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Developing and implementing an online doctoral programme

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Abstract

Purpose – This article is a critical reflection of the development and implementation of one of the first online doctoral programmes in the UK set up at the University of Northumbria, Newcastle in 2000.

Design/methodology/approach – The method adopted for analysis takes the form of a case study.

Findings – Effective market research has to be undertaken to fully understand what students need and expect from an online programme of study. Course providers need to identify highly motivated students. Second, critical success factors focus on a well-targeted curriculum that provides the skills and knowledge relevant to student needs, backed by exceptional faculty who provide innovative course design. Finally, there is a need for integrating the management, teaching and technical team to ensure a high quality and coherent programme delivery.

Practical implications – The reflections in this article can be used as a guide by other faculties wishing to develop online programmes. The article highlights some of the pitfalls of developing and implementing online course delivery and proposes adopting instructional guides as an aid to course design.

Originality/value – The article provides an original insight into some of the operational, technical and managerial issues relevant to delivering an effective online programme of study at an advanced level.

Keywords Online operations, Design and development, Higher degrees, Higher education, Doctorates

Paper type Case study

Introduction

International education has grown into a substantial worldwide industry. According to Unesco (2003) there were 1.5 million international students studying outside their country of origin in 2002. Whilst estimates vary considerably, there is general consensus among researchers that this figure is likely to increase over the next quarter of a century. However, there is some evidence to suggest that over the last three decades growth in international education has been slowing down (Agarwal and Winkler, 1985). Kemp (1990) found an overall decline in student flows, as measured by Unesco statistics, for the 1970s and a sharp deceleration during the 1980s. This slowing of overall market growth may reflect a maturing industry and is likely to increase the level of competition between education service providers seeking to operate in international markets.

A further significant factor in the slowing growth rate has been the emergence of e-learning. Distance learning through electronic means can lower the cost of education for students and providers. Further, the use of information technology to offer education programmes over long distances has become an increasing necessity as government policy in traditional markets changes (Mazzarol *et al.*, 1998). In the UK the Open University has led the way in terms of delivering open learning. In 2003 the Open University had some 200,000 people registered worldwide for degrees, accounting for



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some 7 per cent of all first-degree graduates affiliated to UK educational institutions each year. This represents a growth of some 40,000 students since 1995.

The development of e-learning technologies has presented providers with opportunities as well as challenges as they seek to positively enhance their educational value chain to effect lower costs, enhanced differentiation of products and reap the benefits of economies of scale and scope to create a competitive advantage. One way of achieving this is to target high value customers with access to advanced qualifications at Master's or Doctorate level. In a highly competitive market, first mover advantages become increasingly important as educational institutions seek to maximise their profile among users of e-learning. This paper examines the case of the University of Northumbria at Newcastle (UNN) as an example of developing and delivering one of the UK's first online doctoral programmes. The paper first presents the rationale for developing an online doctoral programme before critically assessing the importance of integrating four key elements of online delivery. These include curriculum development, the engagement of highly motivated staff, an efficient delivery system, and innovative course design.

The analysis of the case emanates from survey feedback by the first Doctor of Business Administration (DBA) student cohort to complete the online delivery of the curriculum. From this it has been possible to review issues relating to the role and requirements of faculty and staff, course design and development and the management of the programme. Combined, these assessment criteria form the basis for evaluation of quality. The article includes an outline of future developments in enhancing student learning online as a result of lessons learned in the first two years of implementing the DBA programme.

Rationale for developing an online doctoral programme

As part of a strategic review undertaken in 1997, UNN identified the development of information technology as a key facilitator of extending learning products in global markets. There followed a concerted effort to find a suitable delivery mechanism for the purposes of providing high quality guidance and supervision for doctoral-level students. This strategic intent coincided with a stated aim of the University of increasing the number of doctoral students completing their studies. This was a response to the alarming number of PhD students failing to complete their doctorates at the University.

An important driving force behind the development of the DBA was the opportunity presented by the established presence of the University's marketing division in China and Thailand. Relationships between UNN and universities in both these countries had produced a growing stream of undergraduates and masters-level students since it was first set up in the early 1990s. The resulting market research undertaken in the mid-1990s identified a potential level of demand to justify the costs of developing an online doctoral programme. This demand was driven by the view of education policy makers in developing nations that e-learning technologies has the potential to assist in solving a range of problems. Bollag and Overland (2001) identified the types of problems typically experienced by education policy makers in developing nations and include delivering classes to a geographically broad and diverse population, meeting demand for increasing enrolments, and lack of physical space in heavily populated urban environments.

