DIFFERENT EDUCATIONAL DELIVERY MODES: MEETING STUDENTS’ NEEDS

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ABSTRACT

As universities increasingly rely on electronic delivery of education to aid their quest for greater operational efficiency, and to provide more flexibility for students to access their services, the question arises as to whether bricks and mortar universities could ultimately be replaced almost entirely by e-learning. The answer to this question depends on how well e-learning can meet student needs, which in turn depends on just what are those student needs. In this study, our students were asked for their views (via online discussion forums) on whether on-campus programs have a future, and for their reasons for their position. Content analysis was performed on 118 scripts with the aim of obtaining an overview of what outcomes students expect to get from a university education, the relative importance of these outcomes, and the students’ perceptions of how well e-learning delivers them. Eight themes were identified that students felt were important in assessing the relative merits of electronic as opposed to face-to-face delivery. Even students who were currently studying online felt strongly that face-to-face programs will always be necessary, particularly for undergraduate programs; key reasons included their need for interaction to enhance the effectiveness of different teaching methods in some courses, the extra dimension added by face to face interactions with fellow students, provision of specialized facilities and equipment, and the external discipline and motivation that can be associated with attending classes.

KEYWORDS

Electronic delivery, face-to-face delivery, e-learning, student needs

1. INTRODUCTION

Universities are increasingly relying on electronic delivery of education to aid their quest for greater operational efficiency, and to provide more flexibility for students to access their services. The question then arises as to whether bricks and mortar universities could ultimately be replaced almost entirely by e-learning. The answer to this question depends on how well e-learning can meet student needs, which in turn depends on just what are those student needs and their relative importance. First we consider the reasons that have been suggested for the increasing use of on-line delivery of education, and then discuss how this has been reported to impact on the ability of universities to meet the needs of students.
1.1 Online Delivery in Education is Increasing

Developments in industry influence the delivery of education. Technology is increasingly becoming part of the consumer interface in services. Online delivery is becoming increasingly common in both business and higher education institutions, and is important in the marketplace for training, retraining and pursuing advanced degrees (Anstine & Skidmore, 2005; Smith & Rupp, 2004). Consequently, many education encounters are shifting from “low-tech, high-touch” to “high-tech, low-touch” with staff being removed from them and students accessing the service at a time and location of their own choice (Bitner, Brown & Meuter, 2000). Ives and Jarvenpaa (1996) suggested that the need of students to interact physically with each other and with a teacher will decrease as electronic spaces begin to supplant physical spaces. This trend raises questions about the extent to which education should be technology-based or technology-supported, and whether bricks and mortar universities will retain the enduring physical presence that they have demonstrated in the past (Ives & Jarvenpaa, 1996).

The development and use of online courses in recent years has been influenced by the advantages that technology provides with respect to flexible learning and potential cost savings (Scheines, Leinhardt, Smith & Cho, 2005). Online business education provides a means of increasing access and meeting the demands of a growing and demographically changing student population (Smith & Rupp, 2004). It often produces a better fit with the lifestyles of students and faculty members when compared to traditional courses, with advantages including lowered costs, convenience, security, flexibility, and the ability to ignore time differences and geographic distance (Ives & Jarvenpaa, 1996). However, universities are using online programs not only for student flexibility, but also to achieve efficiency and productivity gains, and the implications of increasing technology use are complex and diverse. Referring to online service environments, O’Neill, Wright and Fitz (2001, p. 402) stated that “Often viewed as a means of improving operational efficiency and the service delivery mechanism, this move from extremely “high touch” to “high tech” service has obvious ramifications far and beyond bottom-line calculations.” We are interested in whether increasing use of electronic technology to provide both services and education affects the ability of a university to meet the needs of its students.

1.2 Meeting the Needs of Students

There is general agreement on the primary objective of education. In the words of Zhu and McFarland (2005, p. 72) “learning is the ultimate goal of the education experience… Assurance of learning requires us to adjust our thinking from an internal model of curriculum development to an external model of learning effectiveness and education accountability”. With this focus in mind, in this section we first consider student learning outcomes.

