of cutting existing student numbers elsewhere in the university. Under such constraints, innovations such as we have been describing can only be used at undergraduate level to mop up the shortfall in existing recruitment.

However, the challenge of identifying and working out an appropriate way of dealing with disruptive innovations has to be addressed by institutions seeking to implement strategic choices.

Conclusions

This article sets out the authors' experience of implementing the model of work-focussed learning in two institutions. The different outcomes lead us to seek an explanation of why this might be the case and how we might successfully implement the model in the future. The business of higher education is a very complex one, and as such, the theory of disruptive innovation should be used thoughtfully to distinguish and respond to or initiate potentially disruptive innovations.

We believe that it is important for HEIs to be able to distinguish between innovations that are sustaining in nature offering the potential to improve current business models, and innovations that are disruptive and offer the potential for the development of significant new business models. The importance of this distinction was illustrated well by the emergence of 'MOOC mania' that generated a lot of interest internationally and some significant responses by individual and consortiums of HEI. In part, these responses were to the opportunities MOOCs offered, but they were also driven by uncertainty about the nature of the threat to existing business models that might be posed.

Using the lens of disruptive innovation enables institutions to better understand different types of innovation and, in the case of initiating or responding to disruptive innovations, put in place the appropriate structural and governance arrangements that will enable them to flourish rather than get killed off.

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