The investment in developing and implementing the online DBA at UNN represented an important element of the University's strategic aim of being entrepreneurial and innovative in developing rich environments for active learning. The e-learning strategy is designed to support and enable progressive developments in blended and remote-access e-learning provision. By introducing a doctoral level qualification via the online mode of delivery the University set the benchmark high in terms of academic standards. This underlined the need for excellence in providing online resources, building collaborative activities, incorporating innovative assessment methods and tutor support.

Both the remote-access and blended e-learning approaches are underpinned by a social constructivist philosophy to learning. The approach is learner-centred, recognises and builds on the social dimensions of learning, requires active participation in meaningful tasks and encourages reflection on learning. The philosophy is reflected in the multiple learning and teaching strategies that characterise the DBA programme, including resource-based learning, problem-based learning, action-based learning and network learning. Importantly, these teaching and learning strategies can be undertaken in face-to-face, blended or wholly remote-access contexts.

Background to the Northumbria DBA Programme

In September 2000, the first cohort of 15 students enrolled on the Doctor of Business Administration (DBA) course at the University of Northumbria in Newcastle (UNN). The students are working professionals and are alumni of top universities in China and Thailand. Although results vary across different institutions, there is some research that suggests students who opt for e-learning are more mature, already in professions and, as a consequence, have well-defined goals and are highly motivated (Dibiase, 2000). This was generally the profile of the first cohort of DBA students at UNN. The majority had at least five years' working experience in a professional environment since graduating, were in their late twenties or early to mid-thirties, and perceived the DBA qualification as leverage for career development.

Since the first cohort of students have now completed the programme it is possible to make assessments of the technology, teaching methods and support mechanisms that underpin the distance-based doctoral programme. The DBA programme is operated via an Electronic Course Management System (ECMS) with almost all documents being available electronically through the internet. Students must, by implication, have easy access to the internet and use the generic suite of programmes in Microsoft Office software.

The DBA is a four-year course and is equivalent to a PhD award. The structure of the course is split into three stages. Stage one consists of two block modes of study and lasts one year. The block modes involve students undertaking specific tasks online involving issues of research philosophies, qualitative and quantitative business research methods, and a business research project. The students also have two intensive seminar visits to the Newcastle campus in September and February of each of the first two years of study. The second stage comprises the second block mode of teaching and lasts one year. This covers advanced personal and professional development, advanced business research methods and another business research project. The third and final stage lasts two years and comprises the DBA thesis (50,000 words). At this stage the formal teaching aspect of the programme ends and students

are expected to use the knowledge gained from the block modes to undertake a research investigation that represents an original contribution to professional thinking and practice and has high academic merit.

Stages one and two constitute the “taught” programme and adopt an approach which creates a developmental, reflective and creative learning process in which a balance is struck between tutor-led structured input and a requirement for participants to take responsibility for much of their own learning. However, of crucial importance to the success of the DBA programme is the focus on learning as an interactive process. To lend emphasis to this aspect of the programme, a range of activities are included to encourage interaction at the one-to-one, small group and cohort level. A key feature of this is the peer discussion sessions where students provide input in terms of presenting research ideas for peer appraisal and feedback, critical assessments and evaluation of published material and the exploration of the interaction between theory and practice in particular areas of interest. Research findings of Palloff and Pratt (2000), cited in Valentine (2002), confirm that this collaborative approach to learning helps students achieve deeper levels of knowledge generation through the creation of shared goals, shared exploration and a shared process of meaning making.

Curriculum development

A well-targeted curriculum is a vital part of developing a successful online course, especially at the advanced level where students do not wish to waste time on revisiting previously gained knowledge. The curriculum has to provide added value to students by enhancing skills and offering key benefits that can be applied in their professional working environment. The course content of the DBA was created after an extensive market research exercise was undertaken to assess the needs of prospective students. The needs assessment included asking students to identify areas in which they would advance their skills and knowledge in the business environment in which they work. The responses enabled the DBA management team to develop a focused and relevant program to fit the needs of students within a varied but business-orientated professional working environment. The DBA course is subject to constant evaluation and revision based on the learning and experience of both staff and students.

The DBA curriculum has been designed to ensure that course activities are work-related in order to meet the requirements of students in advancing their careers. Many elements of the DBA involve project work where teamwork is required for successful outcomes. In terms of evaluation, all activities are analysed to determine where the added value exists in the learning experience of students. The development, implementation and evaluation of the DBA required a considerable management effort both in terms of time and resources. The workload for staff increases year by year for four years until the full complement of 60 students are in place (15 per year). The nature of the DBA requires that materials and subject matter be kept up to date. Consequently, the course is in a constant state of change. Curriculum development is an ongoing process. Staff must also contend with the myriad problems highlighted by students (and other staff members) and the delivery system needs monitoring.

