

International concurrent course delivery: Bringing pragmatic research to the classroom

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Abstract: Tele-health, or health care at a distance, is increasingly becoming a common form of health service delivery yet few academics are researching this field, and fewer are teaching about it. This presentation discusses the development and delivery of a highly innovative on-line course delivered internationally and concurrently. Through a review of early applications of the technology in the UK and Canada, the course highlights societal, economic and technological drivers and the benefits, opportunities, challenges and barriers to this type of service delivery. It allows students from Western University, Canada to engage with academics and students from the University of Sheffield, UK as the content is provided by academic leaders in the field from both Universities allowing students to gain an international, comparative perspective. Students on the course are exposed not only to the new technology, but to the best academics undertaking cutting-edge research to develop and mainstream them.

Introduction

This presentation discusses the development and delivery of an innovative course entitled an “Introduction to Telehealth and Telecare Technologies”. It is a graduate level course taught to students on the Master of Health Information Science (MHIS) program at the University of Western Ontario, Canada and *concurrently* to students on the Master of Science Health Informatics (MSCHI) program at the University of Sheffield, UK.

Course Development

When discharged following a period of care in hospital, few of us would expect the clinician who will provide our transitional care to arrive in a cardboard box accompanied by an installation engineer. This, however, is increasingly becoming the case for patients discharged from hospital with a range of chronic conditions. Patients are increasingly being provided with tele-health monitoring technology as a replacement for home visits by specialist clinicians, for out-patient interventions and supportive or rehabilitative care programs. Utilized for preventive program delivery, such as remote dietary coaching for the morbidly obese, through to palliative end of life care, tele-services can be used for a spectrum of health care needs. It is argued that this innovative approach to healthcare service delivery can lead to significant cost savings (Audit Commission, 2004) as they allow clinicians to safely and effectively manage a larger caseload than was previously possible (Broderick, 2011), expand clinical services by enabling providers to deliver care to more users using the same level of resources or, where resources are diminishing, allow the service to maintain steady state. It removes the geographical restriction to health care delivery, potentially reducing in-convenience to the patient, allowing them to remain in familiar settings and reducing the probability of medical complications resulting from being physically present in a clinical setting. There is evidence that use of tele-health monitoring potentially results in a reduction in mortality rates and reduces the frequency of subsequent hospital visits by patients requiring emergency attention and; allow for the more reliable identification of patients likely to require additional clinical interventions; manage workload; and target care more appropriately (ibid, Darkins et al, 2008). It is for these reasons that the Veterans Health Administration currently has over 43,000 clients using Telehealth services across the USA (ibid).

Given the proliferation of these tele-technologies it could be anticipated that they would be embedded within University health studies programs however, this is not the case. Consequently the online graduate course described within this presentation was developed to meet a previously unmet need both in the UK and Canada.

As described above, tele-health and tele-care services are a relatively recent innovation and can cover a diverse range of technologies and clinical applications. Furthermore, as an emerging trend, there is relatively limited published evidence to support the development of new course content. Having worked at the University of Sheffield, UK in one of few research groups examining tele-health and tele-care technologies, the course leader was in the fortunate position of knowing several academics researching several approaches and technologies for health monitoring and rehabilitation services but realized that analysis of these alone would not expose students to the full potential of tele-health and care services. On taking up a faculty position at the University of Western Ontario, a second nucleus of academics researching preventive, rehabilitation and palliative tele-health services were identified. Given the nature of the course content - an introduction to remote health and social care service using information and communications technologies to facilitate delivery – the concept for the course was identified: a pragmatic course that would be delivered online and introduce students to the cutting edge research being undertaken at both universities. Drawing teaching faculty from two Universities, it seemed logical to offer the course to graduate students at both Universities; however this was not without further difficulties, some of which are identified below.

