Distance Education: A Review of the Contemporary Literature

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ABSTRACT: This paper provides an overview of the distance education literature, including a review of the definitions, theories, and major issues related to distance education. We introduce a research model for distance education constructs, and review the literature outside accounting within each of the model constructs. Finally, in an effort to advance accounting research in this area, we articulate several important research questions within each of the constructs of the model, and provide suggestions for accounting educators interested in pursuing distance education pedagogy.

Keywords: distance education; distance learning; distributed learning; online learning; e-learning; web-based instruction.

INTRODUCTION

The Department of Education states that during the 2000–2001 academic year, 56 percent of all two-year and four-year institutions offered distance education courses. Only 31 percent of all universities surveyed did not plan to offer distance education courses within the next three years (U.S. Department of Education 2003). Additionally, over 50 Association to Advance Collegiate Schools of Business (AACSB)-accredited universities currently offer an online graduate degree (*U.S. News & World Report* 2004). Accounting programs also have observed a surge of participation in distance education, with over 200 universities currently offering some measure of online accounting coursework.

The trend toward distance education is largely related to the increased diffusion of technology into society. According to the U.S. Census Bureau (2001), in 2000 51 percent of all households in the United States had one or more computers, and 41 percent had Internet access. Universities must consider distance education as a viable option to accommodate the shrinking number of accounting faculty and the overall growth in student population. In 2003, the AACSB International released its analysis of faculty supply and demand trends in a report that warned of the impending Ph.D. shortage across business disciplines (AACSB 2003). Correspondingly, a survey conducted by the U.S. Department of Education predicted that college enrollment will grow 16 percent over the next ten years (Jones 2003). Reeve and Perlich (2002) point out that predictions are even higher when nontraditional age students who need to retool to keep up with current jobs or retrain for new jobs are considered.[1]

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[1] Labor Department officials estimate that approximately 40 percent of the workforce changes jobs every year (DeAlva 2000).

Due to technological advances, growing college populations, shrinking accounting faculty numbers, and changing student profiles, the growth in distance education is expected to continue. This change challenges accounting programs to provide adequate technology support and training for faculty members, and to maintain quality in accounting courses. By examining cross-disciplinary distance education research as it relates to the learner, the teacher, and the educational organization, we can gain an understanding of what issues influence accounting, and what issues need further examination.

Purpose

As we reviewed the distance education literature, we noted a dearth of both empirical and descriptive accounting-based research. Our purpose, however, is to introduce the reader to the vast literature in distance education that exists outside the accounting domain. This paper explores two basic questions relevant to distance education: (1) What can accounting educators learn from the research efforts in other areas? (2) What issues remain to be investigated by accounting researchers?

First, we define distance education, offer a model of distance education, and provide an overview of prevalent distance education theories. Next, we review the education and psychology distance education literature within each of the constructs of our model and identify research questions important for accounting. Finally, we provide some general conclusions for distance education in accounting.

DEFINITION AND COMPONENTS OF DISTANCE EDUCATION

In our research we came across 11 distinct definitions of "distance education."[2] Leading distance education researcher Desmond Keegan (1980, 1996, and 2002, 22–23) synthesizes existing definitions and identifies the defining elements of distance education:

1. Quasi-permanent separation of teacher and learner throughout the length of the learning process.
2. Influence of an educational organization both in the planning and preparation of learning materials, and in the provision of student support services.
3. Use of technical media—print, audio, video, or computer—to unite teacher and learner and carry the content of the course.
4. Provision of two-way communication so that the student may benefit from, or even initiate, dialogue.
5. Quasi-permanent absence of the learning group throughout the length of the learning process. That is, people are usually taught as individuals rather than as groups, with the exception of occasional meetings. The meetings may be either face-to-face or by electronic means and are for both didactic and socialization purposes.

Keegan (2002) points out that distance education does *not* include using technology in private study or in on-campus programs.

Additional confusion stems from the blurring of terminology. For instance, the following terms are commonly used interchangeably: "distance education," "distance teaching," "distance learning," "online education," "web-enabled education," and "distributed learning." Keegan (2002, 17) distinguishes among these terms. He asserts that distance education comprises two equally important elements: (1) distance teaching and (2) distance learning. Keegan maintains that distance *teaching* focuses on delivering the instruction to the learner,

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[2] Keegan (2002) details eight distinct definitions of distance education.

while distance *learning* focuses on maximizing learner cognition. Terms such as "web-enabled," "online," and "distributed education" focus more narrowly on the *means* by which the instruction is delivered, rather than on the learning. (See Figure 1.)

In this paper we adopt both Keegan's "defining elements," and his decomposition of distance education into teaching and learning subcomponents. Figure 2 provides our model of distance education based on Keegan's work. As indicated, the teacher and learner are linked through a communication medium. This interaction allows two-way communication via delivery of instruction, assessment of learning by the teacher, demonstrated learning on the part of the learner, and feedback from both the teacher and the learner. In order for distance education to be effective, however, the educational organization must provide support to both the teacher and the learner.

Formats

Distance education formats range from a segment of a course to offering an entire degree program (Holstrum and Lloyd-Jones 1998, 3–4). For example, an instructor may use course management tools such as Blackboard Learning System™ (hereafter "Blackboard") or WebCT to facilitate out-of-class online discussion boards, online chat, and electronic office hours. Blackboard and WebCT also can be used to facilitate small group interaction through group chatting and file sharing.

