Distance Education: What the Literature Says Works

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Abstract

The distance education literature is dominated by media comparison studies in which students learning at a distance are compared to students learning in a traditional classroom. Although newer, more technologically advanced media are hyped as facilitating more effective instruction, the research clearly indicates that all media of instruction are equally effective. Researchers can more profitably devote their energies to examining the truly critical factor in determining student achievement: instruction itself.

Introduction

In attempting to determine what “works” in distance education, much of the research has addressed the media used to deliver instruction, comparing the effect of different media on student achievement, and comparing distant learner achievement with student achievement in the traditional classroom. The literature has also addressed student satisfaction with a variety of distance education media and with distance education in general as indicators of what “works.” In an article addressing student satisfaction with televised college-level courses, Biner, Dean, and Mellinger (1994) suggest that, in judging the effectiveness of a course, learner satisfaction is “arguably as important as distance learner performance” (p. 61). High levels of learner satisfaction, the authors suggest, could result in several benefits, including: lower student attrition rates, greater number of referrals from enrolled students, higher levels of student motivation, greater commitment to a tele-education program, and better learning.

With these two criteria of effectiveness (student achievement and satisfaction) in mind, each of the new technologies has been characterized by greater technical sophistication. One argument for this increasing sophistication has been that interaction—both teacher-student and student-student is vital for effective learning. The assumption has been that the greater the degree of interaction inherent in the technology, the more effective (and desirable) the technology. Not surprisingly, recent technologies have featured higher levels of interaction—usually at higher monetary cost.

The original form of distance education, print-based correspondence study, is more than 150 years old, and academic degrees have been offered via correspondence since the 1880s. Print-based correspondence has remained, in spite of predictions to the contrary, a popular form of distance education because of its convenience and economy (Pittman, 1987). As late as 1987, some 250,000 Americans were enrolled annually in collegiate-based programs, and about four million Americans were enrolled in courses offered by the military, proprietary schools, and churches (Pittman, 1987). Research has consistently indicated that print-based correspondence study is an effective form of education—as effective as other forms of distance education as well as traditional instruction. Research has also indicated that students are generally satisfied with correspondence study. From their study of Pennsylvania State University students, St. Pierre and Olsen (1991) concluded that “…all students, regardless of their sex or age, seem to be satisfied with correspondence study” (p. 69). In correspondence study, teacher-student communication is usually conducted by post or telephone.

Audio-based distance education has used a variety of media. In the 1920s, at least 176 radio stations were constructed at educational institutions, although most were gone by the end of the decade (Buckland and Dye, 1991). Later, audiotape was successfully introduced for correspondence study. Audio-teleconferencing via telephone is a flexible, affordable medium for live instruction and interaction. Audio-teleconferencing features live, two-way audio communication, facilitating immediate teacher-student and student-student interaction. One staunch supporter of audio-teleconferencing, D. R. Garrison, (1990) has argued that it is “a distinct generation of distance education capable of providing unique and varied teaching/learning possibilities” (p. 17). Audio-teleconferencing has been
shown to be as effective as traditional, face-to-face instruction and students using this technology tend to have a positive attitude toward it (Garrison, 1990).

Televisioned instruction has taken a variety of forms, the advancing technologies employed allowing greater teacher-student (and student-student) interaction. In the early 1930s, experimental television teaching programs were produced at the University of Iowa, Purdue University, and Kansas State College. However, it was not until the 1950s that college credit courses were offered via broadcast television. “Sunrise Semester” was a well-known televised series of college courses offered by New York University on CBS from 1957 to 1982. The broadcast telecourse is a form of correspondence study that allows no live interaction between teacher and student.

Satellite technology, developed in the 1960s and made cost-effective in the 1980s, enabled the rapid spread of instructional television. While the early, federally-funded experiments were loudly criticized for being poorly planned, more recent attempts at satellite-delivered instruction, such as the privately-operated TI-IN Network, have been more successful. Satellite-based distance education allows students across a huge geographical area to receive programming, but at high per-hour cost (Jones, et al., 1992). Satellite systems normally offer one-way audio and video signals, with teacher-student interaction conducted by telephone.

Instructional Television Fixed Service (ITFS) using microwave signals for point-to-point transmission, were first employed for educational television in the 1960s and continue to be used over relatively short distances. ITFS is relatively low-cost and offers one-way video and two-way audio signals.

