

# BEYOND THE RHETORIC: PLANNING FOR THE FUTURE UNIVERSITY

Winthrop Professor Gary J. Stockport  
*Business School*  
*The University of Western Australia*

Dr. Jane Klobas  
*Alberto Dondena Research Fellow*  
*Bocconi University, Italy*

Adjunct Associate Professor Bruce Mackintosh  
*School of Animal Biology*  
*The University of Western Australia*

## ABSTRACT

This paper uses scenario planning to systematically examine the potential impact of massive open online courses (MOOCs) on higher education and international student mobility. Disruptive technology theory and technology life cycle theory were used jointly to identify that MOOCs have the potential to result in disruptive change to the nature and structure of the higher education sector. A set of scenarios and strategies derived from the disruptive innovation analysis serve as examples of how scenario planning can be used to help universities adapt or thrive according to the strategies they choose.

## KEYWORDS

Disruptive innovation, University futures, Planning, Scenarios.

## 1. INTRODUCTION

Universities are “ripe for disruption – and innovation” (Christensen and Eyring, 2011)

Massive open online courses (MOOCs) have the potential to change higher education as we know it, if the online and print newspapers, magazines and seminar offerings to higher education in the last few months, from *Times Higher Education* to the *Chronicle*, from EDUCAUSE to *University World News*, and more, are to be believed. The current breed of MOOCs differs from other open online courses in that they provide access to an entire course, including the teacher or teaching assistants; in a ‘live’ teaching period, typically the same teaching period in which enrolled students are taking the same course on campus; on a ‘massive’ scale, typically to any member of the general public who is prepared to enroll; with formal assessment; and often, for those who complete, with a certificate or Statement of Accomplishment from a prestigious university such as Stanford or Harvard. Like other open online courses, they are available free to members of the general public without any requirement for prior study.

If MOOCs are, indeed, as Simon Marginson, Professor of Higher Education at the University of Melbourne has said “the global higher education game changer” (Marginson, 2012), it is imperative to move beyond the rhetoric and start planning now. The Australian economy, for example, has a major investment in international education; worth some \$19 billion in 2009/2010; it is Australia’s third largest source of export revenue (after coal and iron), and international students onshore in Australian universities contributed around 60% of that revenue (Adams et al., 2011). In recent years, revenue from onshore students has become increasingly reliant on students from China, who currently comprise nearly 41% of international higher education enrolments in Australia (AEI, 2012). It is therefore of considerable importance to the discussion of

the potential impact of MOOCs that the second largest number of visits to United States-hosted open course websites, after North America, is East Asia; and this does not include the large-scale use of third party sites where open courses from the major providers in the United States have been translated and relocated to sites in East Asian countries (Xia, 2012). Another important aspect of international education in Australian universities is encouragement of domestic students to spend a period of study in overseas institutions, as part of formal student exchange programs or study tours. In 2010, 12.0% of Australian undergraduates had an international study experience compared with 9.6% percent of American students (Olsen, 2011). Any development that discouraged students from participating in in-person exchange programs would be of concern to Australian institutions of higher learning; substitution of participation in a MOOC for a period of exchange, for example, would be considered a poor substitute for an international study experience.

Authors, presenters and discussants of articles and seminars on MOOCs have included their inventors and developers, the entrepreneurs behind the start-up firms that consortia of leading universities from the United States have built to offer MOOCs, expert commentators on higher education technology and change, and MOOC participants. Each takes a point of view informed by, but at the same time limited by, their experience with MOOCs, with learning, and with the impact of technology on universities. In this paper, we take a different approach. As a general approach, we demonstrate how formal scenario planning based on appropriate underlying theory can be used to forecast, evaluate and build strategies for alternate futures. Specifically, we use disruptive technology theory and technology life cycle theory to inform three scenarios for the future university, given the recent developments in MOOCs. We then build alternate strategies for the future of universities and their international student exchange programs.