Alternatively, universities may offer entire courses or majors online. These virtual universities can be not-for-profit, such as the United States Open University and Western Governors University, or for-profit, such as the University of Phoenix and Jones International University (Council for Higher Education Accreditation 2001). At these universities, the entire curriculum in every major is online.[3]
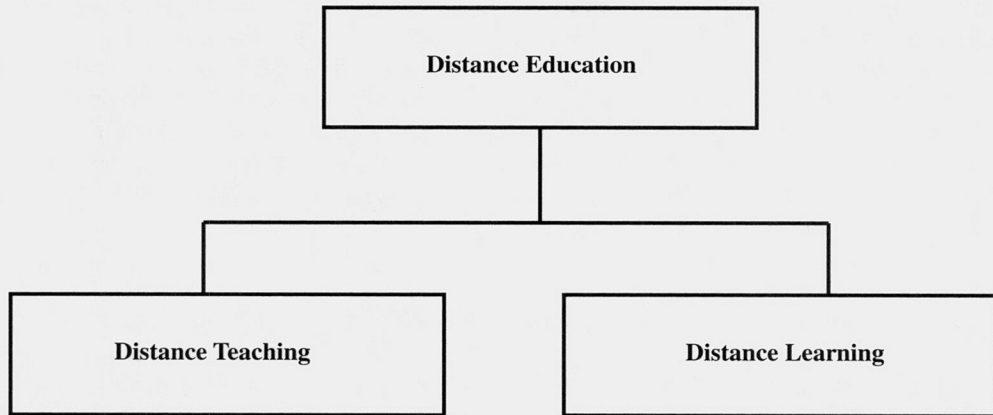
Technologies

A fundamental component of distance education is the communication medium. Innovations in technology have greatly facilitated the shift from correspondence courses to more technologically advanced media. While a large number of universities still provide correspondence courses, today's distance education courses often consist of "virtual classrooms" made possible through the Internet, compressed video, satellite links, and microwave transmission. Table 1 summarizes the media used to facilitate distance education.

DISTANCE EDUCATION THEORIES

An established theory is critical to scientific study because it provides a framework for making predictions and testing hypotheses about naturally occurring phenomena (Simonson et al. 2002). A number of distance education theories have been proposed over the years. In this section, we review distance education theories outlined in Simonson et al. (2002). In addition to the theories presented by Simonson et al., Social Cognitive Theory (Bandura 1986), also has implications for distance education. Most of these theories seek to define the components of distance education. While every theory does not include all components of distance education, each does focus on specific aspects or interactions encompassed by our model of distance education (Figure 2).
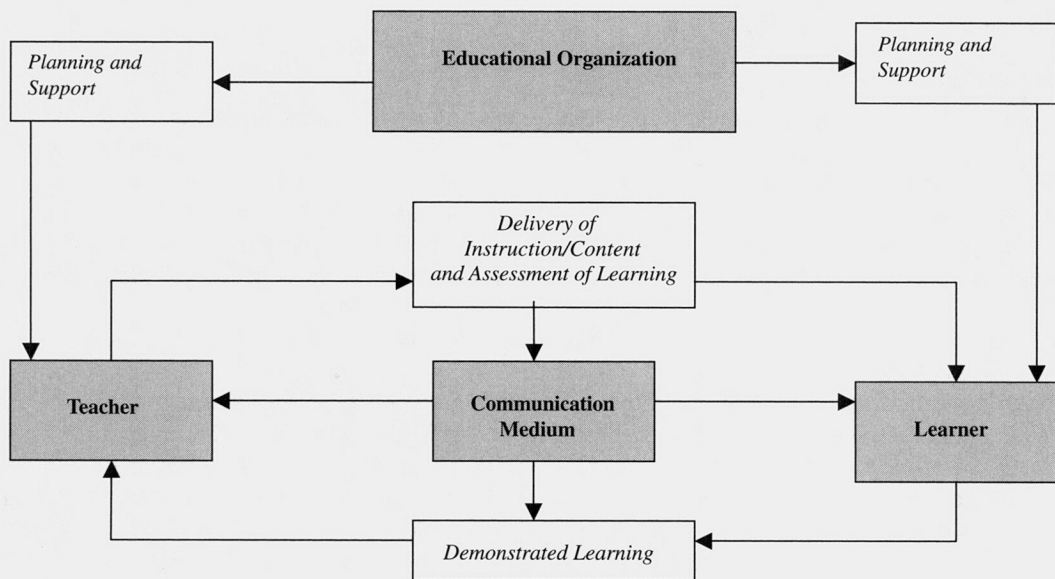
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[3] Other forms of distance education exist beyond those in higher education. As many as 1,600 companies maintain private teaching and training facilities (Saba 1999, as quoted in CHEA 2001). These include corporations such as Microsoft, Dow Jones, and Cisco Systems. Additionally, organizations such as Kaplan, Inc., Sylvan Learning Systems, and the AICPA offer distance education courses. In this paper, we limit our discussion to distance education issues in higher education.

FIGURE 1
Distance Education and Distance Learning

Distance Education

Distance Teaching		Distance Learning

Source: Adapted from Keegan (2002, 17).

FIGURE 2
Model of Distance Education

Planning and Support	Educational Organization	Planning and Support

Delivery of
Instruction/Content
and Assessment of Learning

Teacher	Communication Medium	Learner

Demonstrated Learning

Independence and Autonomy

Independence and autonomy theories emphasize separation between learner and teacher, learner independence, and the use of technology as a facilitator of the learning process (Simonson et al. 2002). At its most fundamental level, distance education consists of a teacher, a learner, a communication mode, and material to be learned (Simonson et al.

TABLE 1
The Technologies of Distance Education

Format	Transmission Mode	Learner Autonomy Regarding Pace	Characterized By
Correspondence Study	Asynchronous	High	Learner and instructor communicate via mail or email.
Commercial TV (e.g., PBS)	Asynchronous	High	Learner must watch program but can record program and watch at his/her convenience. No live interaction between instructor and learner.
Interactive TV	Synchronous	Low	Cameras at both instruction and learner location. Instructor and learner interact live.
Virtual Classroom[a]	Synchronous	Low	Cameras at instructor location.
Web-Enabled Classroom	Both asynchronous and synchronous	Medium	Course management tools such as WebCT and Blackboard; discussion boards, online chat, online office hours, virtual groups.
Web-Based Classroom (e.g., online)	Both asynchronous and synchronous	Low	Software-driven, synchronous environment; learner does not control pace.

[a] The virtual classroom can be achieved through any number of technological devices, including satellite, full bandwidth, compressed video, or microwave links.

2002). Moore (1972) classifies distance education programs as either (1) autonomous—learner determined or (2) nonautonomous—teacher determined. The autonomous attribution refers to the selection of learning objectives, resources, and evaluation. Categorizing a program as autonomous or nonautonomous, then, "provides direction as to how the program functions" (Simonson et al. 2002, 28).

