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# Assessing Quality and Effectiveness in Fully Online Distance Education

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ABSTRACT

Online education has developed over the past two decades, initially in response to a desire to provide distance learning opportunities at degree level for remote communities. The University of the Highlands and Islands [UHI] in Scotland has been at the forefront of this. It has been possible to gain degrees using wholly online learning and teaching processes since 1995. In recent years, institutions across the globe have developed learning materials for online learning in order to both supplement the teaching and learning in face-to-face classes and to enable students to undertake entire programmes using online communications. The most recent developments have been in the advent of MOOCS and SPOCS.

This paper seeks to (1) give an overview of the past 20 years of developments in online education, (2) provide a detailed review of recent research relating to standards, satisfaction and effectiveness of online education, (3) consider the costs and benefits across a range of definitions of online education and (4) examine the primary challenges, conflicts and opportunities for online distance learning and teaching in relation to the issues faced by students, educators and institutions.

**Keywords:** Online education; teaching and learning pedagogy; distributed learning curriculum models; social constructivism; discussion boards; MOOCs; institutional policy

## Background

In the Highlands and Islands of Scotland the evolution of distance education and specifically online delivery is driven by a desire and demand to provide access to all members of the region's community to new forms of educational opportunity. This is made possible by advances in information and communication technologies in parallel with increases in home computer ownership and home access to the internet.

The fully online distance learning and teaching models that have been employed by the University of the Highlands and Islands (UHI) have evolved to extend market reach and foster enhanced community inclusion in opportunities to enrol in Higher Education in particular. An increasing number of people in remote and rural areas cannot afford the time or money to relocate to urban areas for four years or more. Ties in rural areas are often strong and include work, family, service, housing and land management commitments. In addition, with the communities in the Highlands and Islands region being geographically spread and often located in small and demographically scattered rural island communities, conventional models of education fail to deliver effective opportunities.

For course managers within the University of the Highlands and Islands, the development of online distance education was also driven at least in part by commercial demands to extend the market beyond the small community in which courses were initially offered. These regional driving forces may be unique to the Highlands and Islands of Scotland, and so this research will also examine some parallel developments across the world. This will provide a wider contextual background to how fully online education develops and contributes to the distributed University.

This paper provides a meta-analysis of recent research and analyses the primary challenges, conflicts and opportunities for online distance learning and teaching. It is further informed by the authors, who have been at the centre of emerging strategies in the UHI's development of distributed education. They draw on this experience throughout to extend the analysis. Understanding how to facilitate appropriate fully online distance education curriculum models for the distributed university in the 'digital age' is arguably an essential component of transitional institutional policy for education.

Within this context, we seek to examine and understand a series of recent developments and innovations (for example, the advent of Massive Open Online Courses [MOOCS]); controversy relating to the effectiveness of online education in comparison to more traditional forms of education; student perceptions of satisfaction with online education; the costs and benefits of fully online

learning and teaching; issues relating to the resilience of online learners and perceptions of education managers regarding online education.

## Evolving pedagogies

Much has been written in recent years on the merits of online education, particularly in comparison to traditional face-to-face lecture-based teaching. In this paper, we use the term 'online education' to denote the totality of approaches related to distance learning teaching and learning methodologies.

The development and evolution of online teaching and learning have provided a major challenge for institutional policy and strategy in universities. Institutional policies and strategies increasingly seek to understand what represents quality in online distance education so that this form of teaching can be incorporated within existing or modified quality management systems. To investigate this issue, a key starting point is to examine and understand some of the key differences between online education and face-to-face teaching methods. For example, it is worth considering if the often-used asynchronous discussion board at the centre of the delivery of many online courses can ever replicate the immediacy or dynamism of a live class, where human interaction is instantaneous. Conversely, a threaded asynchronous discussion can support an online education class that requires no synchronous presence and can take place over an extended time period with participants potentially separated by geography and time.

Garrison (2006) argues that lecturing in its traditional form is at odds with how students learn and communicate outwith the lecture hall or classroom environment. This is an issue that will be investigated further in this paper.

This echoes Levy et al. (2003) who argue that 'knowledge' is not a product that can be transmitted from one person to the next via passive accumulation. The process needs to be much more active if knowledge is to be retained. Furthermore, Pelz (2004, p. 33) relays a comment (often heard said amongst online practitioners) from one of his professors on an issue that he feels may be relevant to the debate: "A lecture is the best way to get the information from the professor's notebook into the student's notebook without passing through either brain."

Online educational pedagogies often require, by design, a high level of participation and active learning strategies. Courses should increasingly provide the types of teaching and learning approaches attuned to student attainment and satisfaction in the contemporary student-centred environment. Yet at the institutional level constraints are apparent as curriculum models have often been designed for traditional methods of teaching and learning.

We contend that the principles of good teaching are the same in both instances. What differs is the emphasis and focus on the specific aspect of participatory learning.

## Comparing levels of satisfaction between online and face-to-face learners

Student satisfaction has often been identified as an important variable factor in student performance (Zhu, 2012) and so warrants consideration within the context of this paper.

According to Meyer (2003), Wang and Woo (2007) and Mahoney (2009), time is the primary factor that separates online and face-to-face approaches to learning. Those students with limited time and fixed time commitments during the day (i.e. those in work) will be likely to choose online education over face-to-face simply because of the time flexibility. The implication is that many students choose online education not due to its perceived benefits over face-to-face teaching, but instead to suit their busy lifestyles. Effectiveness and satisfaction must often be considered in this context.

Fillion, Limayem, Laferrière and Mantha (2009) comparing a large sample (n=313) of online and blended learning students found the student learning was as effective online as it was in the classroom environment. Although they did not perform as well as their peers onsite, online students sampled from eight separate undergraduate and postgraduate courses had higher satisfaction rates than their onsite counterparts.