Faculty and staff

In addition to a strong curriculum, the development of the DBA has relied on quality faculty. However, although faculty members are recognized experts in their field, not

all have had experience of designing and teaching courses online. Since the DBA requires staff to be proficient in utilising software tools alongside the delivery system it has been necessary to offer training and guidance specifically for staff facing such challenges. What cannot be taught, however, is an understanding of the distance learner's experience. To this extent the first two years of the DBA programme were a learning process for both staff and students. Indeed, it has become clear that training and updating faculty and staff members' knowledge of the delivery system and software tools that the DBA employs has proven to be more problematic than updating students' knowledge. The fact that faculty members and staff have many competing duties partly explains this phenomenon.

A distinctive characteristic of online course development and delivery is the greater emphasis on teamwork within faculty. At the University of Northumbria the traditional teaching mode at postgraduate level has featured few staff working in tandem. The unfamiliarity of working with a large team to develop and deliver the DBA has required a new outlook among staff. It has been necessary to clearly define roles to avoid duplication of effort and confusion over expected output. Consequently, co-ordination of team members and their activities has been one of the key roles of the DBA management team in the first two years of its existence.

Delivery system

One of the major support systems for DBA students who are located in China and Thailand is the Electronic Course Management System based at Blackboard.com and available to staff and students through the use of the internet. This system supports announcements, staff and student information, course and unit documents as well as providing a range of different communications mechanisms. The site is the repository for all course- and unit-based materials, and students need to restrict documents posted on the site to the Microsoft Office range plus Adobe Acrobat and HTML range of formats.

A reliable and powerful delivery system is a prerequisite for the successful development and implementation of an online program. It was decided early in the development stage of the Northumbria DBA that the Blackboard system would be suitable for the delivery of course materials and communications networks. Blackboard had the advantage of being easy to learn and easy to apply. The learning process surrounding the application of the system could be minimised, thereby broadening the timeframe for business-orientated learning. The system was limited in sophistication but adequate for the purposes of providing an effective communications network. Blackboard also had the advantage of being the campus-wide delivery system at the UNN and had an established support mechanism of technicians and expert tutors in its application. However, ironically, one of the teething problems stemmed from a lack of communication between the managers of the DBA and the IT support staff. No formal mechanism was ever formulated for giving advance notice of upgrades to the delivery system that altered the application procedure, and this led to a measure of confusion and frustration among users.

Course content design

The old adage that “content is king” holds true for online learning as much as any other form of communication media. The success of online learning programs depends on a combination of learning enhancing content and effective technology to facilitate the interactive element of the learning experience. Thus, a critical success factor lies in the level to which instructional design is integrated with the course’s delivery system. By including both a delivery system and navigational structure, Blackboard facilitates effective instructional design. Creating successful course content within the ECMS requires that the course learning outcomes drive the design and performance of the technology. Consequently, it has become evident in the development of the UNN DBA distinction must be made between web-based pedagogy and web delivery. Web pedagogy focuses on the theoretical perspectives and aims of the learning process, each of which helps the building of instructional design and the harmonization of content, delivery system and audience. Web delivery refers to the vehicle through which the content is made available, and it is most effective when informed by web pedagogy. Online delivery, therefore, requires more than simply converting course material to a web-ready format. While Blackboard provides a capable delivery platform, the difficulty of developing a complementary model of instructional design remains.

There are several technological and design issues that need to be addressed when developing content and delivering it via an ECMS. Choosing the most suitable instructional design model (IDM) is one of the most challenging of these (Gagne *et al.*, 1992). The model adopted during the development of the UNN DBA adhered to the traditional ADDIE approach where instructors are encouraged to follow the pathway of analysis, design, development, implementation and evaluation. The analysis helps identify the instructional problem and the requirements of learners. It also helps to identify topics of instruction and furthers the understanding of the context of instruction. The performance goals and assessment methods are an integral part of the design process. The development phase consists of the course materials and the organization and sequence of instruction. The delivery of instruction and review of performance serve as implementation and evaluation. Later, more elements were added to the pathway such that the instructional design resembled the IDM developed by Dick *et al.* (2001). This model takes a systematic approach to helping instructors meet the challenge of web-assisted instruction. The model consists of the following ten steps:

- (1) Assess the need to identify goals.
- (2) Conduct instructional analysis.
- (3) Analyse learners and contexts.
- (4) Write performance objectives.
- (5) Develop assessment instruments.
- (6) Develop instructional strategy.
- (7) Develop and select instructional materials.
- (8) Design and conduct formative evaluation of instruction.
- (9) Revise instruction.
- (10) Design and conduct summative evaluation.