Despite considerable interest and many studies, conflicting findings continue to emerge about how online course delivery compares to traditional forms with respect to objective measures of student learning (Scheines et al., 2005). In their investigation of online business education for professionals, Smith and Rupp (2004) found that online courses produced higher grades than traditional classroom courses. Similarly, in a series of experiments involving more than 600 students, Scheines et al. (2005) found that students who replaced lectures with online modules did as well, and usually better, than those who attended lectures; this finding was independent of the student’s lecturer, tutor and gender. Other scholars support “no significant difference” (Finlay, Desmet & Evans, 2004) or find the online environment substantially less effective (Anstine & Skidmore, 2005). In a study in which they compared students’ attitudes to online and face-to-face delivery, Finlay et al. (2004) found that students in the online environment expressed higher levels of satisfaction and participation but there was no significant difference in outcomes with respect to their self-reported critical thinking. Another issue contributing to the debate is that methodological differences exist between studies, restricting their generalisability and interpretation. For example, Finlay et al. (2004) noted that the literature mainly uses asynchronous instruction and few studies compare online (synchronous) with face-to-face delivery.

As universities continue to adopt online technologies, we need to understand the environment so that good learning outcomes are ensured. This means addressing questions of the quality of experiences for students. However, online quality is unclear and elusive. Barbera (2004, p. 13) stated “The promise of distance education through virtual environments being able to provide high quality education has yet to be
realized.” Barbera’s argument is based on education that enhances true student interaction and in which development and support staff are required. In their study, Scheines et al. (2005) attributed students’ success in the online version of their course to frequent voluntary engagement with interactive comprehension checks, made possible by technology but difficult in traditional, passive lecture situations. Finlay et al. (2004) concluded that both the technology and the instructor matter, stating that effective student interaction in their study arose because instructors managed the virtual environment well. Salter (2003) reviewed the various meanings often ascribed to ‘learning’ – “learning as knowing”, “learning as applying knowledge”, and “learning as a path to wisdom” – and discussed in general terms how use of technology can promote these forms of learning, but can interfere with learning if used inappropriately.

Learning outcomes are not only inextricably tied to the quality of the learning environment, but they also depend on the student’s ability to adapt and learn within that environment. For example, Scheines et al. (2005) gave students the opportunity to print online modules, which meant that interactive material and comprehension checks were removed. They found that students who printed material tended not to return to the interactive environment and their performance in final exams suffered accordingly. These authors conclude that “We need to build online environments that support students, not only with content and interactivity, but also in how they are using the environment itself (p. 22).”

Although students need to learn how to use the online environment effectively, it can produce high quality experiences for them, which are not always available in face-to-face situations. Smith and Rupp (2004) claim that, when compared with traditional classrooms, distance education has more scope to build collaborative relationships, and develop global thinking and creativity in problem-solving, and strong team-building. They also suggest that rich discussion online can draw out the quiet person much more efficiently than face-to-face situations. It is clear that many scholars believe that technology offers the opportunity to change learning to an active pursuit, to give immediate and frequent feedback to learners, and maintain a high level of participation and engagement in a group.

Most researchers have focused on learning as the ultimate goal of education, but most students can be assumed to have other goals, both explicit and implicit, when they embark on a university education – these might include, for instance, exposure to a wide range of cultures and points of view, or building social networks that will be useful in later professional life. There is very little reported in the literature regarding what they are, their importance to students, or the relative ability to deliver them of on-campus as opposed to on-line delivery of education.

2. AIMS OF THE STUDY

- To explore students’ views on the future of face-to-face delivery, and consequently
- To identify what outcomes students expect to get from a university education, their relative importance, and the students’ perceptions of how well e-learning delivers these outcomes compared with face-to-face delivery.