This finding concurs with Karatas and Simsek (2009), who found that online learners' satisfaction rates (n=60) were slightly higher than those of onsite students, although it is unclear whether this is due to the unhappy online learners dropping out by the time the end of course survey is issued. Fillion et al. (2009) state that such results do warrant further investigation due to the potential impact of dropouts. Karatas and Simsek (2009), on the other hand, claimed that web-based teaching was not as effective as face-to-face learning systems.

Furthermore, Concannon, Flynn and Campbell (2005) in surveying a large sample (n=600) of blended learning students found that 81% of them found traditional lecture and tutorial methods to be more effective than purely online study. Likewise, Stephenson, Brown, and Griffin (2008) showed that students engaged in a pilot delivery with both face-to-face and online learning overwhelmingly preferred the traditional face-to-face lecture in place of the electronic content when asked to give a preference. The results were qualified by Stephenson et al. (2008) pointing to factors such as the skills of the tutor and the past experience of students in interacting with electronic content as being key factors in this preference. Yet, findings showed that test scores were equivalent for both groups. Bishop, Hyclak and Yerk-Zwickl (2007) also found that online student performance was "on a par" with that of their on-campus counterparts.

Dutton, Dutton and Perry (2002) and Karatas and Simsek (2009) claimed a contrary view, finding that online students scored higher exam grades and were more successful than their on-campus peers. Yet again, one must question if the dropouts are included in the figures as fails. Deka and McMurry (2006) make a similar point when investigating the definition of student success amongst online and on-campus students (n=99). When including the dropout figures from online learners as fails, it could be seen that on-campus students actually performed significantly better than online students in terms of grades.

What Dutton et al. (2002) did find (n=283) was that those students in work gained reduced scores and those with previous computer skills gained higher scores. On the latter significant variable, the online and on-campus courses he was examining were computer science courses, and so this finding is not surprising. Smith (2011) found (n=507) that a series of factors including preparedness for online study, the e-tutoring abilities of staff, the level of collaboration with peers, course design and the ICT skills of students were all issues perceived by students to be related to the quality and effectiveness of online learning.

Solimeno, Mebane, Tomai and Francescato (2008) specifically examined the collaborative methodology, arguably more associated with asynchronous online education, and concluded that when comparing with face-to-face collaborative learning, both were equally effective. They concluded that learning strategies (either face-to-face or online) that promote collaborative interactive learning with the peer group could be a key factor in promoting effective learning more generally. Overall, Solimeno et al. (2008) confirm from their findings (n=170) that the collaborative online learning environment is an effective means to attaining high quality education.

McDonald (2002) explains this by stating that the social distance apparent in online learning tends to promote discussions that would otherwise be inhibited, and so online engagement enhances social interaction amongst classmates.

Notably, in contrast to some of the findings above, many students who enrol on online education courses have displayed a similar level of satisfaction as those registering on face-to-face courses (Blackmore, Tantam & Deurzen 2008; Richardson, 2009). Furthermore, Iverson, Colky and Cyboran (2005) found that online students tend to have higher levels of motivation, higher levels of belief in their abilities and are more likely to be learning-goal orientated. Given this situation, Blackmore et al. (2008) question why much greater numbers of students are not yet enrolling on online courses. E-Learners were shown (n=227) in this study to have a higher level of ICT Skills on entry in comparison to face-to-face students, but this was not a significant factor in dropouts. Blackmore et al. (2008, p. 194) suggest that lack of enrolment on online courses is due to the perceived complexity of using the internet for Higher Education.

There appears to be a dearth of definitive studies that effectively compare satisfaction levels between online and face-to-face students. It is clear that there are a range of motivations guiding different learners towards particular modes of study. These motivating factors need to be taken into account when measuring satisfaction.

## Comparing the effectiveness of online and face-to-face education

In terms of employer needs, it can be questioned whether online education can produce graduates with satisfactory interpersonal skills in comparison to face-to-face courses, as this factor often rates above technical skills (in which online graduates score well) with employers (Wagner, Hassanein & Head, 2008). McDonald (2002, p. 14) highlights some of the negative attributes of online learning and alludes to the "sheer bulk of messages" which can be overwhelming and lead to undisciplined students (perhaps prone to a little procrastination) falling behind and ultimately leaving their course. Other online students (particularly new students), if suffering from technical problems, also tend to fall behind quite quickly and may soon feel overwhelmed (Díaz & Entonado, 2009; Brown, 2001).

Deka and McMurry (2006) highlight this same point in their findings and suggest increasing flexibility in course completion targets as one of the solutions. McDonald (2002) and Barron (2003) also highlight the extra time that may be required to progress online courses. Online learning, they argue, is less responsive than face-to-face based course experiences and may inhibit some students who are not confident enough to articulate their views and ideas to a discussion board for their peer group to examine and question.

Price, Richardson and Jelfs (2007) surveyed undergraduate students (n=99) and found that students studying online showed lower levels of academic achievement than those studying face-to-face, yet feedback on other factors contributing to the educational experience was constant across the range. They therefore suggested that this discrepancy was because face-to-face is a more effective means of generating the depth of understanding required by students to do well in their studies, although it was acknowledged that this could also have been to do with the actual tutors involved.

Muirhead (2007) makes the case that online discussion board contributions do not come naturally and are not a popular form of communication, this being evidenced by the increasing number of courses that are making participation compulsory through allocating a final mark to such communications. This may suggest that discussion boards are a forced didactic form of participation rather than a natural form of communication. Muirhead (2007) further questions the pedagogy of online education associated with directed reading lists, links to further reading, compulsory discussions and online assessment. In his view, this approach is about knowledge acquisition and not a formula to develop critical thinkers.

