

Student perceptions of the educational quality provided by different delivery modes

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Abstract: Increasing technology use is dramatically changing the way that education is produced and delivered, raising questions about the extent to which education should be technology-based or technology-supported, the effect of delivery mode on educational outcomes, and whether bricks and mortar universities can and should continue to flourish. A service orientation was adopted for the study, and our students, as consumers, were asked to discuss (online) their perspectives on the future of on-campus programs. Content analysis was performed on 118 scripts. A strong belief was found 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. Content analysis of their responses identified eight themes that were important in assessing the relative merits of online as opposed to on-campus delivery. Key reasons for retaining on-campus education 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 fellow students. Students believe that the trend to increasing electronic delivery in most tertiary courses will provide them with more options and choices, but that fully online educational institutions may suffer from a credibility problem.

Keywords: Online delivery, future of universities, learning support, reputation

Introduction

Rapidly increasing use of technology to deliver more of the educational experience creates a challenge for universities. They must deliver quality education in an equitable way to students who access it by diverse modes. Quality education reflects the integrity of the university as a service provider. Indeed, one of the major roles of quality monitoring is to ensure the integrity of higher education (Harvey, 2002). Given this context, we interpret educational integrity broadly. We argue that educational integrity requires a dual perspective and should focus on the actions and responses of both students and providers. It should give assurance that educational objectives will be met, and the manner of meeting them will reflect the honesty and reliability of the university. Using online technologies for teaching and learning may change the ability of the university to deliver its promises. That is, the quality of the service provided to students may reflect a different reality to that which is expected, and one which detracts from the integrity of the university. We commence our discussion by considering the reasons that have been suggested for the increasing use of online delivery of education, and then consider how this change has been reported to impact on both students and universities.

Increase in online delivery

Trends in the delivery of education reflect broad developments in industry. Increasing technology use is dramatically changing 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). Almost a decade ago, 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 [while] "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 the manner in which online and face-to-face, once different markets, are now merging and, in particular, what this means for students and universities of the future.

What does the increase in online delivery mean for students?

While education is a complex service industry with many stakeholders, its overall objective is clear. 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 consider student learning outcomes, the learning environment and the quality of the educational experience.

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, independent of their 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. Overall, scholars appear to support the view of Maki and Maki (2003) that it is the design and pedagogy, not the computerized delivery, which produces differences favouring web-based courses.

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 allege 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. Hence, we question where online technology is likely to lead education, and what the future role of the bricks-and-mortar university will be.

What does the increase in online delivery mean for universities?

Some scholars paint a challenging, if not gloomy, path ahead for universities. Teichler (2001) cites the rapid spread of new technologies as one of three major challenges facing higher education. He believes that this challenge will lead to rapid turnover of knowledge, changes in learning behaviours and competencies of students, and possible shifts in the role of the teacher in higher education towards advisory and feedback activities. Further, Teichler (2001) suggests that greater technology use may reflect increasing pressure for standardisation of knowledge, a stiff pecking order between institutions according to their roles, and a cost explosion in higher education.

The potential cost explosion seems likely to be accompanied by greater competition. Ives and Jarvenpaa (1996) stated that business schools and universities face considerable competitive pressure from private providers, such as publishers and software houses, who can develop multimedia products to be delivered on a self-serve and just-in-time basis. Ives and Jarvenpaa (1996, p. 34) suggested that “the emerging electronic infrastructure will require that the business education establishment make radical changes. Implementing a radical change, in turn, requires a shared vision of the future of business education.” This study explores where the current trend to online delivery is likely to lead our institution and why. We have adopted a service orientation and asked consumers, our students, for their perspective.

Aims of the study

1. To explore students' views on the future of on-campus delivery, and consequently
2. To identify students' perceptions of the educational quality provided by different delivery modes.

Methodology

In keeping with its exploratory nature, a qualitative design was adopted for the study (Creswell, 1994). 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 Blackboard). 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 e-mail. Of 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 all three authors met, compared the lists, and agreed 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.