## **2. THEORIES OF TECHNOLOGY-BASED INNOVATION**

It is difficult to forecast what will happen when potential ‘game-changers’ hit a market. Some gain quick momentum and radically change the structure of an industry, while others just end in a whimper. In this section we introduce theories of technology-based innovation that help to guide evaluation of whether a new product or idea is an innovation, whether it is likely to have a disruptive effect on an industry, and what might need to occur before any disruptive effect is felt. We first introduce the Disruptive Technologies Model and use it to isolate those aspects of MOOCs that are most likely to have a disruptive effect on higher education. We then use different approaches to the Technology Life Cycle to understand where MOOCs might be in their life cycle.

### **2.1 Disruptive Technologies Model**

Strategy theorists make a distinction between sustaining and disruptive technical innovations. Sustaining innovations offer a better way to do what is being done at present without changing the structure of the industry or market. On the other hand, disruptive technologies “introduce a very different package of attributes to a marketplace than the ones that mainstream customers historically have valued” (Christensen, 1999, p. 9). The skill is to understand if an innovation is of this form. A closer examination of the unique attributes of MOOCs provides some insight.

We have already noted in the introduction that the current breed of MOOC differs from other open online courses in that:

- they provide access to an entire course, including the teacher or teaching assistants, not just the “courseware”;
- the teachers are often the most renowned teachers and speakers on the topics they present;
- the course is often offered in a ‘live’ teaching period, typically the same teaching period in which enrolled students are taking the same course on campus; in any case, it offers the sensation of live participation (Martin, 2012);
- the course is offered to the general public on a ‘massive’ scale, typically to as many members of the general public as are prepared to enroll;
- there is formal assessment, including peer-based assessment in the most recent MOOCs; and
- a certificate of completion or Statement of Accomplishment from a prestigious university such as Stanford or Harvard may be provided.

We also know that MOOCs are now being offered by start-up firms (such as Udacity, Coursera and EdX) backed by prestigious universities and venture capitalists, with courses offered by teachers from the universities, and in some cases, Statements of Accomplishment from the same universities. Existing forms of open online courses are free, can be accessed at flexible times, and have global reach, but these attributes are also important attributes of the package that is a MOOC, so we will also include them here.

Although none of these attributes is new in itself, the bundle or package is new: free, 'live'-feeling, courses from (often) leading teachers in the field, with global reach and flexible timing, and with the possibility of assessment and certification from a university with a prestigious brand. The mainstream audience for this package is not the current primary audience of universities (formally enrolled students), but members of the general public who may or may not meet the requirements for formal enrolment and may or may not be interested in taking a course for employment or degree purposes. Our initial analysis, then, suggests that MOOCs have the attributes of disruptive innovations.

One approach to identifying in which way a disruptive innovation might have a strong effect is to compare each attribute of the innovation to the state of the art (Christensen, et al., 2001). For example, the technology used to offer MOOCs is at least as advanced as the technology used to offer current online courses; its trajectory for development is similar to that of current technologies, so there is little likelihood of the technology in itself being disruptive. A similar review of the current bundle of MOOC attributes shows that the granting of a certificate or Statement of Accomplishment from a prestigious university is one innovative attribute that is currently little diffused and that therefore has the potential to cause disruption. Another is the corporatized model of MOOC provision by start-up firms under the brands of prestigious US universities.

Disruptive trajectories might take different forms. The corporatized model of MOOC provision under the brands of prestigious US universities cannot be replicated outside those universities; classical strategy analysis is needed to develop strategies to study this apparent threat. On the other hand, certification may have a number of outcomes. One concern is how a MOOC Statement of Accomplishment (or multiple Statements of Accomplishment) is perceived by employers. Depending on the nature of the job, the nature of the course(s), the preferences of the employer and other characteristics of a job applicant, a Statement of Accomplishment might be sufficient for a specific position. If we adopt Christensen et al.'s (2001) notion of the least demanding consumer, we might even predict that a set of Statements of Accomplishment could be considered the equivalent of a degree by some employers, i.e., the developmental trajectories of the awards of degree (with sustained innovation informed by MOOCs and other developments) and Statement of Accomplishment (from MOOCs informed by other developments) could intersect some time in the future, with Statements of Accomplishment eventually supplanting degrees (at least in certain niches) as the preferred form of certification. This scenario might sound far-fetched, but it is sobering to review Brown and Duguid's (2000) argument that the university's "core competence" (p. 214) is "warranting ... representing learning to individuals and knowledgeable individuals to society" (p. 216). If some universities choose to do this in new ways that are accepted by the marketplace, then the nature of the warrant (degree or Statement of Accomplishment) and the structure of higher education are bound to change.