The solution to counter such 'negatives' according to Price et al. (2007) and Richardson (2009) is improved skills development in the key communication methods required to participate effectively in online learning. This applies to both students and tutors. Spiceland and Hawkins (2002) go further in support of the online learning experience and allude to the fact that online learners tend to be active learners whilst traditional lecture-hall students tend to be passive learners who are happy to receive information to learn. The active learner by contrast will, in their view, aggressively seek out information and knowledge to meet the core competencies for the

modules in which they are enrolled. And yet Kelly, Ponton and Rovai (2007) in a comparison of students (n=534) studying online and face-to-face found that both sets of students were equally satisfied with instruction. This was qualified by a further study which showed that online students are more focused on the course materials and resources as their primary resource of information rather than their instructor.

Face-to-face students, on the other hand, valued a knowledgeable instructor significantly more than online students. However, in the study of online and blended learning students (n=841) by Fillion et al. (2009) the instructor came out as the factor both groups of students actually appreciated the most in progressing their studies along with the course's usefulness in everyday life. The same student group when questioned about the most important changes that could be made to improve their course suggested their instructor and the presentation of the course materials as being of the most importance to generate improvement. In a similar study by Smith (2011) sampling distance learning students at three separate Universities in Scotland, England and Ireland, the e-tutoring skills of staff and course design were also (two of six) specific factors students identified as being related to the quality and effectiveness of their online learning experience.

From the instructor perspective, a study by Díaz and Entonado (2009) examining the perspectives of face-to-face students with those online learners found (n=250) that instructor interaction with online learners was greater and more continuous in comparison to their communications with the face-to-face students. In some cases, this led to instructors getting to know their online students better than their face-to-face students. Overall, according to Iverson et al. (2005, p. 15):

> *...online learning can provide a more positive experience than classroom learning in terms of enjoyment, usefulness and intent to transfer, even though learners perceive it as a more difficult endeavour.*

There is no doubt that some groups of students clearly prefer online study over face-to-face based studies. Guiller, Durndell and Ross (2008) undertook research (n=55) at a Scottish University and required students to complete both online and face-to-face elements of a first year module. The research found that 50% of students actually preferred online discussion as opposed to just 37% who preferred the face-to-face classes. Students stated that they liked having time to reflect to enable them to develop their class contributions. A third of students also reported that the online communications were less intimidating and less embarrassing to actively engage with in comparison to face-to-face studies.

Nevertheless, the value of fully online distance learning and teaching remains a contested issue, particularly with regard to the effectiveness of online distance education in comparison with traditional face-to-face methods. Ultimately, almost to the point of being a cliché, it is the quality of the full package of the student experience be it wholly online or traditional face-to-face that appears to be of most importance to the modern learner.

## Recent innovations: MOOCs and SPOCs

Students over the last decade in particular are being provided with an increasing choice of study modes and curriculum models, and more and more are choosing fully online distance education as a means to take forward their education (Barnard, Paton & Rose, 2007). This occurrence has been embraced by some institutions and shunned by others. For example, since 2008, Massive Online Open Courses (MOOCs) have provided a new high profile option for prospective students. MOOCs have received much press in recent years as one of the main responses of elements of the education sector to the differing learning styles of the 'Digital Natives' (Prensky, 2001) enrolling on higher education courses. MOOCs were first conceptualised in 2008 and have since 'taken the educational world by storm' (Clarke, 2013). Although some colleges and universities remain skeptical of this curriculum model and its sustainability others describe online education as a 'napster moment' for higher education (Barber, Donnelly, & Rizvi, 2013).

MOOCs are free online courses which are simplified versions of previous incarnations of online education. Typically they are run without tutors, with no supervision, fees or entry requirements (Baggaley, 2013). Often there are thousands, sometimes tens or hundreds of thousands of students on each course. These courses typically comprise video lectures, online discussion boards, blogs, wikis and social networking sites (Clarke, 2013). Support for students in MOOCs comes from their peers and assessment marking is largely 'crowd sourced' or computer assessed (e.g. multiple choice tests). The courses tend to last about six to eight weeks on average and are designed around student collaboration.

Given their short duration, MOOCs currently tend to be little more than taster courses. They do not generally provide formally-recognised qualifications, nor require any for course entry. As a result, according to recent research reviewed by Parr (2013) in the Times Higher Education, the completion rate of MOOCs is just 6.8%.

The three largest pioneers in the sector began operating and offering courses in the US in 2012:

- Udacity (February, 2012)
- Coursera (April, 2012)
- edX (May, 2012)

These MOOCs have recently been followed by FutureLearn in the UK during 2013. Other variants are in the process of being developed worldwide, and although only 2.6% of higher education institutions have a MOOC at the moment, a further 9.4% have MOOCs in the planning stages (Allen & Seaman, 2013). A fundamental question for the institutional policy maker and adviser in 2015 is whether their institution should develop new strategies to engage increasingly online with a global distributed market in

education. Will the global distributed university be increasingly the only valid 21st century educational model or is this a costly passing fad?

MOOCs are designed with collaboration in mind and are the response of some notable universities to the changing engagement and learning styles of new students coming into education in recent years and the increasing cost of university education. However, as indicated by their completion rates (above), according to Clara and Barbera (2013, p. 134) "….there is the urgent need to build an adequate pedagogy for MOOCs based on a valid learning theory."

Since the delivery of the first MOOCs, there has been something of a 'gold rush' to gain a slice of the proverbial cake and secure some of the perceived benefits for one's institution. Yet there is little evidence to suggest it is the 'digital natives' that are using MOOCs to advance their education. According to evidence reported by Laurillard (2014) in the Times Higher Education, over 60% of students registering on MOOCs already have a first degree. This would indicate that it is not the digital natives who are primarily entering education for the first time through MOOCs; yet it is arguably this demographic for whom such courses were at least partly designed. There was of course the more general aim of MOOCs to open access to those who cannot traditionally afford it worldwide. How sustainable this motive will be in the longer term remains to be seen.

