AIR Research and Practice

NEW VERSE OR THE SAME OLD CHORUS?: LOOKING HOLISTICALLY AT DISTANCE EDUCATION RESEARCH

Nathaniel J. Bray,*,† Michael S. Harris,* and Claire Major*

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While there continues to be a proliferation in the number of studies conducted on various aspects of distance education, we are often left with little understanding of the holistic planning and effects of it. This paper draws lessons learned from the literature on distance education over the past five years. This review did not seek to be exhaustive in presenting the findings of every study, but instead focuses on specific instruction we can take from past research at the institutional, faculty, and student levels.

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KEY WORDS: distance Education; virtual Education; student; faculty; institution; practice.

The advent of the 21st Century elicited proclamations about distance education in higher education, with many referring to distance education as a "revolution" in instruction. While the tools changed over time, as distance education was accomplished with varied results through the use of film, radio, teaching machines, and television to mention only a few, the claims about what it could mean for higher education remained remarkably similar. Distance education, proponents argue, could provide a valuable source of revenue to institutions while allowing them to achieve their mission of increasing access. It could offer an enormous benefit to faculty members by reducing mundane tasks to a minimum, freeing them for other intellectual pursuits. Distance education could help students learn more and more deeply, on their own timetables. These claims, however, ultimately fell distinctly short of reality, with

*ELPTS, The University of Alabama, 870302 Tuscaloosa, AL, 35487 USA.

†Address correspondence to: Nathaniel J. Bray, ELPTS, The University of Alabama, 870302 Tuscaloosa, AL, 35487 USA.. E-mail: nbray@bamaed.ua.edu

most institutions following a pattern of significant financial outlay, poor training and implementation, lack of faculty buy-in, and eventual abandonment of the technological tool for the newest and greatest item available (Major, 1998).

Colleges and universities today are facing the familiar pattern of claims about the possibilities of distance education. This time, distance education proponents contend, the technology is different. Interactive television, web-based instruction, CD-Roms, hypertext, and the lot, are more powerful than their predecessors. These tools allow for greater interactivity and teacher-student and peer communication. In addition, institutions are embracing the idea of increasing enrollment—pushed in part by a market-driven decision-making, which encourages colleges and departments to bring in more students. Additionally, student use of technology has become ubiquitous. These claims echo those uttered before them (Major, 1998).

Is distance education living up to its claims this time? Are we seeing the revenue enhancement and cost savings, the benefits to faculty work, and the improvement of student outcomes? What can we learn, on a holistic level, from recent research? These are the questions that we sought to answer as we delved into the distance education literature. We group our discussion into lessons for practice and research across institution, faculty, and student-focused studies. Before broaching these specific three areas, though, we first recount some broad lessons that may be gleaned from the nature of the literature itself.

DISTANCE EDUCATION LITERATURE: POSSIBILITIES AND PROBLEMS

The distance education literature as it stands now presents certain challenges for those seeking to develop concrete methods from prior empirical research. In particular, the literature suffers from the numerous descriptive studies that often lack focus and have little broad applicability. It also suffers from recommendations for practitioners that have little empirical support. One of the espoused features of distance education, for example, is its ability to enhance an institution's offerings and improve student access. However, the literature falls short of examining how this is accomplished within the framework of overall institutional mission or within a comprehensive strategy or if it is accomplished at all. These factors must give us pause when examining the claims about distance education from supporters and opponents alike.

Another factor that complicates an understanding of the literature is it makes little distinction between distance education and other traditional higher education programs. Perhaps this blending occurs because, as Powar (2003) notes, the system of distance education is ''polycentric'' with ''a number of subsystems with disparate functions and requirements'' (p. 74). Institutions, for example, may in fact have several forms of distance education ongoing at the same time, from mixed methods (such as televised and web-based instruction) to extended campus forms of outreach. Rarely is a distinction between these different offerings made in the literature. This blurring affects our ability to learn from early adopters of distance education.