Interaction and Communication

Keegan's (2002) definition of distance learning includes both interaction and communication between an instructor and learner. Communication relates to mere transmission of information, while interaction refers to the "reciprocal actions of two or more actors within a given context" (Vrasidas and McIsaac 1999, 25). Other researchers have held that interaction is the key element to successful distance education (Fulford and Zhang 1993; Vrasidas and McIsaac 1999). To this end, prior research has consistently shown a high, positive correlation between increased interaction and both student achievement and student satisfaction (Roblyer and Wiencke 2003). Interaction Theory, based in part on Communication Theory (Shannon and Weaver 1949), encompasses three elements: (1) the recognition of all types of interaction (learner-content, learner-instructor, and learner-learner), (2) the message transmission as interaction, and (3) the interplay of social and psychological connections (Roblyer and Wiencke 2003).

The social and psychological connections of learners are closely related to the learner's motivation. Holmberg (1989) proposes a theory of distance education formulated around

motivation of students. He asserts that establishing empathy between the learner and the teacher will increase students' learning pleasure. When the learner believes that the teacher is genuinely interested in his or her learning, the learner's motivation to succeed is heightened. Increased motivation, then, leads to higher performance and higher student satisfaction (Holmberg 1989). Holmberg also asserts that learning theories such as behavioralism, cognitivism, and constructivism (discussed below) are all appropriate theories to apply to distance education. Each theory provides a rich basis for formulating hypotheses concerning cognitive knowledge and skills, affective knowledge transfer, and the conditions under which student learning is maximized.

Equivalency Theory

As technology enables more sophisticated methods of delivering distance education courses, evaluating the quality of distance education becomes an issue. Will two students who receive identical course content, but in different environments (traditional classroom versus virtual reality classroom), have similar learning outcomes? This question introduces the idea of equivalency of outcomes and Equivalency Theory, which maintains that learners should experience similar outcomes, regardless of environmental conditions (Simonson et al. 2002). Thus, upon completing a course, a student who studies in an isolated home environment should have the same degree of course knowledge as a student who studies in a traditional classroom setting.

Equivalency Theory recognizes that the *method* of attaining the knowledge may be different. For example, a distance education student may access an online library to conduct research, whereas the traditional student may access the physical library. In either case, however, learning outcomes should be equivalent (Keegan 2002).[4]

Theories of Learning and Cognition

Other learning theories, not specifically claimed by distance education theorists, are, nevertheless, important to the study of distance education. In contrast to the environmental focus of Equivalency Theory, learning and cognition theories focus on the *learner's* influence on distance education and include constructivism, behavioralism, and cognitivism. Each of these theories, however, provides a unique perspective within which a researcher identifies and studies issues.

Constructivism holds that all learning takes place through "mental models" of existing knowledge; that is, as new information is learned, it is added to our existing schema of knowledge. Thus, knowledge is continually "constructed." *Behavioralism*, on the other hand, maintains that learning takes place through a stimulus and a response, with learner feedback reinforcing knowledge. According to behavioralism, the learner is a passive participant. In contrast, *cognitivism*, which is closely related to constructivism, claims that the learner is an active participant and learning occurs because of the learner's active engagement and participation with the learning process (Bryant and Hunton 2000).[5] In short, the learner is motivated to perform and feels some connection to the teacher.

Social cognitive theory, a form of cognitivism, is frequently applied to distance education contexts. Two components of this theory are (1) self-efficacy (e.g., an individual believing he or she can achieve a goal) and (2) self-regulation (e.g., one's ability to develop

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[4] Our research did not uncover any specific tests of Equivalency Theory, per se; however, media comparison research studies, discussed in the next section, are essentially tests of Equivalency Theory, as they compare performance levels in face-to-face vis-à-vis distance education courses.

[5] For a comparison of behavioral learning theory and cognitive learning theory, see Bryant and Hunton (2000).

goals and motivate oneself to achieve those goals) (Bandura 1986). Self-regulation, in particular, has implications for distance education because students must motivate themselves to perform in nontraditional environments.

DISCUSSION OF MODEL CONSTRUCTS

The literature in distance education is vast, comprised of hundreds of papers, innumerable books and monographs, and several academic journals. Thus, a comprehensive literature review is impractical. For our purposes, we review a representative sampling of recent papers that focus on the four components of our distance education model depicted in Figure 2: (1) communication media, (2) the educational organization, (3) the learner, and (4) the teacher. Within each section, we will discuss the implications for accounting.

Communication Media

Several studies in this category investigate the level of effectiveness of a given medium. As depicted in Figure 2, the communication medium interacts with all components of the distance education model. Other studies in this category further examine how this interaction influences both instruction and learning.

Early educational technology research explored first *whether* a given medium could be an effective facilitator of learning (e.g., "evaluation research"), and second, *how* a given medium compared with other media, including face-to-face instruction (e.g., "media comparison research"). Though some debate continues, media comparison studies have largely concluded there is no significant difference in learning vis-à-vis different mediums of instructional delivery (see debate in Clark 1983; Kozma 1994a, 1994b; Clark 1994a, 1994b; Russell 1992).

Today, most educational technologists hold that any medium can be effective for delivering instruction. Now the focus is on identifying attributes of the medium itself (for example, where the cameras are placed, what type of visual cues the medium provides, which camera angles are most effective, how quickly the computer screen refreshes, etc.) that can best facilitate the learning process ("intra-medium research"). Technologists then study how these attributes interact with social and cognitive learner characteristics ("aptitude treatment interaction" [ATI] studies) (Bryant and Hunton 2000).[6]

Intra-medium studies such as Smith and Dillon (1999) study how attributes of a given media may impact learning. They argue that media attributes of realism (concreteness) and feedback (branching), bandwidth (how much information can be conveyed at one time), interactivity (the opportunity for dialogue between participants), and interface (the video/screen that displays choices to a participant based on the participant's prior answer) should be considered. They also provide examples of how each of these media attributes can be properly addressed in distance education research studies.

ATI studies examine how attributes of the medium interact with learner attributes. For example, Gulz (2002) determined that an individual's preference for a given user interface is related to the individual's visual orientation (spatial versus person). Gulz (2002) found that spatially oriented (person-oriented) individuals prefer the corresponding spatially oriented (person-oriented) user interface. These results imply that this particular cognitive variation might be an important factor in user preference. More research, however, is needed to determine the practical implications of cognitive variation and distance education.