3. METHODOLOGY

In keeping with its exploratory nature, a qualitative design (Creswell, 1994) was adopted for the study. Two different cohorts of tertiary students studying at the University of Newcastle were asked to respond to the question “As the possibilities widen for electronic delivery of education, will there still be a place for on-campus programs?” Data were collected online via discussion forums.

The first cohort consisted of second year, on-campus undergraduate students studying either Information Systems or Business (n=40; 50%). Students attended one two-hour lecture and one one-hour tutorial each week and participated in online discussion forums (via the learning management system, Blackboard; for details see http://www.blackboard.com/us/index.aspx). Five of the 40 respondents contributed to the discussion twice. The second cohort consisted of postgraduate students studying various postgraduate management or information technology degrees, predominantly MBA and MIT (n=59; 45%). Students in this group were situated all over the world and all interaction was by electronic discussion forums and email.
the 59 respondents, 52 contributed to the discussion only once while the other seven students contributed two to five times.

Content analysis of the qualitative data was performed in accordance with the recommendations of Miles and Huberman (1994). It consisted of the three major steps: data reduction, data display, and conclusion drawing/verification. The data reduction step involved content coding the text to identify and label what participants talked about. This step was performed by two of the authors working independently. They read the 118 scripts, generated a list of topics, and then three of the authors met to compare the lists, and to agree on themes (clusters of topics) and their definitions. Data were displayed according to the themes (Table 1). Frequency counts of the number of times each topic was mentioned were used to obtain a sense of the relative strength of the themes. The third step, conclusion drawing and verification, involved interpreting the meaning of the data and testing its plausibility by revisiting the transcripts to confirm the conclusions in their original context.

4. RESULTS AND DISCUSSION

Students’ responses to the question “As the possibilities widen for electronic delivery of education, will there still be a place for on-campus programs?” suggested that they believe that on-campus programs will always be necessary. However, their comments were invariably qualified by reference to specific areas. To clarify these areas, data were content-analysed and summarized as outlined above. Eight major themes were identified from 41 topics that were discussed; several of these themes focus on providing appropriate support for learning. Almost all student comments related to electronic support for delivery of teaching; there were almost no comments on electronic support for administrative functions such as enrolment or provision of information about programs. Table 1 provides a summary of the themes, their description and typical comments, arranged in order of the relative strength of the themes. Note that percentages quoted are as a percentage of references to sub-themes; student scripts each contained an average of 2 sub-theme references. Following Table 1, we discuss in more detail students’ comments about each of the themes.

Table 1. Summary of themes emerging from the content analysis

<table>
<thead>
<tr>
<th>Theme (Strength*)</th>
<th>Description</th>
<th>Typical comments</th>
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<tbody>
<tr>
<td>1. Teaching methods (23%)</td>
<td>The effectiveness of different teaching and learning methods</td>
<td>Face-to-face necessary for quality education; face-to-face lecturers must add value to slides; on-campus more interesting; face-to-face discussion quicker, more vibrant, more thorough; perception of lower quality on-line</td>
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<td>2. Practical considerations (20%)</td>
<td>Practical considerations important to students including flexibility, work, travel, family and time</td>
<td>Difficulty in getting to a classroom; on-line good for those with families; on-line more flexible; would prefer face-to-face but pragmatic choice is on-line</td>
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<tr>
<td>3. Social aspects (14%)</td>
<td>Social interaction and engagement not associated with specific academic outcomes</td>
<td>Build networks for the future; on-line don’t know others in class, don’t feel so much part of a community; discussions in the bar with fellow students are part of the educational experience</td>
</tr>
<tr>
<td>4. Credibility (11%)</td>
<td>Overall perception of quality, and the benefit of building on traditions and past values</td>
<td>On-campus and on-line are complementary forms of education; established bricks and mortar existence gives credibility to on-line offerings; interaction between bricks and mortar and community [is important]; the traditions are part of the education</td>
</tr>
</tbody>
</table>
5. Learning environment (9%)