But there are lessons to be had here that can guide practice. Because much of the best work has been done as single institution case studies or at the classroom level, faculty and administrators need to weigh evidence much as they would qualitative data, looking for signs of comparability and generality between examples and their own institution. We attempt to outline these elements in the sections that follow.

LESSONS LEARNED ABOUT DISTANCE EDUCATION: INSTITUTIONS

When looking at the institutional level, we can learn from two primary foci that emerge in the research literature: planning and management, and finances. However, in spite of the work that has been done, the holistic picture remains murky. It is difficult to determine the best structures to achieve institutional missions or what precise goals colleges and universities have for distance education. Most structures in institutions are not reassigned to a distance education division, further complicating efforts to study distance education at this level.

Lessons for Practice

Develop a Strategic Plan

Research shows that the structure and planning of distance education efforts need to be more carefully considered as distance education programs rarely begin with a formal strategic plan. Strategic plans defining and operationalizing goals as well as the articulation of growth, development, financing, and maintenance of programs all need to be carefully decided. In order to assess and refine programs, the dedication and allocation of resources needs to be mapped even as goals are more clearly articulated.

Illustrating this point, in a study of six distance education operations, Compora (2003) found that few institutions conduct a needs assessment to determine program requirements and how well distance education will meet these needs. In fact, many distance education units operate without a defined mission statement. The research is unclear whether this is a symptom of the ever-evolving world of distance education technologies or whether it is the source of the problem. However, the lack of a complete picture can lead to problems. For example, institutions may see burgeoning enrollment in distance education and assume they are meeting a new need and providing greater access to a new population of students. In reality they may merely be enrolling students who have already enrolled and would continue to enroll even if distance education courses were not offered. Defining the mission of distance education and how success will be tracked is vital for all programs. Institutions also need to clearly track the enrollment trends of students to ensure they understand the nature of their students and how best to serve them to ensure success.

Employ and Appropriate Staff

In addition to articulating plans and goals, institutions need to ensure programs have well-trained staff dedicated to service and maintenance of the distance education effort. Williams (2003) identifies thirteen distinct roles in a distance education program including such diverse areas as administrative manager, instructional designer, graphic designer, and librarian. Although the roles may be encapsulated in a single employee, a successful program will sufficiently staff and support each area. As the old human resources adage goes: you are only as good as the people you hire.

Consider Costs, and Expect the Unexpected

While planning and management issues require focused attention for success, the importance of having an overall plan for how the costs of distance education are handled and offset can not be overstated. The costs of distance education include those that the institution and the student must cover (Annetta, 2004). There are a number of factors that affect the cost of distance education to institutions, including the number of students, frequency that materials must be updated, technology, extent that costs are passed to students, and organization structure (Rumble, 2003, p. 114–115). As part of a fallacious effort to control escalating expenses, ''administrators are putting all of their eggs into the

distance education basket'' as part of a fallacious effort to control escalating expenses (Annetta, 2004, p. 1). Research shows that although distance education's cost per student is lower than traditional avenues of education, the high attrition of these programs increases the institution's cost per graduate (Rumble, 1997).

One difficulty with costs in business as well as distance education is that how one examines costs will, ''depend on the kind of decisions to be made and what your position is in the decision-making chain'' (Bates, 2000, p. 151). When dealing with the difficult issue of costs in distance education, one must identify all costs, underlying assumptions, and the reasons for making those assumptions. Each institution places different demands upon its distance education program which in turn influences the cost structure. Administrators should understand the costs and assumptions realistically examining the success and failures of each program independently. The literature as it currently stands does not provide administrators with sufficient empirical benchmarks to effectively evaluate or compare one distance education program to another. Thus, given the highly individualized nature of the goals and finances these programs, institutions should evaluate how well distance education is meeting their own mission and needs.