Before leaving Christensen's theory, it is worth taking a look at what Christensen and Mayer (2011) had to say before MOOCs became the phenomenon they are now. Christensen and Mayer described Christensen's theory of disruptive innovation in this way:

*those entrants that start at the bottom of their markets, selling simple products to less demanding customers and then improving from that foothold, drive the prior leaders into a disruptive demise*  
(Preface)

They observed that US universities had been an exception to the theory, in that there had been new entrants to the market of the predicted kind, but no exits of prior leaders. They identified three reasons for this:

- Teaching. It has been difficult to disrupt teaching because past focus has been on the human qualities of the teacher, but if the focus shifts from the teacher and the prestige of the institution to what is being learnt, teaching will be of less importance than learning, which can be done online.
- Students can be divided into two primary groups, those for whom the university experience is an integral part of being a student, and those whose goals are to obtain a degree (or to learn) at the most convenient time and place. The on-campus experience of the first group is not readily disrupted, but the second group would welcome innovations that help them meet their goals.
- Customers, in the form of legislators and alumni, act as powerful forces to maintain the current structure and institutions – at least, we add, in the United States.

Christensen and Mayer's (2011) conclusion was that online learning was a sustaining technology. They did not foresee a disruptive technology that would threaten (again, we add US) higher education.

## 2.2 Technology Life Cycle Models

Whilst the disruptive innovation model provides us with tools for identifying innovations with the potential to disrupt an industry by changing its main products and structure – and, therefore, most likely its key players – it still leaves questions about the likelihood of the disruption occurring and the timing of any potential disruption. Technology life cycle models address these issues. A number of technology life cycle models exist. Here, we review three models that offer a language and a way of thinking that help evaluate the likelihood of MOOC related change to higher education, and the timing of any disruption.

### 2.2.1 Rogers' Technology Adoption Model

The language most commonly used to describe adoption of an innovation was developed by Rogers (2003). He observed that adopters could be classified into five ideal types whose rate of adoption, if plotted as a density curve, followed the shape of a normal distribution. The five ideal types, in the order in which they adopt an innovation, along with the percentage of adopters in each type, appear in Table 1.

Table 1. Adopters of innovations: Five ideal types (adapted from Rogers, 2003)

Sequence of adoption	Ideal type	Percentage of adopters	Typical characteristics
1	Innovators	2.5%	Venturesome, able to deal with high uncertainty, have the technical knowledge to implement complex new innovations and the financial resources to absorb possible losses from unsuccessful innovations, launch new ideas into a field or industry, but social referents are other innovators
2	Early adopters	13.5%	Opinion leaders, role models for later adopters
3	Early majority	34.0%	Adopt before the 'average' time for adoption, deliberate before adopting and often take some time to make their decision, rarely leaders in adoption
4	Late majority	34.0%	Adopt only when they feel it is necessary, whether for financial, technological, or peer pressure reasons, generally skeptical about adoption
5	Laggards	16.0%	The last to adopt the innovation, often suspicious of and resistant to change and socially isolated

Many innovations in learning can be (or must be) adopted at different levels. A MOOC can be adopted by an individual learner, a teacher who develops a MOOC, a teacher who offers a MOOC to students (whether or not they developed it themselves), an organization (company, university, faculty or other organizational form) which develops MOOCs, an organization that offers MOOCs to teachers and students, and so on. Identification of the type of adopter needs to take account of each of these levels of adoption.