The MOOC curriculum model is already subject to change, and Small Private Online Courses (SPOCs) are the latest transition in an attempt to achieve effective collaboration and group working amongst learners. This online education model uses existing MOOC online content and interaction to supplement rather than replace classroom-based teaching. This mixture of classroom and online resources and engagement (not unlike the UHI Geography delivery model) has recorded increases in student performance over just classroom-based delivery (Fox, 2013). SPOCs have been viewed as a more efficient means of teaching as staff no longer have to spend time preparing and delivering lecture content but instead can use their time more productively in engaging students in learning activities. The use of online materials to support classroom-based participation has resulted in enhanced enrolments and tutor and course ratings (Fox, 2013). It is to these quality and effectiveness enhancements which institutional policy makers will have to pay close attention as online education models evolve. Arguably, once the 'teething issues' are solved and global university brands (e.g. Stanford, Harvard etc.) begin to offer fully online distance education degrees globally, then real competition may occur over a range of subject areas.

It is clear that MOOCs and SPOCs represent disruptive approaches to conventional learning and teaching approaches, providing as they do opportunities to widen access to Higher Education. Their advent has introduced new pedagogic practices (e.g. peer assessment) which have challenged existing online approaches. However, in terms of further definition we will not dwell on the online MOOCs/SPOCs experiences, which, although worth noting given their recent press, are not typical of the mainstream fully online distance education courses offered by Universities worldwide.

## The costs and benefits of face-to-face and online approaches

MOOCs and SPOCs are likely to have their place in emerging strategies for online education. However, our focus is on the fully supported online courses found at many modern Universities. These fully online courses are often provided as a flexible alternative to on-campus, face-to-face courses and tend to employ an active and participative approach to learning and teaching. Understanding just how they differ from the traditional on-campus face-to-face courses is essential for policy makers in education contemplating a change to their existing curriculum model and in understanding the new learning and teaching pressures being placed on staff.

At least in part due to the rising costs of education provision and the need to provide for increasing demand for student places with stretched budgets (Ash and Bacsich, 2002), an increasing number of academic institutions during the last decade have begun to investigate the potential savings attainable from online distance education. At the most basic level, the application of educational technology has been considered to be a means to increase educational efficiency through productivity gains (Rumble, 2001).

However, transitions to online distance education have not been without their challenges. Scarafiotti (2004) highlighted both the additional extent of expectation on the online tutor and also the real costs in comparison to face-to-face courses where design is well established, known, supported and taken forward by just the developing instructor. An online course on the other hand may need significant external input in terms of: "...programmers, web technicians, graphic artists, instructional designers, content specialists, editors, course testers, copyright usage checkers and others." Scarafiotti, (2004, p. 42)

She makes the case that online courses are not always the cost efficient option in comparison to traditional face-to-face class-based tuition. Numerous authors have provided evidence to contend that online education is not a cheap option (Njenga & Fourie, 2010; Guri-Rosenblit, 2005; Moller, Foshay & Huett, 2008; Childs, Blenkinso, Hall, & Walton, 2005).

## Key advantages of online education

Despite its cost disadvantages, there are a number of recognised reasons why online education has become of interest to distributed learning and teaching. Online education is thought to have a number of key advantages for particular students.

Firstly, universities servicing multiple sites can seek to utilise online education as a cost efficient means to develop skills and education training to numerous sites at once and so reduce time and drive down fixed costs (Childs et al., 2005; Scarafiotti, 2004).

Secondly, as the up-scaling of learner groups takes place, then online education can deliver content to numbers beyond the limitations of the bricks and mortar classroom environment. Again, clear efficiencies can be theoretically achieved (Childs et al.,

2005; Scarafiotti, 2004; Lee, Yoon, & Lee, 2009) as excess or overflow demand is catered for which might previously have gone elsewhere.

Thirdly, from the learner point of view, online education is about convenience and the flexibility of study. Translated into the commercial sector, this allows the delivery of 'just-in-time' training as and when necessary, and in the education sector it can mean wider access for non-traditional students (i.e. adult returners) (Childs et al., 2005; Winterbottom, 2007; Meyer, 2003; Wang & Woo, 2007).

Fourthly, online education systems have the capacity to track user progress and also to assess their competencies through interactive content and related quizzes and assessments in a much more instantaneous manner than the large lecture hall environment. (Childs et al., 2005).

Fifthly, there are clear cost savings to student commuters being able to work from home and progress their studies; likewise in the commercial sector where online education can save many thousands of pounds annually on reduced transport costs for classroom-based training events (Childs et al., 2005).

In addition, Piskurich (2006, p. 19) also identified over fifteen independent advantages of e-Learning (such as efficiencies, effectiveness and flexibility) which, combined with the above listed factors, provide a large part of the rationale which has justified the often significant investments made in online learning and teaching by UK universities in recent years.

## Building a high quality educational experience

A further contribution to the debate on quality factors that influence the educational experience comes from Mahoney (2009), who identified that online student buy-in to (or confidence in being able to learn effectively in) the online environment is very important. Students must understand the requirements and methods of online education and be committed to taking forward their studies in this mode. Both students and course managers need to fully understand the circumstances and context that they take into their learning experience if retention is to be high and value for money is to be achieved. The overall online distance learning package is about much more than just the time allocated to tuition. A quality teaching and learning package requires both forethought and understanding by Higher Education managers. Biggs (1999) illustrated how much forethought and planning may be required just to develop suitable assessment instruments to meet the needs of different student groups.