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[6] This direction of research is consistent with Cobb (1997), who advocates focusing on how media impact cognitive efficiency (Smith and Dillon 1999).

Implications for the Communication Medium

Our review of the literature and the constructs of our model of distance education in Figure 2 suggest two particularly interesting researchable questions within accounting related to the communication medium: (1) the investigation of interaction of communication media and learning styles, and (2) the determination of optimum (e.g., most effective vis-à-vis learning) medium attributes.

Watson et al. (2003) review several accounting studies related to identification of learning styles of accounting students (e.g., Marriott 2002; Duff 2001) and accounting educators (Eide et al. 2001). The authors used various instruments, including Kolb's (1976) Learning Style Inventory, Honey and Mumford's (1992) Learning Styles Questionnaire, and the Canfield (1988) Learning Styles Inventory (CLSI), to classify an individual's learning style. For example, one measure of the CLSI determines whether individuals are "social" learners or "independent" learners (Watson et al. 2003). This construct seems to have particular relevance to an individual's propensity for success in a distance education course. Social learners need peer support to learn most effectively, while independent learners do not seem to exhibit the same need for peer support (Watson et al. 2003). Thus, independent learners might perform better in a distance education environment than social learners.

Researchers still need to investigate how medium attributes can be manipulated to improve the effectiveness of distance education courses (e.g., camera angles, length of segments). Research has not yet shown what type of format is optimal for a given accounting course. For example, an introductory principles course, which requires low-order thinking, may be quite effective as a video lecture. On the other hand, an upper-level accounting course, which requires high-order thinking, may rely on a highly interactive format. Our research leads us to pose three questions for accounting researchers interested in pursuing this area.

1. How do learning styles interact with a given medium?
2. Which medium attributes contribute to effectiveness of distance education courses?
3. Which other characteristics of learning style might have important implications for accounting educators?

The Educational Organization

Another construct in our model relates to the educational organization. We include here issues with which administrators, both at the university level and at the faculty level, must contend to successfully implement and conduct distance education courses.[7]

Surveys of Existing Programs or Universities

Surveys of existing distance education programs address a range of issues. For example, Compora (2003) surveyed six colleges and universities in Ohio to determine current practices in distance education, including the content of the program, whether needs assessment was performed, delivery systems, selection of instructors, and budgets. Compora (2003) found that none of the six institutions had performed a needs analysis prior to venturing into the distance education arena. Only one of the institutions developed its own telecourses, while three institutions purchased telecourses from external vendors such as PBS. Videotape and Internet were the most widely used delivery systems. Instructors were generally people

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[7] The issues of accreditation, copyright, and intellectual property are important issues for the educational organization. For brevity, however, we omit the discussion of these issues here. Instead, we refer the reader to the following sources: accreditation, CHEA (2001); copyright, Colyer (2002); intellectual property rights, American Association of University Professors (AAUP 2002).

who had expressed an interest in teaching these courses. Some institutions considered distance education courses a normal course load, while others considered them an overload. Compora (2003) also concluded that students did not appear to be adequately supported vis-à-vis the technology involved. That is, students reported significant dissatisfaction with technical support when they experienced computer technology problems. No specific trends for budget considerations were noted.

Other studies such as Case et al. (2001) and Fornaciari et al. (1999) provide administrators with guidelines for successful implementation of distance education courses. Fornaciari et al. (1999, 704) argue that "not all distance strategies are appropriate for all colleges and universities," and that universities that rely heavily on social or co-curricular domains may need a different strategy than a small community college system. Fornaciari et al. (1999) provide a typology of universities and appropriate strategies for competing in the distance education domain.

Obstacles to Distance Education

Four obstacles to distance education are apparent: (1) labor intensity of administration of distance education courses, (2) high development cost, (3) need for faculty training and support, and (4) high attrition rates.

Labor-intensity of administration of distance education courses. Some evidence suggests a higher faculty workload accompanies distance education. For example, Palloff and Pratt (1999) suggest preparation time for an online course is at least 2.5 times that of a face-to-face course. Further, students in a distance education environment often expect continual availability of teachers through email (Keegan 2002, 67). Finally, managing discussion boards can be difficult and time-consuming: "It's analogous to people writing their thoughts on little pieces of paper, stapling them to a bulletin board, and having everyone else read these little pieces of paper and then stapling up other little pieces of paper" (Mitchell et al. 2001, 116). Clearly, faculty need to have an accurate sense of the time involved in engaging in a distance education course.

High development cost. Studies have concluded that distance education courses are expensive to develop; however, once the initial development cost is expended, ongoing costs decline until the technology must be replaced (Case et al. 2001). Initial development costs include purchase or lease of equipment, training costs, maintenance of equipment, telecommunications fees, and support (Case et al. 2001). The cited costs vary depending on the options offered. Case et al. (2001) state that the development of a low-tech distance education course is approximately $15,000, while high-tech courses cost $30,000 or more to develop.

Swift et al. (1997, 85) note that "a properly equipped interactive distance education classroom, using digital compression technology, can cost more than $75,000 in equipment alone." Equipment includes television monitors, document cameras, video-cassette recorders, computers with high-speed connections, digital compression equipment, and several large screen monitors.

Citing the work of Finkelstein et al. (2000), Boettcher (2002) reports the cost of a "WebCourse" (defined as 100 percent on the web) averages $184,000 (range of $92,000–$368,000). A "WebCentric" course (defined as 50 percent on the web) costs on average $74,000 (range of $37,000–$148,000). A "web-enhanced" course (defined as 25 percent

on the web) costs on average $20,000 (range of $10,000–$40,000). These costs include professional and support staff and equipment costs.[8]

Finkelstein et al. (2000) further estimate the cost of a PBS/Annenberg course "that uses student and personality talent, and requires on-location photographic shoots ranges between $2 million and $6 million for a series of 20 to 26 half hour programs" (Boettcher 2002, 458). Ultimately, the format a teacher or university chooses will be highly dependent on the funds available.

Need for faculty training and support. Training faculty to deal adequately with the environmental and technological issues involved in distance education is no small matter. Significant time must be devoted to get the faculty member "up to speed." Often universities appoint a distance education coordinator who is responsible for implementation, equipment maintenance, and faculty support (Swift et al. 1997). Additionally, seminars, workshops, and coaching are needed to support faculty who are less technologically adept (Swift et al. 1997).