There are not yet any MOOC adopters of the *early majority* type, at any level. There may not even be any innovators in the *early adopter* category. There are currently so few teachers and organizational providers involved, and they are either highly embedded in the MOOC community, or financially backed by prestigious universities, or both, that it is difficult to argue that provision of MOOCs has developed beyond the *innovators*. Even from the point of view of learners, there is little evidence that adoption has passed far beyond adoption by innovators to the early adopters: the landmark artificial intelligence course offered by Thrun and Norvig at Stanford University in November 2011 attracted 160,000 enrollees, but only 23,000 (14.4%) completed (Martin, 2012), suggesting that many enrollees were curious rather than serious learners.

### 2.2.2 Moore's Chasm Model of Technology Acceptance

Although Rogers (2003) argued that there is no discontinuity between the categories of adoption, other authors see adoption not as a continuum but as a series of stages in which the adopters are quite distinct groups of people. Moore (2004) adapted the technology life cycle model by labeling each stage that adopters pass through. He argued that, for a technology to become disruptive, it must proceed through early market,

chasm and bowling alley stages to a tornado of adoption. The early market stage is characterized by the adoption of the technology by enthusiasts (the innovators and early adopters of Rogers' model) accompanied by "hype" (hyperbole) about its potential. During the chasm stage, the "technology is caught betwixt and between", and there is disagreement about whether the technology will meet its claimed potential or be widely accepted. Within the bowling alley phase, the technology starts to gain acceptance in one or more niche markets. In the tornado stage, the technology takes-off and there is huge growth. By the end of this stage, only the late majority and the laggards are left to follow.

MOOCs seem to be somewhere within and between the early market and chasm stages of Moore's technology life cycle model. While the attention given by the higher education media verges on hype, there is little sign of the deliberate and considered adoption or niche markets of the bowling alley.

### 2.2.3 The Gartner Hype Cycle

The information technology (IT) consultancy firm, the Gartner Group, uses a Hype Cycle to track how expectations about the benefits of technologies change over time. The Gartner Hype Cycle is not exactly an adoption or diffusion cycle, but more an illustration of how media representation and adopter perception of technological innovations are first triggered, then go through phases of inflated expectations and disillusionment before, if the innovation survives, settling in to become part of business as usual (Fenn and Raskino, 2008). MOOCs appeared in Gartner's analysis of educational technology for the first time in July 2012 (Lowendahl, 2012). As illustrated in Figure 1, they were evaluated as straddling the line between "Technology trigger" and "Peak of inflated expectations"; in other words, expectations about their benefits are sitting on that part of the hype cycle where positive hype is increasing exponentially. The Gartner Group's analysis of actual potential specifies that MOOCs are at the "embryonic" stage of maturity and have been adopted by less than 1% of their potential target audience. Nonetheless, they are expected to reach the "Plateau of productivity" within two to five years and to have a "transformational" benefit for education.

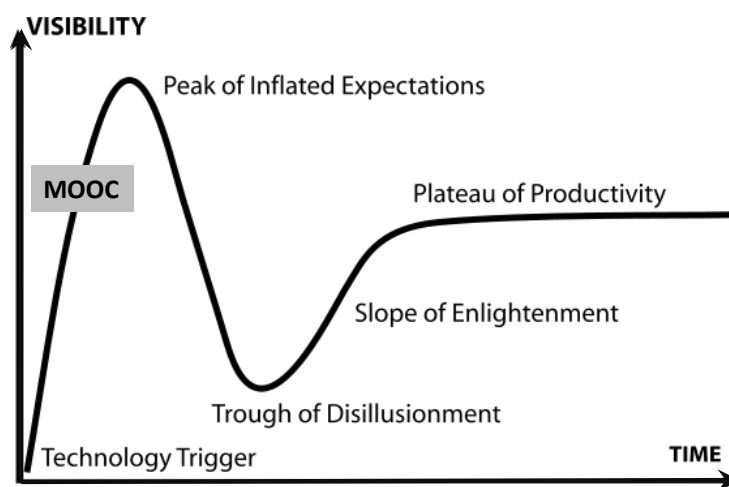


Figure 1. Expectations for MOOCs, placed on the Gartner Hype Cycle for Education 2012 (Hype cycle template source: [http://en.wikipedia.org/wiki/File:Gartner\\_Hype\\_Cycle.svg](http://en.wikipedia.org/wiki/File:Gartner_Hype_Cycle.svg))