Providing a quality experience tailored to student needs on course entry must surely be one of the prerequisites and primary lessons/solutions in response to the higher dropout rates of online learners reported through the literature. Cowan and Duggleby (2005), Dahl (2005), Holsale and Lee-Post (2006) and Motteram and Forrester (2005) express that this pre-entry planning phase is critical to the online learner. Targeted help at new entrants might be developed as a means to address early dropout, assess the overall vulnerability of new starts and minimise staff overheads. Yet at the same time this again is an additional cost of running fully online courses effectively.

Cowan and Duggleby (2005) employ just such a strategy in getting all applicants for their Certificate in Online Learning to complete an online pre-course assessment test. This test is designed to gauge each entrant's understanding of the course and of the skills, technology and support that each student will need. This is a method that aims to raise the quality of experience for new entrants into online courses. Such an exercise can also help the targeting of individual, customised induction sessions as well as more linear online induction sessions that take place over the whole first term that can be tailored and controlled by the individual student.

In short, there are perceived advantages if the nature of induction can be controlled by the student and allows differing routes through the induction options guided by the tutor (Motteram & Forrester, 2005). Induction to online students may be most effective in reducing staff support overheads if delivered continuously through the first term and not only at the very beginning of an online course (Motteram & Forrester, 2005, p. 293). However, devoting additional resources to flexible linear induction processes also incurs additional upfront costs associated with fully online learning and teaching.

## Meeting the needs of a diverse student population

Additional costs incurred in developing online education have been approved at least in part due to the changing nature of the education market. The evolving methods of online education delivery have also been influenced significantly by the changing nature of the student cohort in the instance of the University of the Highlands and Islands region of Scotland. A growing student cohort overall (University of the Highlands and Islands [UHI], 2014) is composed of an increasing number of adult learners often with external work and family commitments. Such a student cohort has, for the most part, been open to experiencing new technologies that can enhance the flexibility of their studies. Many of these adults are part-time students, and indeed this element of the HE sector has grown to make up 29% of all HE students in 2012/13 in the UK (UHI, 2014). Of these UK-domiciled part-time students, 92% of all enrolments are by mature students (over 21) (Universities UK, 2013).

Of the 2.3 million learners in the UK in 2005/06, 0.9 million were part-time students and 1.4 million were full-time students (Committee of Inquiry into the Changing Learner Experience [CICLE], 2009). This large component of part-time students often seek more flexible means to study, and online education for such students is becoming an ever more sought after form of delivery suited to the 21st century student cohort and promoted by government (Bennion, Scesa, & Williams, 2011). Dutton et al. (2002) and Birch

and Burnett (2009, p. 118) found that the vast majority of present-day distance learners are now part-time students who also have full time jobs.

Online education has not been without its high profile failures and so remains a risk for distributed universities. In Scotland in 2002 *Scottish Knowledge Plc* folded. It was made up of 13 Scottish Universities and eight colleges and sought to gain a major foothold in the global online education market. This was followed up by additional public and private funding being channelled in to the *Interactive University*, based in Edinburgh. This time, this effort was aimed at interactive online education for global e-education markets (Re.ViCa, 2009) and was led by Herriot Watt University. This global-focused online education initiative ceased as an operational entity in 2007. However, neither of these initiatives based in Scotland were as high profile as the UK *eUniversity* initiative launched in 2000, which subsequently folded in 2004 after spending £50M of taxpayers' money and only attracting 900 students over the period (Keegan et al., 2007). Its failure was put down to being supply-led rather than being demand-led, having a poor marketing strategy and being technology-driven rather than learner-driven (HCESC, 2005).

Higher Education in the UK in particular is in a state of flux as strategies continue to evolve to service the increasing demand in the sector for increased flexibility in teaching and learning provision. Nagel & Kotzé (2010) identify the increasing work priorities of modern day students and so the need for increasingly flexible online study course options from education providers. Yet, as indicated above, this is not without cost and risk, as the costs can be significant.

Ultimately, targeting resources at enhanced course flexibility and design to better service online students requires additional resources. Developing a quality online education package including training staff and supporting staff infrastructure for enrolling students online, investing in appropriate information and communications technologies and developing new institutional strategies to accommodate online learners add further to the costs of fully online distributed education. Emerging issues continue to be related to training provision, salary, workload, intellectual property rights, promotion and tenure and how these are all impacted upon by online education (Moller et al., 2008).

## In summary

In summary, fully online learning and teaching has been an emerging and ever increasingly important component of education delivery within the distributed education strategies of the University of the Highlands and Islands in Scotland. This activity has been contextualised and in some instances guided by an understanding of the many parallel initiatives across the rest of the online education sector.

Although it is tempting to follow the lead of others and develop MOOCs or SPOCs, distributed universities instead have to make informed decisions on where to most effectively concentrate their investment in online courses. In some instances, this may include MOOCs and SPOCs; in others, a more focused concentration on developing and extending existing commercial offerings makes more sense than diversifying into a newer form of activity for which a credible business model has yet to be established (Belleflamme, 2013). However, there does appear to be some evidence of the maturing of MOOCs with an associated reduction in costs, whilst at the same time revenues have been increasing (Department for Business, Innovation and Skills, 2013).

Understanding the differences between online and face-to-face pedagogical approaches is a fundamental starting point. Direct comparisons may not be particularly valuable as the motivations and goals of those who study in each form of delivery tend to be quite different too. Many contradictions in terms of findings exist in the academic literature. It may be argued that both traditional, on-campus, face-to-face education and off-campus, online education require quite separate pedagogic approaches to educating quite separate types of learners.