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 summarised as outlined above. Eight major themes were identified from 41 topics that were discussed. Table 1 provides a summary of the themes, their description and typical comments, arranged in order of the relative strength of the themes.

As a means of interpreting the data, the Services Marketing Pyramid is used. This pyramid was originally conceived as a triangle, with the three vertices representing the organisation, employees and customers, and marketing priorities shown between each pair. Subsequent work by Parasuraman (1996, cited in Bitner et al., 2000) extended the triangle to a pyramid with technology as the fourth vertex. Adapting the pyramid to the education context provides a model which facilitates greater understanding of the complex interrelationships between the university, students, staff and technology. In this context, the service model requires attention to three major marketing systems: the external promises made to students and society; the interactive systems

between students and staff which help turn promises into reality, and the internal processes which enable staff to deliver the promised product. Together these systems constitute a whole which, ideally, ensures that the quality of service reflects the integrity of the university. Figure 1 shows this interpretation and positions the major themes identified in the study on the pyramid, and in accordance with students' responses. Following Figure 1, the themes are further discussed.

Table 1. Summary of themes emerging from the content analysis

Theme (Strength*)	Description	Typical comments
1. Teaching methods (23%)	The effectiveness of different teaching and learning methods	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 online
2. Practical considerations (20%)	Practical considerations important to students including flexibility, work, travel, family and time	Difficulty in getting to a classroom; online good for those with families; online more flexible; would prefer face-to-face but pragmatic choice is online
3. Social aspects (14%)	Social interaction and engagement not associated with specific academic outcomes	Build networks for the future; online don't know others in class; discussions in the bar with fellow students are part of the learning experience
4. Credibility (11%)	Overall perception of quality, and the benefit of building on traditions and past values	On-campus and online are complementary forms of education; established bricks and mortar existence gives credibility to online offerings; interaction between bricks and mortar and community [is important]
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 online should be lower because fewer uni resources are used; perception that online 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	Online requires self-discipline; online requires motivation; students have different learning styles; bricks and mortar unis are in comfort zone; mature students OK online; on-campus best for undergraduates