Altogether, then, the theoretical models indicate that MOOCs have the potential to disrupt the structure of higher education, changing the nature of the 'product' offered (knowledge rather than a degree), shifting the 'audience' from those who want a campus experience or a degree or both to a larger group including members of the general public who may or may not have been in the past or may or may not be in the future a traditional member of the audience, shifting the focus from teachers to learning facilitators (course designers?), and offering opportunities for new types of provider to enter at a potential cost to established providers. Yet, there is plenty of hype about, and only 1% of potential adopters have actually tried to use MOOCs. In the next section, we demonstrate how scenario planning, a core tool of strategic management, can be used to build strategies for uncertain futures, focusing on the potential impact of MOOCs on higher education, including the international component that comes about through student mobility.

### 3. SCENARIO PLANNING

Generating scenarios in practice is essentially about imagining and describing stories about very different possible futures. Scenario planning considers many uncertainties simultaneously and guides participants to recognize multiple possibilities for the future rather than a single outcome. In effect, scenarios are different stories about the future.

Scenario planning was originally used for military planning during World War II. In the 1970s it was adopted for industry, initially by planners at Shell who wanted to better prepare their managers for possible changes in the price of oil. More recently, many industries have adopted scenario planning as a technique to help analyze a range of possible strategic moves, including ways to deal with possible threats from disruptive technologies.

A commonly used approach is to generate at least three scenarios: a worst case scenario, a best case scenario, and a scenario somewhere between the two which might be described as the most likely scenario. For each scenario, a set of strategies is defined and evaluated in terms of cost and impact. The strategies usually range from *do nothing* to strategies that involve actions of varying levels of intensity with different targets. An organization developing strategies for the future needs also to factor in assumptions about the likelihood of each scenario occurring; this usually draws on past experience as well as the broader strategic context. Of critical importance on the one hand is to be able to manage through a worst case scenario if it is likely to happen, yet on the other hand to take advantage of a best case scenario if it occurs. In practice, an organization often develops different metaphors, or story lines, to help better represent each of its scenarios.

Despite its inherently creative approach, Schwartz (1996) points out that the process of generating scenarios involves a number of discrete and planned stages:

- Stage 1. Orientation – Focal issue defined;
- Stage 2. Exploration – Driving forces defined;
- Stage 3. Scenario Creation – Scenarios created with narratives;
- Stage 4. Options Consideration – Strategies, actions and changes defined; and
- Stage 5. Integration – Early warning signals developed.

In addition, organizations need to continually monitor the environment to determine which scenario is most likely to mingle into its future, in both the short and longer term.

Although we have not articulated it in such precise terms to this point, we have already completed Stage 1. The focal issue, and the thread behind the theory and analysis presented so far in this paper, is the impact that MOOCs might have on the future of universities, and on Australian universities and international student mobility in particular.

Stage 2 was completed in Section 2. The forces driving our need for scenario planning are those that give rise to the potential for the MOOC to be an innovation that disrupts higher education.

Stages 3 and 4 are typically carried out by a group of experts informed by the issue definition from Stage 1 and the understanding of driving forces and context obtained from Stage 2. In the next section, we present some scenarios derived primarily by the authors from the theory and analysis presented in Section 2.

### 4. SCENARIOS AND STRATEGIES

The following brief scenarios provide a simple example of how universities might use scenario planning to plan for the future when faced with disruptive change. There are three scenarios described here. Strategies are woven into the narratives for the first two, while the third scenario, which is both the worst case and the most likely if the MOOC really is a disruptive technology, is accompanied by three more fully articulated strategies.