In developing and extending fully online learning and teaching, staff and management must fully understand how quality and effectiveness are linked to student satisfaction and how this in turn differs in form and approach between online and more traditional face-to-face pedagogies. Understanding student perceptions and expectations of their learning and teaching experience is fundamental to improving student retention in both online and face-to-face classes.

Tempering the fully online approach to learning and teaching in the distributed university is the balance between risk and cost. Online education is not a cheap option and requires significant input and investment in a multitude of staff resources but can also require specialist software and hardware. In the UK in general, moves towards online education (particularly in recent years) have also been driven by the need to teach 'smarter' rather than 'harder' to become more efficient as a sector (France & Fletcher, 2007). Motivations from the academic side have been related to efficiency and most UK universities are now providing online content to support student learning (France & Fletcher, 2007). Ultimately, student feedback has often been very positive, and Smith (2011) found that 89% of students (n=507) across three separate universities in the UK and Ireland agreed that they learned effectively in their online education course.

The implication from such findings is that investment in fully online distance learning and teaching by UK universities seems set to continue, and the trick will be to invest shrewdly to teach 'smarter' and learn from past mistakes in the field. To do this, it is the contention of this paper that within the distributed university, practitioners and management alike need to gain a better understanding of the context of fully online education. An understanding of how and why online education has evolved in situ and what strategies and approaches might be most effective to meet future needs of the evolving pedagogies of online education in the distributed university need to be given appropriate strategic thought.

## In conclusion

With that in mind, we would set out the following points as important to a future perspective on online education in a distributed university:

1. Institutions should incorporate clear statements of the role of online distance education in their portfolios.
2. Assessments of student satisfaction should be based on criteria specifically connected to the quality factors that impact on online learning, where appropriate.
3. Institutions should recognise that students' motivations for choosing online study rather than on-campus study are often quite distinct. It is important to understand that this will require different approaches in pedagogic design.
4. Similarly, in assessing student satisfaction, metrics should be cognisant of the quality factors which differentiate between wholly online learning, 'blended' learning and 'face to face' campus-based education.
5. At all levels, there should be a recognition that online education presents very different challenges to classroom-based education. This includes, for example, the 'instant response' demand in the online environment.
6. While there are advantages in the flexibility and self-management of time afforded by online learning, institutions should recognise the demands on educators' time when teaching online. This also affects research opportunities and opportunities for promotion and career advancement.
7. Course-specific administrative support is important in supporting academics involved in online education. Institutions should commit to such provision to free up time for online practitioners to conduct research and scholarship.
8. Online learning presents institutions with opportunities for extending the reach of their institution's delivery as part of an inclusion strategy. This has clear implications for business growth in participating institutions.
9. In pedagogic design, online education must employ sector-leading strategies in engaging students. Collaboration and interaction are key elements as has been shown above. In essence, this is likely to be an incorporation of the best aspects of face-to-face teaching accentuated by the demands of the online environment. A didactic approach does not work – social elements are crucial to the success of online education.

Institutions should recognise and support academics to achieve field-leading expertise in online learning. With MOOCs and other emerging educational models potentially disrupting conventional educational approaches, it makes sense to have staff active in online research and development.

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### *References*

Allen, I. E., & Seaman, J. (2013). *Changing course: Ten years of tracking online education in the United States*. Babson Survey Research Group and Quahog Research Group, LLC. Retrieved 20 March 2015 from http://www.onlinelearningsurvey.com/reports/changingcourse.pdf

Ash, C., & Bacsich P. (2002). The costs of networked learning. In C. Steeples & C. Jones (Eds.), *Networking learning: Perspectives and issues computer supported cooperative work.* London: Springer

doi: http://dx.doi.org/10.1007/978-1-4471-0181-9_3

Baggaley, J. (2013). MOOC rampant. *Distance Education*, *34*(3), 368–378.

doi: http://dx.doi.org/10.1080/01587919.2013.835768

Barber, M., Donnelly, K., & Rizvi, S. (2013). *An avalanche is coming – higher education and the revolution ahead*. London: IPPR.

Barnard, l., Paton, V. O., & Rose, K. (2007). Perceptions of online course communications and collaboration. *Online journal of distance learning administration,. 10*(4), 1–9.

Barron, A. E., (2003). Course management systems and online teaching. *Journal of computing in higher education*, *15*(1), 128–142.

doi: http://dx.doi.org/10.1007/BF02940856

Belleflamme, P. (2013, 03 April). *Will we all soon be hooked on MOOCs? (2) Business Models* [Web log post]. Retrieved from http://www.ipdigit.eu/2013/04/will-we-all-soon-be-hooked-on-moocs-2-business-models/

Bennion, A., Scesa, A., & Williams, R. (2011). The benefits of part-time undergraduate study and UK higher education policy: A literature review. *Higher Education Quarterly*, *65*(2), 145–163.

doi: http://dx.doi.org/10.1111/j.1468-2273.2010.00482.x

Biggs, J. (1999). *Teaching for quality learning at university* (pp. 165-203). Buckingham: SRHE and Open University Press.

Birch, D., & Burnett, B. (2009). Bringing academics on board: Encouraging institutionwide diffusion of e-learning environments. *Australasian Journal of Educational Technology*, *25*(1), 117–134.

Bishop, M. J., Hyclak, T., & Yerk-Zwickl, S. (2007). The clipper project: Lessons learned teaching an online economics course. *Journal of computing in higher education*, *18*(2), 99–120.

doi: http://dx.doi.org/10.1007/BF03033415

Blackmore, C., Tantam, D., & Deurzen, E. V. (2008). Evaluation of e-learning outcomes: Experience from an online psychotherapy education programme. *Open learning*, *23*(3), 185–201.

doi: http://dx.doi.org/10.1080/02680510802420027

Brown, R. E. (2001). The process of community-building in distance learning classes. *Journal of asynchronous learning networks*, *5*(2), 18–35.