An examination of e-learning's rise and fall helps to demonstrate the problems of distance education. E-learning promised a revolution in pedagogy, a boom in distance education with the ability to provide any time and any place instruction, and the market would provide the necessary funding (Zemsky and Massy, 2004). Institutions spent millions of dollars to start massive e-learning initiatives. They did this before conducting a thorough analysis of the market and demand for e-learning. As a result, colleges and universities "misunderstood the kind of educational experiences that learners wanted and overestimated their eagerness to achieve those ends electronically'' (Zemsky and Massy, 2004, p. 59).

Lessons for Research

Gather Empirical Evidence about Access

In an era of increasing calls for accountability and access – not to mention trustee and legislator perceptions of distance education as a "pie in the sky" solving the complex issues with efficient, student-centered, profitable programs – distance education can potentially offer real and politically-sensible solutions to administrators struggling with new student markets and financial restraints. Yet, practitioners today have

little empirical evidence, positive or negative, of the ability of distance education to address these problems for higher education. We often can point to increased enrollment, but far less frequently can say with authority that new access was provided on a grand scale. Research needs to begin to close this gap, and quickly, in order to help those designing, refining, and assessing these programs.

Determine a Method for Measuring Resource Allocation

Actual allocation of resources to distance education is difficult to assess. As Olsen, Gile, and Bray (2003) note, faculty who teach in distance education courses are rarely considered to be allocated to a separate or distinct distance education department or division; instead they retain their home college affiliation, making it that much more difficult to track institutional allocation of resources to distance education. The same difficulty exists in making considerations of infrastructure and other investment of resources. This complexity creates a murky picture of the management of distance education by higher education institutions and an area where institutional researchers should focus in order to improve data on distance education.

Examine Financial Expenditures by Pooling Data

The literature on the financial side of distance education at the institutional level in particular is surprisingly weak in terms of empirical work. Researchers exploring these areas face several difficulties that may discourage their efforts. First, colleges and universities tend to keep tight hold on their financial data limiting the ability to gain concrete information. Second, the complexity of the issue severely hinders researchers' ability to make comparisons between institutions. In-house sharing of distance education funds, one way to foster the beginning adoption of online courses, further exacerbates the issue. Program scope, governance, financial setup, and entrepreneurial philosophy can create vast differences in how distance education programs are treated, making broad empirical studies challenging at best and virtually impossible at worst. It is vitally important that institutional researchers work with colleagues at other institutions to pool information in ways that support decision makers who desperately need benchmarking data for improving these programs.

LESSONS LEARNED ABOUT DISTANCE EDUCATION: FACULTY

The literature on faculty adoption of technology for use in distance education has provided information about the factors that can enhance or impede faculty adoption and sustained use of technological tools.

Lessons for Practice

Five main barriers exist for faculty in teaching or designing distance education courses: workload and release time, compensation, promotion and tenure considerations, intellectual property rights, and technological reliability.

Provide Workload/Release Time

Faculty who develops and teaches distance education courses need to be given time for two primary functions: training and learning to teach in the distance education format and extra time to develop the actual course and accompanying materials. These two areas are crucial as faculty often cite a general lack of time for instructional innovations as a primary obstacle to participation (Chizmar and Williams, 2001). Most studies show that it takes additional faculty time to participate in technology training and to learn new technology. These steps, though, are essential to technology development and use (Butler and Sellbom, 2002; Wilson, 2001). Institutional leaders must concern themselves with this because lack of competence, or feelings of it, act as a further barrier to teaching motivation (Walker and Quinn, 1996).

Determine a Policy for Intellectual Property Rights

Release time to train in distance education technology and to design courses goes hand-in-hand with the need to make clear the academic property rights associated with the design of the course and its materials. The literature at this point does not strongly indicate one approach over another in terms of whether the intellectual property rights should reside mainly with faculty or with the institution. Moreover, the lack of certainty on this issue can cause faculty to hesitate to provide a distance education course for fear their work could be taken from them and given to other instructors for later use.

