

Critical Factors Required to Successfully Implement Distance Learning Programmes in Small States

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Abstract

Oklahoma State University (OSU) has the mission of extending educational programming to all the citizens of the state. Oklahoma has approximately 3 million people but 70 percent of them reside in a thirty-mile-wide band across the state, leaving 900,000 persons located in small towns throughout the huge majority of the land area. This is not dissimilar to islands in the Caribbean with pockets of population spread over a large geographical area. Likewise, the state and local funding patterns and educational bureaucracy have similarities also. OSU is working with the Ministry of Education in Colombia to use distance education to improve quality and access for pockets of population in rural areas of the country with emphasis on the Amazon region. For several years OSU provided interactive distance education programmes of Advanced Placement Science, Math, and Foreign Languages to the Virgin Islands. Included in this paper are the five primary programmatic and pedagogical factors necessary for successful distance learning. Also included are the twenty critical factors, in rank order, related to successful distance learning programmes as determined by a survey of thirty distance learning leaders in the U.S. and Canada. A strong consensus among the respondents was identified regarding the critical factors. That level of agreement was statistically validated by the calculation of the Kendall W test. This paper addresses the criticality of distance learning for geographically dispersed populations such as those in island nations. Finally, the paper addresses the importance of the critical factors identified as programme leaders begin to develop distance learning programmes for small states.

Introduction

During my thirty years at Oklahoma State University (OSU) I have been privileged to be a party to the development of a state-of-the-art videoconferencing facility that serves as a provider of distance education through the use of technology. As I look back over the last thirty years I believe that there were certain factors

that can be identified as critical to the success of our programme, the lack of which would have precluded the level of success we experienced. It is my intent in this paper to provide a brief view of where I think we are going in electronically mediated instruction and provide a list of critical factors required to successfully implement technology in distance education. This list of

factors is based on my personal experience and a review of the current literature, both of which are in remarkable agreement not only in what is included in the list but the relevant priority of each item.

OSU has the mission of extending educational programming to all the citizens of the state. Oklahoma has approximately 3 million people but 70 percent of them reside in a thirty-mile-wide band across the state, leaving 900,000 persons located in small towns throughout the huge majority of the land area. This is not dissimilar to islands in the Caribbean or other small states with pockets of population spread over a large geographical area. Likewise, the state and local funding patterns and educational bureaucracy have similarities also. OSU is working with the Ministry of Education in Colombia to use distance education to improve quality and access for pockets of population in rural areas of the country, with emphasis on the Amazon region. For several years OSU provided satellite-based interactive distance education programmes in Advanced Placement Science, Math, and Foreign Languages to the Virgin Islands. Based on these experiences I believe it is imperative for those of us with budgets and audiences of smaller scope to have a good understanding of the factors critical to success of distance education projects. Unlike larger organizations, we do not have the flexibility to fail.

For the purposes of this paper the terms distance education, educational telecommunications, technology assisted instruction, and electronically mediated learning can be considered synonymous. See Schlosser and Anderson (1994) for an overview of distance education and the various terms used in the literature.

The Future

In order to gain an appreciation of where we have

been and where we need to go relative to technology, let me relate a few facts which were provided by a colleague recently (Garcia, 1998) which relate to the USA but are applicable worldwide also:

- There has been more information produced in the last 30 years than was produced in the last 5,000 years.
- We are now experiencing a doubling of information every five years.
- One weekday edition of the *New York Times* newspaper contains more information than a person in the nineteenth century could get in a lifetime.
- During the first decades of the twentieth century 85 percent of the population was employed in agriculture; today, 3 percent.
- During the 1950s, 73 percent of the population worked in factories; today, 15 percent.
- Since 1987 there has been a reduction in the number of secretaries by 521,000.
- In the year 2000, 44 percent of all workers are in information services.
- Today, it is estimated that two-thirds of the workforce are working in “services” and “knowledge” is the most important product. This is expected to increase in the future.

I believe the future of distance education through electronically mediated learning is bright and offers the possibility of real improvements in access to a quality educational experience, especially for increasing numbers of people working in the service and information sectors of our economies. This technology is especially important to those of us in small states, as we must serve widely dispersed audiences, normally with small budgets for education.

Why Use Technology in Education?

Before we address the critical factors to successfully implement technology in instruction we must be prepared to answer the question of *why* this is important. In most cases this question will come from current educational administrators/faculty, governmental bodies, or other funding agencies. Why do we need to use this expensive equipment and technology to teach? For those of us who have seen the awesome possibilities of educational technology the answer is clear:

1. To improve access
2. To reduce cost/increase efficiency
3. To improve quality
4. To provide “on demand” or “just in time” learning
5. To allow a learner centred approach in an asynchronous or real time model

There are innumerable examples in the research literature that discuss the five factors listed above and their importance to successful educational technology programmes. There is no question that the use of technology can improve access to education for those bound by geographic remoteness, physical handicap, or jobs that preclude them from being physically present at a traditional university. The expense of developing and presenting courses for small numbers of students is often a problem in small states. We at OSU have been able to reduce costs drastically, especially for graduate courses in which a small on-campus class in Engineering, for example, is done from a distance learning classroom and several remote sites are added to increase the class size. Finally, Faculty with extensive experience in traditional lecture classes have admitted that the need to have well-planned and organized class time for technology courses has improved the quality of their instruction.