High attrition rates. Attrition is a recurring problem in most web-based applications, including distance education courses. Attrition occurs because students do not feel vested in the outcomes. A measure of anonymity allows participants to drop out without fear of social or instructor-based pressure. Phipps and Merisotis (1999) report that "student dropout rates in distance education courses average more than 30%, compared to less than 5% for traditional face-to-face courses" (as quoted in Fornaciari et al. 1999, 711).

Implications for Accounting—Educational Organization

We pose several research questions dealing with the educational organization for consideration by accounting researchers:

1. Are incentives (financial or otherwise) needed to reward faculty for the extra effort required to develop and administer a distance education course? If so, then what type of incentives would be most effective?
2. What type of faculty training and support is most effective?
3. Does the marketing strategy of a university impact effectiveness of a distance education program? For example, a community college strategy might be very different from a typical four-year university. The target market for the students for the two types of schools is different, as is the ultimate job placement of those students.
4. Is an accounting degree from an online university valued as highly as a traditional degree? Does the perception of the institution's use of distance education impact its reputation in the professional community?

Investigation of the above research questions would provide invaluable insight for understanding faculty engagement and support, as well as enrollment trends.

Teacher Issues
Case Studies

Many instructors who have experienced the learning curve involved in distance education share their experiences through publication. These studies are typically descriptive in nature. For example, Eastman and Swift (2001) provide guidelines for instructors interested in implementing a distance education course in marketing. Other case studies of

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[8] Professional staff days are costed at $400/day; support staff days are costed at $320/day; equipment and overhead costs are costed at 40 percent of total staff costs. See Boettcher (2002, 456) for complete details.

distance learning include criminal justice (Nelson 1998), philosophy (Muirhead 2003), management (Nixon and Helms 1997), and epidemiology and quantitative methods (Montelpare and Williams 2000). These authors describe what worked and what did not work in their distance education classes. Interestingly, our search of 25 accounting journals revealed only one accounting-based published paper on distance education (see Dunbar 2004). Because instructional content may interact with the communication medium, it is important to examine if what works in other disciplines will succeed in accounting.

Montelpare and Williams (2000) describe a common theme across most of the case studies: frustration with technological problems. Equipment failure, Internet inaccessibility, and inadequate technology support were cited as sources of frustration for both instructors and students. Additionally, Montelpare and Williams (2000) note that varying levels of computer literacy among students presented a significant barrier to learning and instruction. However, we note that this particular problem is not indigenous to distance education courses.

Eastman and Swift (2001) advise potential distance educators to become comfortable with technology by incorporating technology incrementally into their current courses. Additionally, they encourage instructors to have a comprehensive syllabus and a policy of discouraging students from using email to contact the instructor except in case of an emergency. Eastman and Swift (2001) also encourage educators to record sound (add voice narration), a function available in most presentation software programs, to increase the stimulation and interest of a presentation. Further, they advocate a no-lurking policy to require active student participation instead of passive observance in online discussions.

Assessment Issues

In considering assessment in distance education, instructors are concerned with evaluating learning objectives and identifying appropriate assessment methods. Dereshiwsky (2001) states that some traditional methods of assessment such as in-class timed examinations are not feasible in web-based environments. However, some instructors do require distance education students to attend face-to-face examinations. Learning outcomes can be measured through a variety of examination types. Higher-order learning activities including group projects, journaling, and essays can be successfully employed in distance education. Other creative activities using the technology including online scavenger hunts, puzzles, and tutorials, can be employed (Dereshiwsky 2001).

Academic dishonesty is a constant threat to the integrity of the distance education process. To manage this problem, instructors can require students to attend face-to-face examinations. Additionally, instructors now have the ability to check the authenticity of a paper through services such as Turnitin (http://www.turnitin.com). Austin and Brown (2002) provide a comprehensive list of faculty resources for locating term paper mills. Vigilant monitoring can increase the instructor's confidence in the integrity of student work completed through distance education.

Implications for Accounting—Faculty Issues

A variety of important research questions related to teacher issues remain to be investigated. Issues related to instructor technology adeptness appear to be a particularly fertile area for research:

1. How do faculty determine which type of courses (e.g., procedural, project-based) might be effectively offered in a distance education environment?

2. Which skills are needed to effectively teach a distance education course in accounting? How are these skills different from those required to teach a traditional accounting course?
3. Which assessment methods are most effective for measuring learning in distance education courses?
4. Which factors are associated with instructor satisfaction in a distance education context? Are instructors as satisfied with distance education as face-to-face instruction? Why or why not?
5. How does faculty experience level affect the transition from traditional (e.g., face-to-face) format to a distance education format?

Student Issues

Studies that focus on the pedagogical aspects of distance education are primarily concerned with how to design the course to maximize student learning outcomes and student satisfaction. To aid in this goal, research has attempted to identify the common characteristics of distance learners to gain an understanding of the types of students who choose this method of education and the types of students who ultimately succeed.

While course quality and student satisfaction are important to the success of a distance education course, issues such as cost (e.g., personal computer, Internet access, software), flexibility, and convenience also are important considerations from the student's perspective. These issues may lead to use of distance education even when the preferred format is traditional, face-to-face instruction.

Characteristics and Competencies of Distance Learners

Characteristics of the distance learner have generally included some combination of demographic and situational variables such as age, gender, ethnic background, location, and life roles. Research shows that distance learners are, on average, older than the typical undergraduate student, more likely to be women, more likely to be employed full-time, and more likely to be married (Gibson and Graff 1992; Schell 2001).

More recently, research has focused on the affective characteristics of distance learners (e.g., personality type, learning styles, and motivation). Studies have linked characteristics such as autonomy, tolerance for ambiguity, internal locus of control, and flexibility as positively correlated to choice of distance education (Eastmond 1995). Biner et al. (1995) found that students in distance education programs tend to be more intelligent, emotionally stable, trusting, compulsive, passive, and conforming than traditional students. These students also tend to have more defined goals than the average traditional student (Eastmond 1995).