Childs, S., Blenkinso, E., Hall, A., & Walton, G. (2005). Effective e-learning for health professionals and students – barriers and their solutions. A systematic review of the literature – findings from the hexl project. *Health information and libraries journal, 22*(0), 20–32.

doi: http://dx.doi.org/10.1111/j.1470-3327.2005.00614.x

Clara, M., & Barbera, E. (2013). Learning online: Massive open online courses (MOOCs). *Connectivism and cultural psychology, 34*(1), 129–136.

Clarke, T. (2013). The advance of MOOCs (massive open online courses) – The impending globalisation of business education? *Education + Training, 55*(4/5), 403–413.

Committee of Inquiry into the Changing Learner Experience (CICLE). (2009). *Higher education in a web 2.0 world, 570*. London: Higher Education Academy and JISC.

Concannon, F., Flynn, A., & Campbell, M. (2005). What campus-based students think about the quality and benefits of e-learning. *British journal of educational technology, 36*(3), 501–512.

doi: http://dx.doi.org/10.1111/j.1467-8535.2005.00482.x

Cowan, T., & Duggleby, J. (2005). Pedagogy and quality assurance in the development of online learning for online instructors. *Journal of asynchronous learning networks, 9*(4), 1–10.

Dahl, B. (2005). 10 ways to improve online learning. *Distance education report, 9*(20), 7–8.

Deka, T. S., & McMurry, P. (2006). Student success in face-to-face and distance teleclass environments: A matter of contact? *International review of research in open and distance learning, 7*(1).

Department for Business, Innovation and Skills. (2013). *BIS research paper number 130 – The maturing of the MOOC.* London: Department for Business, Innovation and Skills.

Díaz, L., & Entonado, F. (2009). Are the functions of teachers in e-learning and face-to-face learning environments really different? *Journal of educational technology & society*, 12(4), 331–343.

Dutton, J., Dutton, M., & Perry, J. (2002). How do online students differ from lecture students? *Journal of asynchronous learning networks, 6*(1), 1–20.

Fillion, G., Limayem, M., Laferrière, T., & Mantha, R. (2009). Integrating information and communication technologies into higher education: Investigating onsite and online students' points of view. *Open learning: The journal of open and distance learning*, *24*(3), 223–240.

doi: http://dx.doi.org/10.1080/02680510903201649

Fox, A. (2013). From MOOCs to SPOCs. *Communications of the ACM*, *56*(12), 38–40.

doi: http://dx.doi.org/10.1145/2535918

France, D., & Fletcher, S. (2007). E-learning in the UK: Perspectives from GEES practitioners. *Planet – learning and teaching in geography, earth and environmental sciences, 18*, 3–5.

doi: http://dx.doi.org/10.11120/plan.2007.00180003

Garrison, D. R. (2006). Online collaboration principles. *Journal of asynchronous learning networks*, *10*(1), 1–7.

Guiller, J., Durndell, A., & Ross, A. (2008). Peer interaction and critical thinking: Face-to-face or online discussion. *Learning and instruction*, *18*(2), 187–200.

doi: http://dx.doi.org/10.1016/j.learninstruc.2007.03.001

Guri-Rosenblit, S. (2005). Eight paradoxes in the implementation process of e-learning in higher education. *Higher education policy*, *18*(1), 5–29.

doi: http://dx.doi.org/10.1057/palgrave.hep.8300069

HCESC – House of Commons Education and Skills Committee. (2005). UK e-University. *Third Report of Session 2004–05, Report, together with formal minutes, oral and written evidence ordered by House of Commons*, 1–153. Retrieved 20 March 2015 from http://www.publications.parliament.uk/pa/cm200405/cmselect/cmeduski/205/205.pdf

Holsale, C. W., & Lee-Post, A. (2006). Defining, assessing and promoting e-learning success: An informations systems perspective. *Decision sciences journal of innovative education, 4*(1), 67–85.

doi: http://dx.doi.org/10.1111/j.1540-4609.2006.00102.x

Iverson, K. M., Colky, D. L., & Cyboran, V. L. (2005). E-learning takes the lead: An empirical investigation of learner differences in online and classroom delivery. *Performance improvement quarterly*, *18*(4), 5–18.

doi: http://dx.doi.org/10.1111/j.1937-8327.2005.tb00347.x

Karatas, S., & Simsek, N. (2009). Comparisons of internet-based and face-to-face learning systems based on "equivalency of experiences" according to students' academic achievements and satisfactions. *Quarterly review of distance education, 10*(1), 65–74.

Keegan, D., Lossenko, J., Mazar, I., Michels, P. F., Paulsen, M. F., Rekkedal, T., & Zarka D. (2007). E-learning initiatives that did not reach targeted goals. *Megatrends Project 2007*. Retrieved 28 January 2015, from http://issuu.com/mfpaulsen/docs/book3

Kelly, H. F., Ponton, M. K., & Rovai, A. P. (2007). A comparison of student evaluations of teaching between online and face-to-face courses. *The internet and higher education, 10*(2), 89–101.

doi: http://dx.doi.org/10.1016/j.iheduc.2007.02.001

Laurillard, D. (2014). Five myths about Moocs. *Times Higher Education. Retrieved 20 March 2015,* from http://www.timeshighereducation.co.uk/comment/opinion/five-myths-about-moocs/2010480.article

Lee, B., Yoon, J.,& Lee, I. (2009). Learners' acceptance of e-learning in South Korea: Theories and results. *Computers & Education, 53*(4), 1320–1329.

doi: http://dx.doi.org/10.1016/j.compedu.2009.06.014

Levy, P., Ford, N., Foster, J., Madden, A., Miller, D., Nunes, M. B., Mcpherson, M., & Webber, S. (2003). Educational informatics: An emerging research agenda. *Journal of information science, 29*(4), 298–310.

doi: http://dx.doi.org/10.1177/01655515030294006

Mahoney, S. (2009). Mindset change: influences on student buy-in to online classes. *Quarterly review of distance education, 10*(1), 75–83.