Perhaps the best statement of the criticality of educational telecommunications is one by Olcott (1997):

The rapid changes precipitated by technology and market demands on the educational enterprise will require nothing less than a major shift in the ways colleges and universities do business. It is somewhat disconcerting that many institutions believe that they can survive by avoiding these changes. Many are paralyzed by the insanity principle of continuing to do things the same way and yet expecting different outcomes. Institutions that define university outreach in concert with a self-serving parochialism will find themselves out of business.

As those of us in small states look at providing quality educational programmes to dispersed audiences on a small budget we must make our funding sources, public or private, aware of the advantages of this method of instruction. Only after we have satisfied ourselves and others that electronically mediated learning is a valid and worthwhile concept will we be able to look at the critical factors required to successfully implement technology in instruction.

The Critical Factors

A review of the literature concerning the topic of this paper revealed a consensus among writers relating to the most important issues as an institution looks at implementing an electronically mediated learning programme. Based on my experience at Oklahoma State University I would suggest that the most critical factors, in order of priority, are:

1. A need for the programme
2. Institutional “buy in” and support from administration and faculty

3. Quality instructional content
4. Student support services
5. Technology resources

Most of these factors are self-explanatory but a few words about student support services might be helpful. In order for the distance learning programme to be successful the institution must provide the remote student the same level of support as the on-campus student or, in some areas, more. For example, electronic office hours by the professor (for example by e-mail or interactive video), course registration, materials distribution and delivery, access to the library on-line, and training to use the technology are critical to the success of any programme. There may be many other areas of student support each institution must address but the critical factor is that the remote student should not be penalized for being at a distance.

Although the five factors listed above are critical from a programmatic and pedagogical standpoint, there are other factors that must be considered as well. Perhaps the best study I have seen on this subject is one done by Dr. Virginia W. Pearson, a former staff member at Oklahoma State University. Her study involved thirty leaders representing U.S. and Canadian organizations providing and using distance technologies for the purpose of training and education. They were asked to generate and rank the important factors that they considered critical to the planning and implementation of a distance education programme at their organization. In a three part Delphi round they generated, reduced, and refined some 286 possible factors to twenty critical factors they believed represented those key implementation issues.

There was strong consensus and agreement among the panelists and among the three groups regarding the final twenty key factors that needed to be included in the planning process. That level

of agreement was statistically validated by the calculation of the Kendall W test. The group also indicated that the importance of the factors to the planning process could not be overlooked and that the factors were dependent upon each other for the ultimate success of the implementation of the distance education programme.

The Pearson study revealed that the critical factors, in rank order, required to successfully implement technology in instruction are as follows:

1. Identified need for the programme
2. Faculty supportive and given incentives for motivation
3. Funds for capital costs: production, equipment, facilities
4. Availability of on-going money for operations and expenses
5. Quality of educational content of the programme
6. Adequate support staff to produce the programme
7. Ensuring equivalent learning experience to remote students
8. Enthusiasm and belief by the institution in the overall distance learning project
9. Identification of a visible, spirited key leader/administrator initiating the programme
10. Adequate receive sites, facilities, and staff
11. Availability of appropriate and specialized equipment to deliver the courses
12. Sufficient time for careful needs analysis of the student population
13. Ensuring equivalent status for remote students: i.e. credit, degree
14. Support for quality instructional design
15. Identification of a marketing plan for the courses

16. Cost effectiveness: feasibility and justification for delivery systems to students
17. Identified support/partners for the programme: industry, legislative, institutional
18. Continued credibility of the instruction with the public, faculty, students, and supporters
19. Knowledge of educational administrators, teachers, and staff at educational institutions on what distance education is and how to teach and use it effectively.
20. Ability to accredit courses, offer credit or transfer credit across states or institutions.

Summary

The identification of programmatic and pedagogical issues in distance education are especially important as small states consider entry into this arena. Funding levels and organizational support are often very limited in small states and it is imperative that the initial effort is successful. Resources are usually not available for repeated attempts.

As I look back over the last thirty years that I have been involved in distance education through the use of technology, it is clear that we have had the most success where the factors listed above were present. This does not mean one should wait to implement a programme of teaching with technology until all factors are present. We do not

live in a perfect world. It behooves us as educators, however, to work on satisfying as many as possible to increase the chances of success in any distance education programme.

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