The issue of who owns rights to distance education courses that have been prepared in a format that allows for reuse, either through recordings of lectures or through online material, is one that

essentially remains unclear in the eyes of faculty and administrators as well as the law (Klein, 2005) and requires resolution. The problem of intellectual property in distance education is exacerbated by the difficulty in resolving how to view the property that is actually engaged. As Johnson (2004) notes, we must clarify our definition to clearly demark the difference between courseware and course content. Faculty are the ones engaged in providing the course content, while the materials used to produce and disseminate the course are typically provided by the institution. Many colleges do not have clear language or policies regarding the intellectual property rights of distance education courses (DiRamio and Kops, 2004). Although difficult to create, a clear set of guiding principles and procedures can help resolve the latent tension and ambiguity on this issue for faculty and administrators.

Provide Compensation for Involved Faculty

To best ensure faculty participation and ease the transition to distance education delivery, the incentives offered to faculty need to be carefully considered. Compensation should include time and workload releases to financial awards and recognition in promotion and tenure decisions, as these factors are important to faculty (Chizmar and Williams, 2001; Parker, 2003). Clear compensation and incentive models do not exist for development and use of instructional technology, but it is clear that compensation is generally negligible at best. A National Education Association study (2000) found that sixty-three percent of distance learning faculty received no additional compensation for teaching distance learning courses. This same study reported seventy-three percent of faculty who taught Web-based distance learning courses were compensated as a part of their normal course load. Furthermore, it found that faculty believed they would do more work for the same amount of pay when participating in distance learning (NEA, 2000). The implication of most compensation policies is that *developing* distance education courses is more highly-valued than *teaching* distance education courses, as course development is more likely to be compensated than teaching (Schifter, 2004).

Determine Weight of Participation for Promotion and Tenure

The ultimate sign of valued faculty behavior is generally accepted as those that are given weight in tenure and promotion decisions.

However, this value cannot be spoken; it needs to show up in action. There are numerous tales of teaching being praised as having high value, only to have conversations behind closed doors focus only minimally on teaching. As it is sometimes presented, teaching (at research institutions in particular) cannot get you tenure, but it can keep you from getting tenure. The so-called popular wisdom, therefore, is confusing and needs to be made clear for all faculties.

Faculty who participate in distance education programs believe it important that they be rewarded for distance education during the promotion and tenure process (Padgett and Conceicao-Runlee, 2000). Yet faculty perceives technology use to have little value for determining reward and compensation (Wilson, 2001). As noted in the sections above, significant barriers such as lack of compensation and increased time commitment do seem to exist in teaching and designing distance education courses. Enough barriers can override even those with strong intrinsic motivation to offer distance education courses, and weight in promotion and tenure decisions is a real issue that must be addressed.

Ensure Technological Success

Technology itself can also provide a significant barrier to distance education efforts. The lesson here is that this is not an area for cutting costs with a real need for the best technology and technical support available. The increase in the use of technology and distance education can raise the hopes that technology is working well and serving students from a vast array of geographic and demographic backgrounds. Unfortunately, technology problems, particularly reliability issues, still pose a real obstacle to distance education. Adequate equipment, whether hardware (Groves and Zemel, 2000; Wilson, 2001) or software (Padgett & Conceicao-Runlee, 2000), and faculty perception of the reliability (Butler & Sellbom, 2002) are critical components in the adoption and use of technology.

In a traditional classroom setting, if the technology does not work, alternatives exist. In the case of distance education, however, if the technology fails, the course stops with students and faculty cut off from one another. Therefore, reliable technology with readily available support is vital for success (Wilson, 2001). Otherwise, not only is delivery hampered, but students face isolation from the instructor and one another particularly in synchronous classes, such as videoconferencing.

Lessons for Research

Determine how much Time using Distance Technology takes Faculty

Institutions seeking to support distance education courses and initiatives need to develop clear and consistent policies for providing faculty with release time to design and teach courses that will take more time than traditional ones. The exact amount of time that works or is currently used on a system-wide scale needs to be researched more carefully to establish a baseline of information about this option. This is another area where institutional research offices working jointly across institutions can provide valuable information on what is occurring.