Compressed video systems, using high-capacity copper wire telephone lines, were introduced in the 1980s. Traditional compressed video systems have been faulted for their generally poor video quality, including a tendency for motion to be rendered in a jerky fashion, due to low frame-per-second rate (Jones, et al., 1992). Start-up costs have dropped due to lower end-point equipment costs.

Regional or statewide compressed video systems using fiber-optic cable, such as the Iowa Communication Network, have been constructed in the 1990s. These systems, benefiting from the greater bandwidth of fiber, feature higher-quality, full-motion video, but have high start-up costs (Jones, et al., 1992). Both compressed video systems offer two-way audio and video signals for the highest level of teacher-student and student-student interaction.

Videotaped televised instruction has gained widespread use because videocassette recorders are ubiquitous, no expensive infrastructure is required of the institution, little adaptation of traditional instruction is necessary, the videotaped instruction is convenient for the student. Because this is a form of correspondence study, teacher-student interaction is normally accomplished using telephone or post.

Research studies have clearly indicated that students learning from television-based distance education programs—whether pre-produced telecourses broadcast or on videotape, or live, interactive televised instruction—achieve just as well as students in traditionally-taught, face-to-face courses (Chu and Schramm, 1975; Whittington, 1987; Russell, 1989; Russell, 1995). Similarly, studies have indicated that students have generally positive attitudes toward all varieties of television-based distance education systems (Johnson, 1988; Beare, 1989; Jurasek, 1993).

But Which One is Best?

Having addressed each of the major media of distance education, and asked the question, “what works?” it is clear that the answer is, “they all do.” In terms of student achievement, no medium of distance education, from the simplest (print-based correspondence) to the most technologically advanced (live, two-way video-conferencing) is superior to another; nor is any inferior to traditional, face-to-face instruction.

One justification for adoption for more sophisticated technologies has been the opportunity for easier and more timely interaction—both student-teacher and student-student. However, the medium of interaction is no more crucial to learning than is the medium of instruction. Certainly, the frequency of interaction has no measurable effect on student achievement (Beare, 1989). This, along with evidence that students express high levels of satisfaction toward all forms of distance education suggests that there is absolutely no reason to believe that the use of the latest educational technology darling, the internet/world wide web, will result in higher student achievement or satisfaction than the use of any other medium of distance education.

It was, perhaps, not unreasonable to believe that increased technological sophistication would lead to greater student achievement. However, this has not been the case. Counterintuitive as it may be, decades of research indicates that the medium of instruction has no impact on achievement.

As early as the mid-1960s, reviews of the literature made clear that there was “no significant difference” in the educational effectiveness of various media (Chu and Schramm, 1975). This conclusion was memorably restated by Richard Clark, who offered a powerful analogy: “The best current evidence is that media are mere vehicles that deliver instruction but do not influence student achievements any more than the truck that delivers our groceries causes changes in nutrition” (Clark, 1983, p. 445). Clark argued that, in light of a huge body of evidence, further comparisons of
the effectiveness of instructional media were not warranted.

If it is certain that all forms of distance education are effective, and that students express a high level of satisfaction with distance-taught courses, it is equally certain that students prefer the traditional classroom (Barker and Platten, 1988; Johnson, 1988; Jurasek, 1993; Russell, 1995). As one researcher noted, students respond favorably to video and audio instruction if it is the way they can take the course or--even more important--keep their jobs. Distance education is not received as favorably by those who have a clear option for face-to-face instruction (Beare, 1989, p. 66).

Although the general preference for face-to-face classroom instruction may be due to comfort and familiarity with the traditional, it may also be due to the distinctive characteristics of distance education and the way in which instruction is adapted or, worse, not adapted, to those characteristics. As Wilkes and Burnham (1991) noted, those factors which influence good instruction may be generally universal across different environments and populations. From observations and interviews it was concluded that the [electronic distance education environment] system exaggerates an instructor’s weaknesses. If instructors are boring in a face-to-face setting, they can reach undescrivable depths of insipidity coming across the phone lines (p. 49).

**Conclusion**

If decades of research in distance education systems have taught us anything, it is that the focus of future research should be the truly critical factor in determining student achievement: instruction itself. The question, then, for researchers and practitioners alike, is not “what medium of instruction works?” but “what methods of instruction work?”

**References**