Multiple Faculty Program Management

To add to the complexity of development and delivery, not only was the proposed course the first of its kind in terms of simultaneous delivery to students enrolled in programs at two universities, the course was to be added to the cadre of electives for graduate programs delivered by formal and informal partnerships between two Faculties within their respective Universities. The MHIS is delivered as a joint graduate program by the University of Western Ontario's Faculty of Information and Media Studies and Faculty of Health Sciences. The MScHI falls within the portfolio of the School of Information within the Faculty of Social Sciences at the University of Sheffield, however many of the courses, including this new one, are delivered by faculty members from the School of Health and Related Research in the Faculty of Medicine, Dentistry and Health. Consequently the proposal for the course had to be approved by both the School of Health and Related Research as well as the School of Information. In summary, before being able to proceed with development and delivery, this new course required approvals from four Faculties, two Universities and two program/teaching councils.

Differing program durations, registration status, tuition modality and student profiles

The MScHI is a part-time program aimed at experienced health care professionals working in the field who want to improve services in their sector by getting more out of information and communication technologies. Students undertake the program over three years. During the first two years students study taught modules via distance-learning and in the final year students undertake their research dissertation. The taught modules are delivered using the University's Virtual Learning Environment and specialized distance-learning software which allows lectures to be delivered online in real-time.

Conversely the MHIS is a full-time program delivered in face-to-face, campus-based format over two years to students who predominantly have come directly from their undergraduate program, few of whom have experience of working in the health care sector. The aim of the program is to provide students with fundamental knowledge in health and health care, including public health, health policy, and clinical health care, combined with expertise in knowledge organization and management, knowledge translation, patient and professional information seeking behaviour, and information ethics and policy.

By combining these two student cohorts it was hoped that there would be greater opportunity for collaborative learning, but it was recognized that the course content would need to be developed and delivered in such a way that the learning needs of both student populations could be met.

Different academic calendars

The table below highlights some of the difficulties encountered when trying to establish when the course could run and enable attendance by both Western and Sheffield students given the significant differences in semester dates and durations, and the fact that the MScHI only includes one elective course:

University of Western Ontario		University of Sheffield	
Schedule	Program elements	Program elements	Schedule
Semester 1 (Sept 1 2011 – Dec 31 2011)	3 required courses	2 required courses	Semester 1 (Sept 26 2011 – Feb 4 2012)
Semester 2 (Jan 1 2011 – Apr 30 2012)	1 required course Elective(s)	2 required courses	Semester 2 (Feb 6 2012 – June 9 2012)
Semester 3 (May 1 2012 – Aug 31 2012)	Research project preparation Elective(s)		
Semester 4 (Sept 1 2012 – Dec 31 2012)	Remaining elective(s) Research project	2 required courses	Semester 3 (Sept 24 2012 – Feb 2 2013)
Semester 5 (Jan 1 2013 – Apr 30 2013)		2 required courses <i>1 elective</i>	Semester 4 (Feb 2 2013 – June 8 2013)
Semester 6 (May 1 2013 – Aug 31 2013)			
		Research project / dissertation	Semester 5 (Sep 30 2013 – Feb 8 2014)
			Semester 6 (Feb 10 2014 – June 14 2014)
	Total: 4 required courses 3 elective courses Major research project	Total: 7 required courses 1 elective course Major research project	
	Grade submission dead- line for progression: May 14, 2013	Grade submission dead- line for progression: November 11, 2013	

Table 1: Comparison of the teaching calendars and program elements for the University of Western Ontario and the University of Sheffield

It should also be noted that whilst the semesters at the University of Sheffield appear longer than those at the University of Western Ontario, one further consideration was the disparity in University holidays. Whilst the University of Western closes for only for four days at Easter (Good Friday through to Easter Monday), and two weeks at Christmas, the University of Sheffield closes for three weeks over Easter and four weeks over Christmas. The difference in Easter holiday proves particularly difficult when considering scheduling a course to run in the second semester of each academic year.