Colleges and universities would further gain from expanding a clear financial compensation model to reward faculty for the added work. Additional encouragement for faculty to utilize distance education would involve a clear and concise policy for rewarding distance teaching during promotion and tenure decisions. This research, however, is perhaps the most problematic to conduct, as many institutions are designed differently enough to make comparison difficult, even if the information about these designs and their financial supports were forthcoming, which they are not.

Further Examine Faculty Motivation

There are also instances in which faculty may have the willingness and motivation to design or teach a course in a distance education format but do not have the knowledge or wherewithal to craft the technology appropriately or to troubleshoot problems as they arise. Continued research into the motivations to teach, from an intrinsic perspective, should be sought to see if other specific barriers to motivation could be found in addition to utilizing extrinsic levers.

Conduct Large Scale, Longitudinal, Empirical Studies

Future research on faculty and distance education also needs to provide a stronger sense of longitudinal effects and programmatic success and design elements. Not only do studies need to track effects over a longer span of time, they also need to incorporate a greater number of institutions at the same time. As with much of the distance education literature, we tend to see a plethora of work on single institutions or non-empirical descriptions, hampering efforts of researchers and practitioners to understand phenomena on a large scale and explain distance

education efforts in context of each other. Empirical studies actually measuring faculty time on distance education preparation compared with traditional modes of delivery, for example, would greatly inform our current understanding. Finally, linking with the call above for greater institutional support for faculty, we need to better study precisely how faculty develop their self-efficacy in distance education and how institutions can strengthen and foster that intrinsic motivation even as they seek to increase technological confidence among faculty.

LESSONS LEARNED ABOUT DISTANCE EDUCATION: STUDENT LEARNING

Some of the problem in proscribing practice from the literature on distance education students is due to poorly constructed studies or simply a plethora of descriptive reports rather than analytical research. Another issue is the nature of students enrolled in these courses; often the quasi-experimental methods used do not control for student demographic and educational characteristics (Pouget and Pym, 2000). Among the lessons learned from this area is the need to know and plan for the type of student being reached by the distance education course and to emphasize effort on method over medium.

Lessons for Practice

Plan for the Nature of Students Drawn to the Medium

Students engaged in distance learning tend to have demographic and professional characteristics different than their traditional classroom counterparts. Distance education offerings tend to draw more mature and experienced students (Qureshi, Morton, & Antosz, 2002). Many believe distance education is suited to older students by allowing for a more flexible schedule and a lower-priced mode of delivery in which students can either proceed at their own pace or at least cut down travel times to a main campus, instead traveling to a satellite campus or even working from home. This can lead in either of two directions. More mature, educated, and experienced students may have a greater wealth of educational experiences upon which to build and a more conceived idea of what they want from their education. On the other hand, these students also are likely to face more barriers and possibly lower motivation; barriers can stem from family demands or other time constraints as well as tighter financial situations (Qureshi et al., 2002). Although, there is some evidence that students enrolling in distance education

come from higher total family income; individual institutions should conduct careful study of its own student population (Halsne and Gatta, 2002).

The uncertainty on the benefits of age in distance education courses reinforces the problem Collins and Pascarella (2003) raise appropriately – most studies of distance education fail to control for age and other related factors, yet still espouse a finding of no significant difference in outcomes. To start to alleviate the situation, Collins and Pascarella randomly assigned community college students to receive instruction at a distance via a two-way interactive telecourse or in a traditional classroom. Their results demonstrated that the learning in the distance course was equivalent to that of students assigned to on-campus, face-to-face instruction. However, when conducting a quasi-experimental study and allowing students to self-select into the instructional type, they received distinctly different results. Now those enrolled via telecourse at remote sites evidenced significantly higher course learning than either randomly assigned group. Such evidence suggests that the body of evidence on distance learning could be seriously confounded by learner self-selection if not controlled or accounted for in the design of the study.