Learning support in terms of the intellectual environment that facilitates outcomes such as participation and collaborative learning

On-campus students stimulate each other; exposure to different points of view; on-campus better for development of teamwork; tutorials most valuable aspect of on-campus

6. Cost (9%)

Students’ perceptions of cost and value

Danger of university education becoming too expensive for masses; fees for on-line should be lower because fewer uni resources are used; perception that on-line delivery is cheaper for uni than on-campus; students want value for money

7. Facilities (8%)

Learning support in terms of the facilities provided and the physical environment

On-campus necessary for hands-on, practical work; campus provides resources that students couldn’t buy; size limits on physical institutions

8. Individual characteristics (6%)

The demographics, characteristics and attitudes of students, including their judgments about what suits them

On-line requires self-discipline; on-line requires motivation; students have different learning styles; bricks and mortar unis are in comfort zone; mature students OK on-line; on-campus best for undergraduates

* Based on the proportion of total comments

4.1 Teaching Methods

There was strong feeling (15%), particularly among the undergraduate class, that certain aspects of education, to be effective, require face-to-face interaction; however, they would choose tutorials over lectures as the best face-to-face teaching mode, and generally see little value in lectures if the lecturer doesn’t add value beyond reading out the lecture slides. The on-line postgraduate group was particularly aware that hands-on experience is difficult to provide on-line. Undergraduates suggested a number of areas in which face-to-face interaction was of benefit, for instance, developing oral communication and presentation skills; developing team skills; making it easier to get alternative explanations of difficult concepts; enabling discussions to be quicker, more vibrant, more thorough, whereas written discussion is slower, and more laborious (but does give more opportunity for critical thought prior to contributing); in stimulating interest and getting students in the right frame of mind for learning. There were relatively fewer contributions from the postgraduate class, possibly because they had already mastered some of the skills that undergraduates were aware of needing to develop. There were comments from both groups that no single teaching delivery method would suit all topics and all situations.

4.2 The Learning Environment

This theme was also concerned with learning support for students. Postgraduates studying on-line seemed far more aware of the limitations of the on-line mode. They suggested that on-campus students stimulate each other more directly, and have better opportunities for development of oral presentation skills and teamwork skills. There was a suggestion that tutorials are the most valuable form of on-campus interaction. However, on-line delivery was seen to have some advantages including forcing improvement of written communication skills, allowing longer consideration of contributions to discussions, and potential exposure to a wider variety of different points of view when students are drawn from all over the world.
4.3 Practical Considerations

Both groups recognized that on-line study options can solve problems that would otherwise prevent them studying at all; not surprisingly, the group of students who were already studying on-line mentioned practical issues more often than the on-campus group (14% of total comments compared to 6%). Most commonly cited advantages of the on-line mode were geographic separation from a suitable source of education, the need for a flexible timetable, work commitments, family commitments, and time constraints. Two disadvantages of the on-line mode were also mentioned: the necessity for the student to provide and maintain his or her own equipment, and the difficulty of dealing with distractions at home (undergraduates). Some postgraduates commented that they now could work effectively at home. These comments partly explain why students choose online approaches, but not what constitutes an effective online experience for them.

4.4 Cost

Students commented on the high cost of university education in general and the need to obtain value. They speculated on the relative costs of development and delivery of on-line courses as opposed to on campus, including noting that the university provides fewer physical resources (e.g. computers, lecture theatres) to on-line students.

4.5 Individual Characteristics

The postgraduate students felt quite strongly (7% of postgraduate comments) that they would not have had the self discipline and motivation to study successfully on-line when they were undergraduates. There was almost no mention of these two characteristics by the current undergraduates but, as noted above, this group was concerned about distractions at home – an interesting indication that at least some postgraduates have learned that distractions can be overcome by the development of self-discipline.