Steps 6, 7 and 8 in the model provide guidance through the design phase of instruction. One of the most pressing problems facing staff charged with the responsibility of designing course content is the limited time available between course validation and implementation. This tends to restrict the time available for effective analysis. Step 6 provides explicit direction for organizing course content by emphasising the need for the creation of an instructional strategy. This is necessary for the sequencing and organization of course content, specifying learning activities, and deciding on the delivery method. The model of Dick *et al.* (2001) was chosen by the management team of the UNN DBA because it offered a lucid and systematic approach to developing content within a restricted timeframe. Nevertheless, feedback from staff members detailed for course design emphasised the need for a simplified instructional guide that backs up the instructional strategies outlined in the model of Dick *et al.* (2001).

To match the needs of staff engaged in course design, the course management team at UNN decided to introduce the WebCT Ordinal Web Delivery Organizational Companion (WOWDOC) as an added instructional guide from the summer of 2002. WOWDOC offers a series of questions and procedures for creating and organizing course content. It is intended that the model of Dick *et al.* (2001) be used for helping analysis and WOWDOC for the effective creation, organization and delivery of content. The questions in WOWDOC help course designers to develop a clear understanding of instructional problems and solutions. From this the instructors are better able to choose strategies for creating and organizing content within the ECMS. Importantly, there is a reflective aspect to WOWDOC question series that guides designers in terms of how course content is to be processed, organized and delivered. This guidance includes six steps:

- (1) Identify the level of online involvement.
- (2) Define pre-instructional activities.
- (3) Select content and determine presentation format.
- (4) Determine learner participation.
- (5) Develop assessment procedures.
- (6) Review activities.

The advantage of WOWDOC is that it recognizes that different faculty members and students have different levels of proficiency in terms of technological application (step 1). WOWDOC has five levels of web use, as detailed by Harmon and Jones (1999). These include informational, supplemental, essential, communal and immersive levels. Each level represents the relative amount of online-related course content and the level of reliance on the course web site to deliver instruction. Instructors benefit from the clear way WOWDOC offers examples of how each level works. Among other facilities the content provides course information and materials (informational) and synchronised discussion facilities (communal). The six steps that comprise WOWDOC include a series of questions designed to help the instructor identify the features available in WebCT that are most relevant to the needs of learners.

Step 2 offers a good example of how WOWDOC works. The pre-instructional activities include motivational analysis. One question asks "How will learners react to the content materials – will they feel overwhelmed or confident?" The question is designed to prompt analysis that, in turn, reveals a key structural element of content

design – consideration of the learners’ needs for rewards, as well as interests, feelings and attention levels. WOWDOC offers recommendations on how the content module can be used to motivate the learner. It provides specific examples of tools that interface with the content module and support the instructional process. For example, should feedback reveal that students feel overwhelmed by the course content then the recommendation is to review the content, edit excess elements and divide content into separate documents. The advantage of WOWDOC is that it helps ensure that the most relevant content is selected based on the needs of instructors, the capabilities of learners and the aims of the course. It provides the foundation for the structure of content materials and guides the selection of course features that best fit the content itself. These procedures are also important in the quality assurance process.

Designing the instructional package necessarily involves redesigning existing instructional materials and the selection and design of new materials. Although this is likely to prove time-consuming and will place extra demands on staff, it has been deemed necessary by the DBA management team in order to ensure ongoing quality enhancement through effective evaluation of the course. Indeed, evaluation is an integral part of the instructional package resulting from WOWDOC analysis. Feedback from students in one cohort forms the basis for evaluating the need for change and implementing change in the course for later cohorts. This iterative process characterises the WOWDOC and encourages re-evaluation of the instructional package.

The intention of the DBA management team has been to offer instructors a generic set of guidelines for meeting the challenges of online course design. The success of online courses largely depends on the design function. However, good design relies on quality analysis and it is here that WOWDOC is intended to make a difference. An enduring problem, however, is the lack of time instructors have available for analysis. Before undertaking the WOWDOC process it is necessary for instructors to have a good understanding of the key skills of each student within the cohort. These include computing skills, online communications skills (all UNN DBA students are from the Far East and have varying levels of spoken and written English) and academic acumen.