Studies have attempted to link demographic and personality characteristics to student success in distance education courses. Due to its nature, distance education requires learners to be self-directed and intrinsically motivated (Irizarry 2002). Thus, social cognition theory, which highlights self-efficacy and self-regulation in the triadic relationship among the individual, behavior, and environment, often has been applied in distance education research (Irizarry 2002). Dille and Mezack (1991) report a positive correlation between success and student age. This positive correlation is presumably due, in part, to increased maturity and self-discipline—factors thought to be important to successful distance learning. Similarly, Campbell (1999) asserts that adults have come to the psychological stage of life where they are responsible for their well being and can execute self-directed activities.

Dille and Mezack (1991) and Gibson and Graff (1992) examine the relationship of learning style to student success in distance education courses. Their findings suggest that

successful distance learning students have less need to relate to others in the educational environment and a less concrete learning style (based upon a learning style inventory scale). Additionally, other researchers suggest that practical knowledge of computer technology and technical skills are necessary requirements for students to be successful in distance education courses (Irizarry 2002; Mason and Weller 2001; Huff 2002).

Although general characteristics of the distance learner have emerged, the typical student is not easily categorized. Simonson (1997) discusses the conflicting pressures felt by students who do not really want to learn at a distance but are increasingly accepting distance learning because of the convenience. It is not surprising, given the demographic and situational characteristics discussed above, that many distance learners are motivated to use this mode of education due to time constraints (e.g., family, work). Because students who select distance education may do so for a variety of reasons, Twigg (2001) suggests that faculty need to design courses that respond to a greater variety of learning styles, rather than concluding that online learning is more suitable for one type of student.

Student Learning

Because present research links interactivity to student learning (e.g., Roblyer and Wiencke 2003; Vrasidas and McIsaac 1999; Milheim 1995), several studies have sought to determine how to measure and increase interactivity of a distance education course. For example, Roblyer and Wiencke (2003) present a rubric to assess and encourage interactivity in a distance course. Their framework measures five elements: (1) engagement of student, (2) engagement of instructor, (3) interactivity of technology, (4) instructional design, and (5) instructor's social/rapport building design.

Similarly, Vrasidas and McIsaac (1999) discuss their efforts to discover factors influencing interaction in an online graduate telecommunications course. The small sample size (n = 8) prohibits statistical inference. However, qualitative analysis shows that four major factors influenced interaction in this course: (1) structure, (2) class size, (3) feedback, and (4) prior experience with computer-mediated communication. Interaction in distance education courses facilitates the learning process and fosters a collaborative, supportive environment. The benefits of interactive learning include heightened student interest and motivation, a more collaborative teacher/student relationship, and higher cognitive processing (Milheim 1995, as quoted in Muirhead 2002b).

Muirhead (2002a) asserts that consistent feedback regarding student performance provides one element of interaction. The instructor can open a dialogue regarding whether the student was either satisfied or surprised by the grade. Additionally, the instructor can provide positive affirmation and/or constructive criticism to help the student improve performance so that the student does not feel isolated in the distance education experience. Muirhead (2002a) suggests that having students and instructor exchange biographical information to humanize the online class also facilitates interaction. Finally, Muirhead (2002a) advocates sharing personal experience stories to personalize the class and to enrich interactivity.

Universities such as Virginia Polytechnic Institute & State University, Drexel University, and The Ohio State University are developing new approaches to student learning in a distance education environment (Twigg 2001). These approaches incorporate five key features that are thought to improve the quality of student learning: (1) an initial assessment of each student's knowledge level and preferred learning style; (2) an array of high-quality, interactive learning materials; (3) individualized study plans; (4) built-in continuous assessment to provide instantaneous feedback; and (5) appropriate human interaction when needed. These features promote quality learning outcomes by considering individual student

needs, such as students' knowledge and expertise at the beginning of the learning process, and by providing continual feedback and interaction.

Student Satisfaction

Myriad studies comparing learner satisfaction in traditional face-to-face instruction with distance education yield mixed results. Klesius et al. (1997) find that learner satisfaction with distance education instruction was commensurate with traditional instruction on most variables. However, Ponzurick et al. (2000) conclude that overall satisfaction and effectiveness was generally lower for an audio/video (distance education) course than either a traditional face-to-face or part-time face-to-face course. Interestingly, students in all groups indicated that their most preferred format was the traditional format. Ponzurick et al. (2000) suggest that even a mere rotation of the live lecture among the audio/video sites may increase satisfaction of the distance learners. Overall, it appears that the convenience of distance education may overshadow the lack of interaction with other students and the instructor in format selection.

Muirhead (2002a) and Kearsley (1996) both cite flexibility as an important determinant of student satisfaction in distance education courses. Both suggest that the nature of the course is that students want to maintain some autonomy over when and how they complete assignments and participate in the course. In some cases students have autonomy over the pace of the course (e.g., a televised program that can be time-shifted through taping); at other times, the learner does not have autonomy (e.g., a live classroom transmitted through satellite technology). However, when possible, allowing students flexibility of when and how they participate usually leads to higher student satisfaction (Kearsley 1996). For example, a student who needs to work full-time can complete assignments and coursework when it is convenient. Likewise, a student who must travel for work does not fear lagging behind when the coursework can be completed via Internet-based courses.

Implications for Accounting—Learner Issues

The most pressing issues in accounting distance education relate to the interaction between medium and student learning. We pose additional research questions related to learner issues below:

1. What are the factors related to student satisfaction with a technical topic like accounting? Most of the papers we reviewed were liberal-arts-based, with the exception of one marketing and one management paper.
2. How can social cognitive theory effectively be drawn upon to suggest factors of motivation, and consequently success, of accounting students in distance education courses?
3. To what extent does giving students more autonomy (e.g., locus of control) improve student satisfaction?
4. Is there an ideal mix of distance education and face-to-face time for accounting courses? Is it important to have at least one face-to-face meeting?
5. Relatedly, how does increased interactivity promote knowledge transfer in accounting distance education?

SUMMARY AND CONCLUSION

This paper introduces the reader to the distance education literature. We have provided a working definition and model of distance education based on Keegan (2002), and an overview of the major theories of distance education. Such theories will assist accounting

researchers who wish to hypothesize about phenomena and relationships within distance education.

Within our model, we identified four components common to all distance education environments and formats: (1) the communication medium, (2) the educational organization, (3) the teacher, and (4) the student. We reviewed and synthesized the literature within each of these four areas. Finally, we identified accounting-related researchable questions relevant to each of the four constructs.