* Based on the proportion of total comments

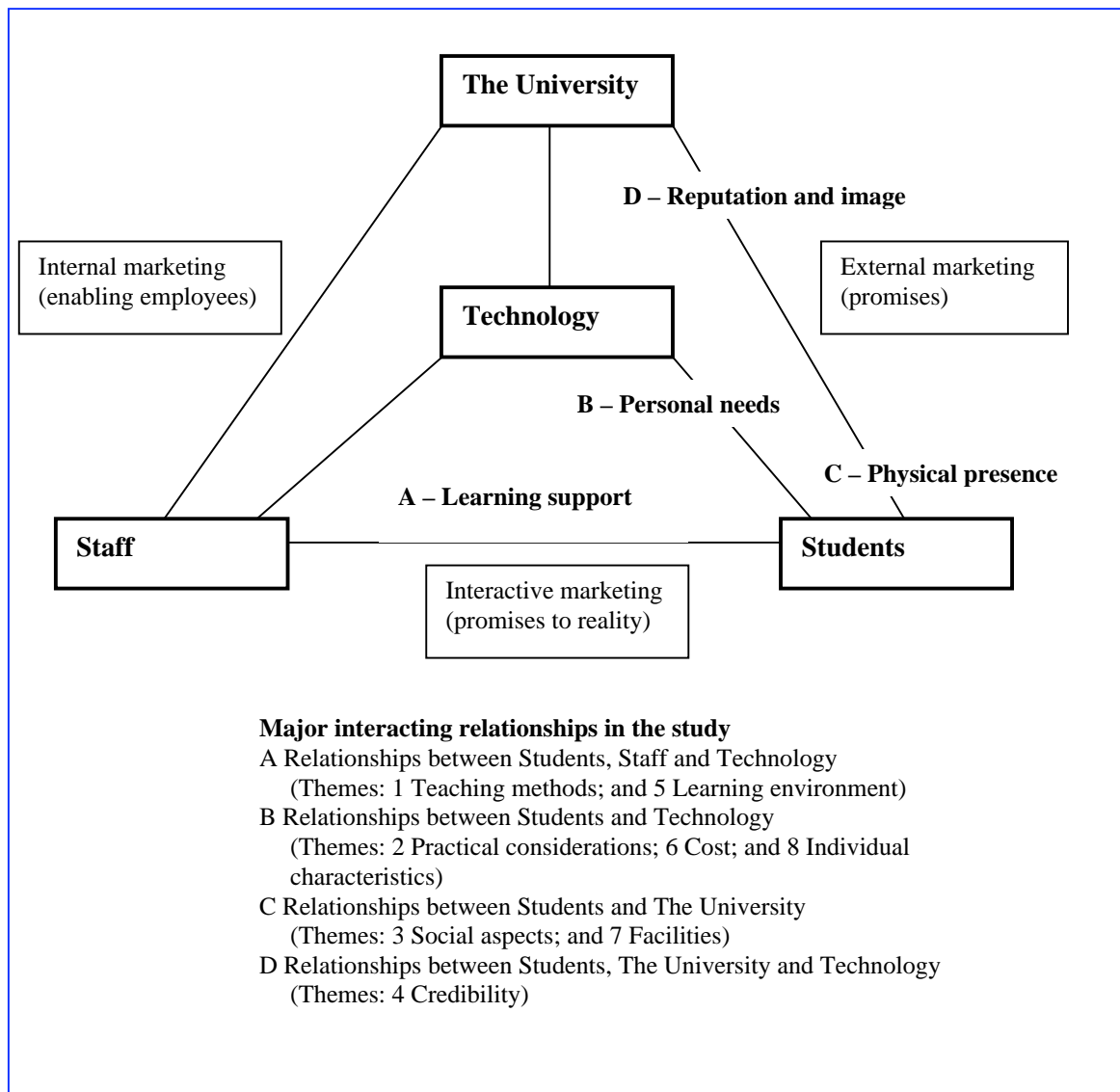


Figure 1 Interpretation of the themes using the Services Marketing Pyramid (developed from Bitner et al., 2000)

Learning support for students

Interactions between students, staff and technology (area A in Figure 1) were reflected in Teaching Methods, the strongest theme, and the closely related theme, Learning Environment. Note that percentages quoted are as a percentage of references to sub-themes; student scripts each contained an average of 2 sub-theme references.

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 online postgraduate group was particularly aware that hands-on experience is difficult to provide online. 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.

The Learning Environment

This theme was also concerned with learning support for students. Postgraduates studying online seemed far more aware of the limitations of the online 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, online 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.

Students' personal needs and preferences

Interactions between students and the technology (link B in Figure 1) emerged with respect to three themes: Practical Considerations, Cost, and Individual Characteristics. These are considered in turn.

Practical Considerations

Both groups recognised that online study options can solve problems that would otherwise prevent them studying at all; not surprisingly, the group of students who were already studying online mentioned practical issues more often than the on-campus group (14% of total comments compared to 6%). Most commonly cited advantages of the online 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 online 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.

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 online courses as opposed to on campus, including noting that the university provides fewer physical resources (e.g. computers, lecture theatres) to online students.

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 online 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.

Physical resources and presence

The third strongest theme was concerned with students' feelings about the importance of social interaction, achieved by being on-campus. This theme is considered in terms of the interactions between students and the

university with respect to the physical environment and its implications (link C in Figure 1). Thus, we discuss facilities in this section as well.

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 online postgraduate students were notably regretful of their reduced opportunities to develop interpersonal skills through informal social interactions with fellow students. They also commented on their reduced opportunities to develop networks that would be useful in their future 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.”