Finally, in addition to performing analysis, instructors must be fully aware of the capabilities and application of Blackboard within the ECMS. This requires added commitment, as each instructor has to learn to use the system proficiently enough to think about pedagogy rather than the mechanistic steps of the software. Initial feedback from the first cohort of students on the UNN DBA suggests that much benefit can be derived from an analytical approach to course design. The extent to which this can be effectively implemented is limited to the short timeframe available to staff for analysis and technical learning. Nevertheless, the aims of the DBA management team have been set. These are to add value to the quality of the DBA through effective course evaluation and development, to implement a generic instructional design model such that a clear connection can be made between learning outcomes and course design and to commit resources to enhancing the technical proficiency of staff to meet the challenges of effective online course design.

Student feedback

As well as serving as the delivery system for the course, Blackboard was also used as a channel for student feedback. Online questionnaires were posted on the Blackboard site and students could respond at various times throughout the course. The questionnaires focused on the effectiveness of the delivery system, the quality of online

instruction and course design, the quality of advice and access to supervisors and the quality of course content. In the first cohort of 15 students all proclaimed the benefits of Blackboard as a delivery system and wanted to continue using it. Four students reported technical difficulties accessing Blackboard at various times. However, this mostly occurred during weekends when maintenance of the University's mainframe computer system was most likely to take place. From the feedback, it transpired that most of the first cohort worked on their DBA projects during weekends, hence the occasional problems with access at these times.

The second major issue to arise from student feedback was that of access to tutors online. Ten of the first cohort of 15 students responded that they were dissatisfied with tutor feedback in the first year. However, on closer analysis, it was found that the source of the dissatisfaction lay in the rapidity of response rather than the quality of response from tutors. The key issue was managing expectations. Tutors have to fit in their commitments to the online DBA alongside teaching, administration and research. This did lead to some delays in responding to work posted online by DBA students. However, there was no evidence of deadlines for coursework feedback being missed by the teaching team.

The most positive feedback from DBA students was in response to questions on the blended learning approach. All noted a positive outcome of spending time at the University during two periods each year. The face-to-face contact with tutors helped to augment the online relationships that had built up. The students also benefited from meeting each other face-to-face to build on relationships forged through shared experiences. The positive feedback to the learning philosophy adopted by the DBA development team confirmed the blended learning approach as the optimal one for the programme. The questionnaires also confirmed that students were satisfied with the course design and curriculum.

Conclusions

There are a number of challenges that must be met if an online course is to be successfully implemented. The primary objective must be to get a feel for what prospective students want from an online course. From market research for the UNN DBA five key criteria emerged. Firstly, students look to achieve a quality outcome in terms of a globally recognized qualification. Secondly, the content of the course has to add value to their academic and professional learning experience. This is underpinned by the third criteria – that of a rigorous and challenging assessment standard that distinguishes the DBA from other advanced qualifications such as Masters programmes. Fourthly, the delivery system needs to be easily accessed and applied, continuous and reliable. Lastly, students look to the online course to help them advance their professional skills and career opportunities. The management team of the UNN DBA can take much satisfaction that these criteria have been, and are continuing to be, met and that students have expressed positive feedback in relation to these issues.

Another challenge facing developers of online courses is matching supply and demand. The course provider needs to identify highly motivated students who have a focus on completion. Here, evidence of previous academic achievement is important, as is a rigorous assessment and application procedure. This article has focused on the other key criteria for success, namely the development of a well-targeted curriculum that provides skills and knowledge relevant to student needs. This has to be backed up by

exceptional faculty, with staff who are expert in their field and comfortable delivering online. There also needs to be an effective management and technical team who lead the organisation and delivery of the programme. Finally, there has to be innovative course design and quality assurance procedures. The course content must address the goals of the course, "real world" value and ongoing development and evaluation.

Overall, the DBA at UNN can be counted as a qualified success. Many of the administrative and management problems associated with developing and implementing a new course at the advanced level have been smoothed out. The delivery system, although limited in scope, has provided a suitable platform for the level of communications required in the development of the DBA programme. Staff have responded well to the challenges that the online teaching mode has presented. Even so, there are severe restrictions on time that limit the ability to analyse the course design and identify areas for change. As this is unlikely to be solved in the short term, changes to course design are on an *ad hoc* basis rather than as a result of a systematic review of the outcomes of the learning experience. Although the introduction of an instructional design model may help instructors in this process, the lack of time for analysis fails to make proper use of the valuable feedback presented by students as they progress through the DBA programme. The feedback from students on the DBA has been largely positive. As members of the first cohorts, students recognized that they had embarked on an experimental phase of the programme. The learning experience they related to the course management team formed a significant input when determining future changes to the programme.

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