Varying faculty experience of teaching

At the University of Western Ontario faculty members typically carry a standard workload of 40% teaching, 40% research and 20% service. Furthermore, students complete online evaluations of both the course and the instructor at the end of each course, so faculty members are very experienced instructors and are required to maintain a high standard of teaching. The University of Western Ontario has identified the importance of developing online course delivery and is committed to the development of high quality course development and delivery. To this aim, in Fall 2012 a University E-Learning Task Force was struck to review the status of e-learning, to explore benefits, opportunities and challenges, to articulate guiding principles, and to formulate strategic objectives for e-learning at the University of Western Ontario. The task force membership included representation from students, staff, faculty, and administration, and its work culminated in a report to the Provost. The Faculty of Health Sciences had already recognised the importance of online learning and earlier that year had created an Alternative Delivery Committee with representation from each of the five Schools within the Faculty (Communication Sciences and Disorders, Health Studies, Kinesiology, Nursing, and Physical Therapy). This committee seeks to share best practice and to support faculty members striving to integrate online learning within their courses. Consequently, all Faculty of Health Science members are experienced instructors, many have experience of online learning and teaching, and all have access to a specific online learning support network.

At the University of Sheffield the faculty members who were invited to teach about their tele-health and tele-care care research initiatives were classified as research faculty. These faculty members are funded specifically for their research activity with very limited allowance for teaching. Each teaching activity is given a specific hourly weighting, for example ten hours for the supervision of a MSc dissertation or ten hours for the development of a new online learning lecture, etc. Within the Rehabilitation and Assistive Technology research group at the University of Sheffield, faculty members on research contracts are instructed to undertake a maximum of ten hours of teaching per year and, in line with their research mandate, this is encouraged to be completed providing research supervision for graduate students. Requesting faculty either forgo their graduate supervisory duties or complete additional teaching activity created a dilemma for the group leadership. Furthermore, prior limitations on their teaching capacity meant few of the faculty were experienced in any form of instruction, whether face-to-face or online.

Different Virtual Learning Environments

In September 2011, the University of Sheffield upgraded its Virtual Learning Environment (VLE), known as MOLE (My Online Learning Environment) to the latest version of Blackboard Learn 9. Whilst the MScHI was using WIMBA for online course delivery when approval was granted to create the new 'Introduction to Telehealth and Telecare' course, it was unclear whether this software would continue to be supported. Simultaneously, in September 2011 the University of Western Ontario upgraded its VLE, known as OWL (Online Western Learning) to Sakai. Both VLEs were still in their infancy at the two universities making full integration and sharing of online teaching resources files problematic.

Different time zones and Daylight Saving Times

The online course is delivered to students both in Canada and the UK. For most of the year the Universities has a time difference of five hours, meaning any synchronous delivery needs to be undertaken during the hours of 9:30 a.m. – 12:30 p.m. EST / 14:30 – 17:30pm GMT.

One further factor to consider is that daylight savings time is not implemented concurrently in both countries. In Ontario, Daylight Saving Time begins at 2:00 a.m. on the second Sunday in March and returns to Standard Time at 2:00 a.m. on the first Sunday in November areas. In the UK, British summertime (the DST equivalent) begins at 1:00 a.m. on the last Sunday in March, and returns to standard time at 2 a.m. on the last Sunday in October. Consequently there are several weeks where the time difference is actually four hours rather than five, causing significant confusion for all concerned.

Conclusions

This presentation will demonstrate that it is still possible to develop and deliver a highly original course that is valued by students even when the development and delivery has to take into account:

- A fluctuating and no less than four hour time difference between delivery sites;
- Involvement of nine collaborating tutors, some of whom have limited teaching experience;
- Two different online teaching environments;
- Two significantly different university term calendars and holiday schedules;
- Requirement for approval by four faculties;
- Significantly different student populations; and
- The course content being based on an emerging field.

When seeking to introduce innovative courses on emerging trends, it is suggested that instructors consider the opportunity of bringing international collaborative research into the online classroom using asynchronous media. It creates an exciting environment for students and a synergy between international faculty members that supports the development of new research potential: a truly winning combination.

References

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