Mcdonald, J. (2002). Is "as good as face-to-face" as good as it gets? *Journal of asynchronous learning networks, 6*(2), 10–23.

Meyer, K. A. (2003). Face-to-face versus threaded discussions: The role of time and higher-order thinking. *Journal of asynchronous learning networks, 7*(3), 55–65.

Moller, L., Foshay, W. R. and Huett, J. (2008). The evolution of distance education: Implications for instructional design on the potential of the web. *Techtrends: linking research & practice to improve learning, 52*(3), 70–75.

doi: http://dx.doi.org/10.1007/s11528-008-0158-5

Motteram, G., & Forrester, G. (2005). Becoming an online distance learner: What can be learned from students' experiences of induction to distance programmes? *Distance education, 26*, 281–298.

doi: http://dx.doi.org/10.1080/01587910500291330

Muirhead, R. J. (2007). E-learning: Is this teaching at students or teaching with students? *Nursing forum, 42*(4), 178–184.

doi: http://dx.doi.org/10.1111/j.1744-6198.2007.00085.x

Nagel, L., & Kotzé, T. G. (2010). Supersizing e-learning: What a CoI survey reveals about teaching presence in a large online class. *The Internet and Higher Education, 13*(1–2), 45–51.

doi: http://dx.doi.org/10.1016/j.iheduc.2009.12.001

Njenga, J. K., & Fourie, L. C. H. (2010). The myths about e-learning in higher education. *British journal of educational technology, 41*(2), 199–212.

doi: http://dx.doi.org/10.1111/j.1467-8535.2008.00910.x

Parr, C. (2013). Mooc completion rates 'below 7%'. *Times Higher Education. Retrieved 20 March 2015* from http://www.timeshighereducation.co.uk/news/mooc-completion-rates-below-7/2003710.article

Pelz, B. (2004). Three principles of effective online pedagogy. *Journal of asynchronous learning networks, 8*(3), 103–116.

Piskurich, G. M. (2006). Online learning: E-learning. Fast, cheap, and good. *Performance Improvement, 45*(1), 18–24.

doi: http://dx.doi.org/10.1002/pfi.2006.4930450105

Prensky, M. (2001). Digital natives, digitial immigrants part 2: Do they really think differently? *On the horizon, 9*(6), 1–6.

doi: http://dx.doi.org/10.1108/10748120110424816

doi: http://dx.doi.org/10.1108/10748120110424843

Price, L., Richardson, J. T. E., & Jelfs, A. (2007). Face-to-face versus online tutoring support in distance education. *Studies in higher education, 32*(1), 1–20.

doi: http://dx.doi.org/10.1080/03075070601004366

Re.ViCa. (2009). Reviewing (Traces of) European Virtual Campuses: *Scottish Knowledge*. Retrieved 20 March 2015 from http://www.virtualcampuses.eu/index.php/Scottish_Knowledge

Richardson, J. T. E. (2009). Face-to-face versus online tutoring support in humanities courses in distance education. *Arts and humanities in higher education*, *8*(1), 69–85.

doi: http://dx.doi.org/10.1177/1474022208098303

Rumble, G. (2001). The costs and costing of networked learning. *Journal of asynchronous learning networks*, *5*(2), 75–96.

Scarafiotti, C. (2004). Five important lessons about the cost of e-learning. *New directions for community colleges*, (128), 39–46.

doi: http://dx.doi.org/10.1002/cc.173

Smith, M. (2011). The quality factors which influence online learning. *PhD Research Dissertation.*

Solimeno, A., Mebane, M. E., Tomai, M., & Francescato, D. (2008). The influence of students and teachers characteristics on the efficacy of face-to-face and computer supported collaborative learning. *Computers & education*, *51*(1), 109–128.

doi: http://dx.doi.org/10.1016/j.compedu.2007.04.003

Spiceland, J. D., & Hawkins, P. C. (2002). The impact on learning of an asynchronous active learning course format. *Journal of asynchronous learning networks*, *6*(1), 68–75.

Stephenson, J. E., Brown, C., & Griffin, D. K. (2008). Electronic delivery of lectures in the university environment: An empirical comparison of three delivery styles. *Computers & education*, *50*(3), 640–651.

doi: http://dx.doi.org/10.1016/j.compedu.2006.08.007

UHI (University of the Highlands and Islands). (2014). *Facts and figures 2014*. Retrieved 29 January 2015 from http://www.uhi.ac.uk/en/about-uhi/facts-and-figures

Universities UK. (2013). *The power of part-time: Review of part-time and mature higher education*. London: Universities UK.

Wagner, N., Hassanein, K., & Head, M. (2008). Who is responsible for e-learning success in higher education? A stakeholders' analysis. *Journal of educational technology & society*, *11*(3), 26–36.

Wang, Q., & Woo, H. L. (2007). Comparing asynchronous online discussions and face-to-face discussions in a classroom setting. *British journal of educational technology*, *38*(2), 272–286.

doi: http://dx.doi.org/10.1111/j.1467-8535.2006.00621.x

Winterbottom, S. (2007). Virtual lecturing: Delivering lectures using screencasting and podcasting technology. *Planet*, *18*, 6–8.

doi: http://dx.doi.org/10.11120/plan.2007.00180006

Zhu, C. (2012). Student Satisfaction, Performance and Knowledge Construction in Online Collaborative Learning. *Educational Technology & Society*, *15*(1), 127–136.