Accounting academicians have not yet determined how the quality of a distance education experience can be measured. Some insight is provided by the Council of Regional Accrediting Commissions (2001), which has issued best practices for distance education programs and courses. These best practices encompass five areas: (1) institutional context and commitment; (2) curriculum and instruction; (3) faculty support; (4) student support; and (5) evaluation and assessment. These guidelines, taken together, seek to promote an overall high-quality program. We urge accounting educators involved in teaching or otherwise overseeing distance education courses to review and incorporate these best practices as appropriate.

REFERENCES

AACSB International, The Association to Advance Collegiate Schools of Business. 2003. *Sustaining Scholarship in Business Schools*. Available at: http://www.aacsb.edu/publications/dfc/SustainingScholarship.pdf.

American Association of University Professors (AAUP). 2002. Distance education and intellectual property. In *Distance Education: Teaching and Learning in Higher Education*, edited by L. Foster, B. Bower, and L. Watson, 292–298. Boston, MA: Pearson Custom Publishing.

Austin, M., and L. Brown. 2002. Internet plagiarism: Developing strategies to curb student academic dishonesty. In *Distance Education: Teaching and Learning in Higher Education*, edited by L. Foster, B. Bower, and L. Watson, 258–267. Boston, MA: Pearson Custom Publishing.

Bandura, A. 1986. *Social Foundations of Thought and Action: A Social-Cognitive Theory*. Upper Saddle River, NJ: Prentice Hall.

Biner, P., M. L. Bink, M. L. Huffman, and R. S. Dean. 1995. Personality characteristics differentiating and predicting the achievement of televised course students and traditional-course students. *The American Journal of Distance Education* 9 (2): 46–60.

Boettcher, J. 2002. How much does it cost to put a course online? It all depends. In *Distance Education: Teaching and Learning in Higher Education*, edited by L. Foster, B. Bower, and L. Watson, 442–459. Boston, MA: Pearson Custom Publishing.

Bryant, S., and J. Hunton. 2000. The use of technology in the delivery of instruction: Implications for accounting educators and education researchers. *Issues in Accounting Education* 15 (1): 129–162.

Campbell, K. 1999. Learner characteristics and instructional design. Academic Technologies for Learning, University of Alberta.

Canfield, A. 1988. *Canfield Learning Styles Inventory (LSI) Manual*. Los Angeles, CA: Western Psychological Services.

Case, D., D. Bauder, and T. Simmons. 2001. Decision making in the development of web-based instruction. *Journal of United States Distance Learning Association* 15 (50): 44–62.

Clark, R. 1983. Reconsidering research on learning from media. *Review of Educational Research* 53 (4): 445–459.

———. 1994a. Media will never influence learning. *Educational Technology, Research and Development* 42 (2): 21–29.

———. 1994b. Media and method. *Educational Technology, Research and Development* 42 (3): 7–10.

Cobb, T. 1997. Cognitive efficiency: Toward a revised theory of media. *Educational Technology, Research and Development* 45 (4): 21–35.

Colyer, A. 2002. Copyright law, the Internet, and distance education. In *Distance Education: Teaching and Learning in Higher Education*, edited by L. Foster, B. Bower, and L. Watson, 88–97. Boston, MA: Pearson Custom Publishing.

Compora, D. 2003. Current trends in distance education: An administrative model. *Online Journal of Distance Learning Administration* 6 (2). Available at: http://www.westga.edu/%7Edistance/ojdla/summer62/compora62.html.

Council for Higher Education Accreditation (CHEA). 2001. *Distance Learning: Academic and Political Challenges for Higher Education Accreditation.* CHEA Monograph Series 2001, Number 1. Washington, D.C.: CHEA.

Council of Regional Accrediting Commissions. 2001. *Best Practices for Electronically Offered Degree and Certificate Programs.* Boulder, CO: The Western Cooperative for Educational Telecommunications.

DeAlva, J. K. 2002. Online drop rates revisited. *The Technology Source* (May/June). Available at: http://ts.mivu.org.

Dereshiwsky, M. 2001. "A" is for assessment: Identifying online assessment practices and perceptions. *Journal of United States Distance Learning Association* 15 (1): 16–26.

Dille, B., and M. Mezack. 1991. Identifying predictors of high risk among community college telecourse students. *The American Journal of Distance Education* 5 (1): 24–35.

Duff, A. 2001. Psychometric methods in accounting education: A review, some comments, and implications for accounting education researchers. *Accounting Education* 10 (2): 185–197.

Dunbar, A. 2004. Genesis of an online course. *Issues in Accounting Education* 19 (3): 321–343.

Eastmond, D. 1995. *Alone But Together: Adult Distance Study Through Computer Conferencing.* Cresskill, NJ: Hampton Press.

Eastman, J., and C. Swift. 2001. New horizons in distance education: The online learner-centered marketing class. *Journal of Marketing Education* 23 (1): 25–34.

Eide, B., M. Geiger, and B. Schwartz. 2001. The Canfield Learning Styles Inventory: An assessment of its usefulness in accounting education research. *Issues in Accounting Education* 16 (3): 341–365.

Finkelstein, M., C. Frances, F. Jewett, and B. Scholz, eds. 2000. *Dollars, Distance, and Online Education: The New Economics of College Teaching and Learning.* Phoenix, AZ: American Council on Education, Oryx Press.

Fornaciari, C., M. Forte, and C. Mathews. 1999. Distance education as strategy: How can your school compete? *Journal of Management Education* 23 (6): 703–718.

Fulford, C., and S. Zhang. 1993. Perceptions of interaction: The critical predictor in distance education. *The American Journal of Distance Education* 7 (3): 8–21.

Gibson, C. C., and A. O. Graff. 1992. Impact of adults' preferred learning styles and perception of barriers on completion of external baccalaureate degree programs. *Journal of Distance Education* VII (1): 39–51.

Gulz, A. 2002. Spatially oriented and person oriented thinking—Implications for user interface design. *Education and Information Technologies* 7 (1): 67–80.

Holmberg, B. 1989. *Theory and Practice of Distance Education.* London, U.K.: Routledge.

Holstrum, G., and J. Lloyd-Jones. 1998. The Internet and distance learning in accounting education: A hypertext-linked exploration of the topic. Working paper, International Federation of Accountants, New York, NY.