4.6 Social Aspects

Both groups commented on the greater opportunity, when on-campus, for social interaction and engagement that is not associated with specific academic outcomes. However, the on-line postgraduate students were notably regretful of their reduced opportunities to develop interpersonal skills through informal social interactions with fellow students. This continued to be a strong theme even after a student pointed out that there are other forums available in the community to develop interpersonal skills and have social interaction. On-line students also commented on their reduced opportunities to develop networks that would be useful in their future professional careers. Clearly they would support the suggestion by Smith and Rupp (2004, p. 102) that “The social dynamics of online and distance education demand that these emotional bonds of group support and trust be treated as a serious topic for future research.”

4.7 Facilities

Like social aspects, this theme was more an issue in the minds of the postgraduate students already studying on-line. They were very conscious of the unsuitability of some topics as on-line offerings, for reasons that included the need for face-to-face demonstration: “How do geology students learn how to identify minerals or rocks, or complete field mapping?”, and the need in some courses to use equipment that would not be available to individual students away from a campus setting.

4.8 Credibility

The majority of comments on this theme came from the on-line group. A common theme was that there is generally a negative perception of on-line education. Many students (7% of comments) felt that there is a value associated with tradition, and the place that a university has established in a community; it was felt that
students in an entirely on-line university would be unlikely to develop a sense of belonging, or a definable university community and tradition. Stakeholders, including students and employers, look for signs of prestige – for instance, age is often seen as an indicator of standing. Students suggested that on-line courses offered by an established bricks and mortar institution are likely to have more credibility than those from an entirely on-line organization. Some students pointed out that the on-line mode benefits from the long standing acceptance of distance education programs, and can be a considerable improvement on traditional distance education because it adds the facility for interactive discussion between all participants. Students felt strongly that no matter what the delivery method, universities should be focusing on providing an education, and opportunities for personal development, rather than on vocational training, and should not be driven by commercial pressures.

5. CONCLUSION

The current study suffers from some limitations. For example, the question was very open and failure by a group to raise some issues may simply have been that they didn’t happen to occur to anyone. Additionally, the process of discussion was not taken into account, and it is unclear whether the first person in the discussion “set the tone” and inadvertently limited the direction of subsequent discussion. A further limitation of the study was that the students who participated were all studying towards vocationally oriented degrees; further work will be necessary to clarify whether students from different academic disciplines (e.g. the humanities) share their views. However, the findings from these two cohorts indicate a strong belief that on-campus programs will always be necessary. This was true even of students who were currently studying online due to practical considerations related to their lifestyles. Key reasons included the need for interaction to enhance the effectiveness of different teaching methods in some courses, and the extra dimension added by face-to-face interactions with instructors and fellow students.

Students qualified their support for the importance of face-to-face interaction by indicating that poor face-to-face delivery of material is no better, and possibly worse, than on-line delivery. Support was strong for some on-line delivery, again qualified by recognition that certain teaching activities are hard to do well on-line, and are therefore often done badly. It seems that students would generally agree with Barbera (2004, p. 13) “The promise of distance education through virtual environments being able to provide high quality education has yet to be realized.” Barbera suggests that virtual education environments are failing to meet the promises made because they focus on technological and aesthetic criteria over educational criteria, and they confuse supply of information with knowledge-building processes. Students’ comments indicated that they believe that supply of information on-line is the easy part; developing deep understanding via on-line interaction is much harder.

Overall, students believe that the trend to increasing electronic delivery in most tertiary courses will provide them with more options and choices, and that a “clicks and mortar” strategy will allow best advantage to be taken of the strengths of each mode. In the present study many students indicated that they want learning and they also value social engagement and development. Academic achievement may be the ultimate, necessary goal but the question emerges about the extent to which it is sufficient. Educational institutions must ensure that all educational objectives are met. This means that the university must understand the full range of reasons why students embark on university studies, and seek ways to deliver an educational experience that meets the full spectrum of student needs. Our study suggests that increasing the use of electronic delivery raises issues, not only of service quality and access to learning support, but also of how to meet students’ non-academic goals such as social engagement and development.

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