Facilities

Like social aspects, this theme was more an issue in the minds of the postgraduate students already studying online. They were very conscious of the unsuitability of some topics as online offerings: “How do geology students learn how to identify minerals or rocks, or complete field mapping?”

Reputation and image of the university

Interactions between students, the university and technology, with respect to tradition and quality emerged as a clear theme of importance (area D in Figure 1). We have labelled it credibility.

Credibility

The majority of comments on this theme came from the online group. A common theme was that there is generally a negative perception of online 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 online university would be unlikely to develop a sense of belonging, or a definable university community and tradition. Stakeholders, including students, look for signs of prestige – for instance, age is often seen as an indicator of standing. Students suggested that online courses offered by an established bricks and mortar institution are likely to have more credibility than those from an entirely online organisation. Some students pointed out that the online 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.

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 online delivery. Support was strong for some online delivery, again qualified by recognition that certain teaching activities are hard to do well online, 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 online is the easy part; developing deep understanding via online 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 integrity must ensure that all educational objectives are met, and will be reflected in the manner by which they are met. We have interpreted integrity in terms of the honesty and reliability of the provider. This means that the university must have the systems in place to deliver its service product in accordance with its image and reputation, and its specific promises to students. To do so, we need to understand the relationships that influence students' experiences and then fulfil our obligation to ensure that our people have the resources and expertise to deliver accordingly. Our study suggests that increasing the use of electronic delivery raises issues of service quality, access to learning support, and equity of educational outcomes. To keep our own educational integrity intact, we need to identify our goals in applying technology and ensure that we monitor and act upon our students' responses. At the end of the day they are our primary ambassadors.

References

- Anstine, J. & M. Skidmore (2005). "A small sample study of traditional and online courses with sample selection adjustment." *Journal of Economic Education* **36**(2): 107-127.
- Barbera, E. (2004). "Quality in virtual education environments." *British Journal of Educational Technology* **35**(1): 13-20.
- Bitner, M. J., S. W. Brown & M. L. Meuter (2000). "Technology Infusion in Service Encounters." *Journal of the Academy of Marketing Science* **28**(1): 138-149.
- Creswell, J. W. (1994). *Research Design Qualitative & Quantitative Approaches*. Thousand Oaks, CA, Sage Publications, Inc.
- Finlay, W., C. Desmet & L. Evans (2004). "Is it the technology or the teacher? A comparison of online and traditional English composition classes." *Journal of Educational Computing Research* **31**(2): 163-180.
- Harvey, L. (2002). "The End of Quality?" *Quality in Higher Education* **8**(1): 1-22.
- Ives, B. and S. L. Jarvenpaa (1996). "Will the internet revolutionize business education and research?" *Sloan Management Review* **37**(3): 33-41.
- Maki, R. H. & W. S. Maki (2003). "Prediction of learning and satisfaction in web-based and lecture courses." *Journal of Educational Computing Research* **28**(3): 197-219.
- Miles, M. B. & M. A. Huberman (1994). *Qualitative Data Analysis*. Thousand Oaks, CA, Sage Publications.
- O'Neill, M., C. Wright & F. Fitz (2001). "Quality evaluation in online service environments: An application of the importance-performance measurement technique." *Managing Service Quality* **11**(6): 402-417.

- Scheines, R., G. Leinhardt, J. Smith & K. Cho (2005). "Replacing lecture with web-based course materials." Journal of Educational Computing Research **32**(1): 1-26.
- Schweizer, H. (2004). "E-learning in business." Journal of Management Education **28**(6): 674-692.
- Smith, A. D. & W. T. Rupp (2004). "Managerial implications of computer-based online/face-to-face business education: A case study." Online Information Review **28**(2): 100-109.
- Teichler, U. (2001). "Mass higher education and the need for new responses." Tertiary Education and Management **7**(1): 3-7.
- Zhu, F. X. & D. McFarland (2005). "Towards assurance of learning in business programs: Components and measurements." Journal of the American Academy of Business **7**(2): 69-72.