Honey, P., and A. Mumford. 1992. *The Manual of Learning Styles.* Maidenhead, U.K.: Peter Honey.

Huff, C. 2002. Technical skills required in distance education graduate courses. *USDLA Journal* 16 (9): 27–34.

Irizarry, R. 2002. Self-efficacy and motivation effects on online psychology student retention. *USDLA Journal* 16 (12): 55–64.

Jones, R. 2003. A recommendation for managing the predicted growth in college enrollment at a time of adverse economic conditions. *Online Journal of Distance Learning Administration* (6) 1.

Kearsley, G. 1996. Structural issues in distance education. *Journal of Education for Business* 71 (4): 191.

Keegan, D. 1980. On defining distance education. *Distance Education* 1 (1): 13–36.

———. 1996. *Foundations of Distance Education*. New York, NY: Routledge.

———. 2002. Definition of distance education. In *Distance Education: Teaching and Learning in Higher Education*, edited by L. Foster, B. Bower, and L. Watson. Boston, MA: Pearson Custom Publishing.

Klesius, J. P., S. Homan, and T. Thompson. 1997. Distance education compared to traditional education: The students' view. *International Journal of Instructional Media* 24 (3): 207–220.

Kolb, D. 1976. *Learning Styles Inventory: Technical Manual*. Boston, MA: McBer & Co.

Kozma, R. 1994a. Will media influence learning? Reframing the debate. *Educational Technology, Research and Development* 42 (2): 7–20.

———. 1994b. A reply: Media and methods. *Educational Technology, Research and Development* 42 (3): 11–14.

Marriott, P. 2002. A longitudinal study of accounting students' learning style preferences at two UK universities. *Accounting Education* 11 (1): 43–62.

Mason, R., and M. Weller. 2001. Factors affecting students' satisfaction in a web course. *USDLA Journal* 15 (8): 48–68.

Milheim, W. 1995. Interactivity and computer-based instruction. *Journal of Educational Technology Systems* 24 (3): 225–233.

Mitchell, C., T. Dipetta, and J. Kerr. 2001. The frontier of web-based instruction. *Education and Information Technologies* 6 (2): 105–121.

Montelpare, W., and A. Williams. 2000. Web-based learning: Challenges in using the Internet in the undergraduate curriculum. *Education and Information Technologies* 5 (2): 85–101.

Moore, M. 1972. Learner autonomy: The second dimension of independent learning. *Convergence* 2: 76–88.

Muirhead, B. 2002a. Promoting online interaction in today's colleges and universities. *USDLA Journal* 16 (7): 43–47.

———. 2002b. Salmon's research. *USDLA Journal* 16 (5): 23–25.

———. 2003. Teaching philosophy courses to online graduate students. *USDLA Journal* 17 (2): 63–69.

Nelson, S. 1998. Distance learning and criminal justice education: Exploring the possibilities. *Journal of Criminal Justice Education* 9 (2): 333–342.

Nixon, J., and M. Helms. 1997. Developing the "virtual" classroom: A business school example. *Education & Training* 39 (8/9): 349–353.

Palloff, R., and K. Pratt. 1999. *Building Learning Communities in Cyberspace*. San Francisco, CA: Jossey-Bass.

Phipps, R., and J. Merisotis. 1999. What's the difference? A review of contemporary research on the effectiveness of distance learning in higher education. Washington, D.C.: The Institute for Higher Education Policy.

Ponzurick, T., K. France, and C. Logar. 2000. Delivering graduate marketing education: An analysis of face-to-face versus distance education. *Journal of Marketing Education* 22 (3): 180–187.

Reeve, R. T., and P. S. Perlich. 2002. Utah economic and business review. *Bureau of Economic and Business Research* 62 (9–10): 1–15.

Roblyer, M., and W. Wiencke. 2003. Design and use of a rubric to assess and encourage interactive qualities in distance courses. *The American Journal of Distance Education* 17 (2): 77–98.

Russell, T. 1992. Television's indelible impact on distance education: What we should have learned from comparative research. *Research in Distance Education* (October): 2–4.

Saba, F., ed. 1999. Corporate universities. *Distance Education* 3 (20).

Schell, G. 2001. Student perceptions of web-based course quality and benefit. *Education and Information Technologies* 6 (2): 95–104.

Shannon, C., and W. Weaver. 1949. *The Mathematical Theory of Communication*. Urbana, IL: University of Illinois Press.

Simonson, M. 1997. Distance education: Does anyone really want to learn at a distance? *Contemporary Education* 68: 105–107.

———, C. Schlosser, and D. Hanson. 2002. Theory and distance education: A new discussion. In *Distance Education: Teaching and Learning in Higher Education*, edited by L. Foster, B. Bower, and L. Watson. Boston, MA: Pearson Custom Publishing.

Smith, P., and C. Dillon. 1999. Comparing distance learning and classroom learning: Conceptual considerations. *The American Journal of Distance Education* 13 (2): 6–23.

Swift, C., J. Wilson, and J. Wayland. 1997. Interactive distance education in business: Is the new technology right for you? *Journal of Education for Business* 73 (2): 85–89.

Twigg, C. 2001. *Innovations in Online Learning: Moving Beyond No Significant Difference.* The Pew Learning and Technology Program 2001. Troy, NY: Center for Academic Transformation.

U.S. Census Bureau. 2001. Home computers and Internet use in the United States: August 2000. Available at: http://www.census.gov/prod/2001pubs/p23-207.pdf.

U.S. Department of Education, National Center for Education Statistics (NCES). 2003. *Distance Education at Degree-Granting Postsecondary Institutions: 2000–2001*. NCES 2003-017 by T. Waits and L. Lewis. Project Officer: B. Greene. Washington, D.C.: Government Printing Office.

U.S. News & World Report. 2004. E-learning: Online graduate degrees in business, regionally and professionally accredited (AACSB). Available at: http://www.usnews.com/usnews/edu/elearning/tables/mba_reg_prof.htm.

Vrasidas, C., and M. McIsaac. 1999. Factors influencing interaction in an online course. *The American Journal of Distance Education* 13 (3): 22–36.

Watson, S., B. Apostolou, J. Hassell, and S. Webber. 2003. Accounting education literature review. *Journal of Accounting Education* 21: 267–325.