#### 4.1 Scenario 1 – MOOCs are a short term fad

Within this scenario, MOOCs are just a short term fad, as suggested by the low completion and penetration rates. It is still important for universities to monitor what is going on within the MOOC course and Statement of Accomplishment market space. Some individual teachers might ask their students to complete a MOOC as

a for-credit assignment for the unit in which they are enrolled at their home university, but the MOOC is effectively an online learning resource like any other. No major investment or change in university strategy is needed and essentially universities just ‘shrug their shoulders’ and get on with business as usual.

## **4.2 Scenario 2 – MOOCs grow but are not core business**

In this scenario, more universities join together to offer MOOCs, but they do not threaten the core business of other universities. It is even more important for universities that do not offer MOOCs to continue to monitor what is going on. Universities that do not offer MOOCs might need to develop some marketing strategies to emphasize the value of a degree in general; for on-campus courses, they might emphasize the rewards of studying within a classroom- and/or laboratory-based learning environment; and for local and international students who might be considering a MOOC as a substitute for an exchange unit, they might emphasize the wider benefits of international exchange, including cultural, linguistic, employment and educational returns, as well as the development of social skills through face-to-face interaction.

## **4.3 Scenario 3: MOOCs grow and threaten universities**

Within this scenario, more MOOC providers enter the market and the availability of MOOCs and their derivatives threatens core university business. In this case, universities cannot hope that MOOCs will just go away. They should rather conclude that MOOCs are here to stay and in a big way. Within this scenario, how should a university react? There is a wide range of potential strategies. We provide some examples.

### **4.3.1 Strategy 1 – Promote the on-campus experience**

The university develops an aggressive marketing strategy which emphasizes the strengths of on-campus learning and the on-campus experience. The quality of the physical learning environment – including technical and other infrastructure for learning, classrooms, laboratories and other physical learning spaces – features in media releases and marketing materials. Teachers that have been acknowledged for their excellence in teaching are celebrated. Learning activities that place students in the physical presence of prestigious employers and active researchers and provide associated work experience are publicized. The all-round student experience is promoted, including through student participation in the ‘physical world’ of student clubs and societies. Employers that prefer to recruit students with degrees rather than ‘Statements of Accomplishment’ are quoted within promotional materials.

### **4.3.2 Strategy 2 – Promote a blend of on-campus experience and flexible learning**

Universities do the same as Strategy 1, alongside an online strategy / presence in order to add flexibility to its on-campus offerings. Promotion to incoming international students continues to be primarily about the on-campus experience, but the additional flexibility available from blended course offerings could be offered as an incentive. The biggest difference for student exchange would be experienced by local students who would be permitted, or even encouraged to take an offshore university’s MOOC as a ‘taster’: if you enjoyed one course from this university, why not spend a semester or a year as an exchange student getting to know a different set of teachers and students and a new way of learning? This strategy assumes that universities are prepared to offer MOOCs on an exchange basis, an assumption that may not hold if the primary providers of massive online courses become private businesses to which the universities cede administrative control.

### **4.3.3 Strategy 3 – Promote unique strengths and add MOOCs**

The university could follow Strategy 2, and also develop MOOCs of its own. This strategy seems, however, to be fraught with problems. Development costs are high. The most prestigious universities already have first mover advantage, and it will be difficult to compete with them on brand. As long as the courses remain free to students, the cost of switching from one provider to another is very low, so there is no obvious reason why learners already familiar with US providers would switch to new providers from other countries. An exception, perhaps, would be MOOCs that feature prestigious professors such as Nobel laureates. Costs of course development and maintenance of course currency and marketing would still remain high. Other options such as joint ventures might need to be considered.

## 5. DISCUSSION AND CONCLUSION

This paper has considered the potential disruption of MOOCs for universities that are not among the first mover providers. We applied two models, the disruptive technologies model and the technology life cycle model, to better understand the nature and likelihood of this disruptive threat – or opportunity. The potential for disruption comes less from the technology than from the nature of the award or certificate that is granted as a result of completing a course, the brand that the course carries and the authority with which the brand and course are perceived by potential learners and employers.

The jury is still out about the future and impact of free massive online open courses (MOOCs) on higher education. The current providers remain start-ups backed by venture capitalists or large, wealthy US universities, or both; their longevity in their current form and the nature of their final form is unclear. The nature of the disruption caused by MOOCs and related developments is also unclear. Developing a MOOC could well become a trap for a university, from both a cost and a revenue perspective, but incorporating existing MOOCs into existing curricula (while recognizing that they are subject to change) might provide an opportunity to offer one's own university learning materials from highly regarded teachers and high ranked institutions at the same time as a localized learning and cultural experience.

Developments are rapid, and MOOCs are not the only changes in the sector. There are major changes to academic publishing. Technological and pedagogical improvements in collaborative learning are also beginning to gather more momentum. These and other disruptions to the education sector intersect to make distance education increasingly more feasible at all levels, and potentially, to threaten the notion of international student mobility. It is therefore time to move beyond rhetoric to more formal analysis of the simultaneous set of innovations and changes. We recommend adoption of scenario planning, an overview of which we have demonstrated in this paper, to consider alternate scenarios for the future and to identify a strategy that will guide your university to thrive in the most favorable scenario(s) and permit it to adapt if the least favorable comes about.

## REFERENCES

- Adams, T. et al, 2011. Benefits of international education: Enriching students, enriching communities. In D. Davis and B. Mackintosh Eds., *Making a Difference: Australian International Education*. University of New South Wales Press, Sydney, Australia. pp. 9-46.
- AEI. 2012. *Monthly Summary of International Student Enrolment Data1, Australia, YTD July 2012*. Australian Government, Australian Education International, Canberra.
- Brown, J. and Duguid, P. 2000. *The Social Life of Information*. Boston: Harvard Business School Press.
- Christensen, C. 1999. *Innovation and the General Manager*. Boston: Irwin McGraw-Hill.
- Christensen, C. et al, 2001. Skate to where the money will be. *Harvard Business Review*, November, pp. 72-81.
- Christensen, C. and Eyring, H. 2011. *The Innovation University: Changing the DNA of Higher Education from the Inside Out*. Jossey-Bass, San Francisco.
- Fenn, J. and Raskino, M. 2008. *Mastering the Hype Cycle: How to Choose the Right Innovation at the Right Time*. Harvard Business School Press, Boston.
- Lowendahl, J. 2012. *Hype-Cycle for Education, 2012*. Gartner Group, Stamford, CT. Retrieved 22 August, 2012, from [http://www.gartner.com/DisplayDocument?doc\\_cd=214466&andref=g\\_fromdoc](http://www.gartner.com/DisplayDocument?doc_cd=214466&andref=g_fromdoc)
- Marginson, S. 2012. Yes, MOOC is the global higher education game changer, *University World News*, 12 August. Retrieved 13 August 2012 from <http://www.universityworldnews.com/article.php?story=2012080915084470>
- Martin, F. 2012. Will massive open online courses change the way we teach? *Communications of the ACM*, Vol. 55, No. 8, pp. 26-28.
- Moore, G. 2004. Darwin and the demon: Innovating within established enterprises. *Harvard Business Review*, July-August, pp. 1-7.
- Olsen, A. 2011. *2011 Research Agenda: Australian Universities International Directors' Fórum*. AIEC, Adelaide.
- Rogers, E. 2003. *The Diffusion of Innovations*, 5th ed. Free Press, New York.
- Schwartz, P. 1996. *The Art of the Long View: Paths to Strategic Insight for Yourself and Your Company*. Currency Doubleday, New York.
- Xia, J. 2012. Commenting on Western open courses by Chinese learners. *Journal of Studies in International Education*. 17 August, doi: 10.1177/1028315312456298.