Where does this lead the practical use of our knowledge of students? Students who are off-campus do appear to tend toward the non-traditional demographic with many nonacademic demands on them. These students need to be engaged in active learning as cohesively and much as possible. The technology provided to them needs to be absolutely solid, as the classroom in many ways is their strongest link to the institution, not just in an academic sense but also sociologically and psychologically.

Look to Student Experiences with the Medium in Context

Faculty and institutions should actively collect information on their own students and their experiences in the distance education setting. Institutional research offices can provide an almost instant boon of information on student demographics and performance across different enrollment patterns, grading patterns of online instructors, etc., and this information should be used intensively to support student success. Student should also be asked for their needs and wants, expectations and frustrations as well, as the literature is conflicted enough to suggest institutionally-based approaches may still be the most effective.

Employ Sound Pedagogical Practice to Enable Learning

Clark (1983) suggested early on that the medium of delivery was not the key difference in higher education course delivery – method was. Russell's (1999) encapsulation of the "no significant difference" phenomenon has reinforced that finding. There continues to be at least some evidence that traditional classrooms provide learning benefits that distance courses cannot match. For example, students in a live classroom setting performed better on the most complex material than their distance delivery peers despite the advantageous characteristics of the online class (Brown and Liedholm, 2002). Student satisfaction is also higher in these face-to-face classes (Johnson, Aragon, Shaik, and Palma-Rivas, 2000; Maki, Maki, Patterson, and Whitaker, 2000; Salisbury, Pearson, Miller, and Marett, 2002). However, others comparing online learning to on-campus experiences (Fallah and Ubell, 2000, Green and Gentemann, 2001) found no difference in student expectations and perceived benefits, and the level of work produced (Carswell, Thomas, Petre, Price, and Richards, 2000; Johnson et al., 2000). Still other findings have indicated a positive difference in the opposite direction, for example, indicating higher quality work from the online section or group than the traditionally-based one (Stinson and Claus, 2000).

The confusion caused by the directly contradictory nature of these findings can be ameliorated, perhaps, by focusing on how to best design distance offerings to maximize the potential of the medium. While many studies continue the search for a significant difference overall, others are beginning to seek the keys to make distance education offerings as successful as possible. An important element for instructors to consider in developing their online courses is to optimize opportunities for their distance students to participate in active learning. Shin and Chan (2004) argue that distance education courses need to incorporate active learning opportunities. Only active interaction is a significant indicator of an online student's perception of their own learning (Rovai and Barnum, 2003). This is particularly important as Kanuka (2001) found that students' greatest frustrations came from pedagogical issues rather than technical ones.

Ensure that Students Receive Timely Feedback

One further issue exacerbated by distance courses is the sense of immediacy, proximity, or psychological distance from an instructor as well as the institution (Rovai and Barnum, 2003). Ensuring that students receive timely and informative feedback is one way instructors can

decrease the sense of isolation that can arise from distance education courses. Given that the process of asking questions can take longer to process through email than in a face-to-face classroom setting, faculty members also need to make extra effort to ensure course materials are clear and well-organized and that instructions are clear (Kanuka, 2001).

Lessons for Research

Continue to Examine Student Outcomes

Given the findings mentioned above, there still appears a need for more studies that perform randomized, controlled examinations of the differences in student outcomes by distance and classroom modes of delivery. While some studies continue the search for a significant difference overall, others have begun to seek for ways to make distance education as successful as possible. This perspective is a particularly useful one to take given the different demographic that tends to enroll in distance education.

The literature gives no comprehensive and convincing evidence strongly in favor or against the "no significant difference" phenomenon. While some continue to show negative difference on academic outcomes and student engagement as well as satisfaction, others show positive learning gains with at least equal levels of satisfaction and belongingness. Unfortunately, we continue to see what Collins and Pascarella (2003), and Pouget and Pym (2000) bemoan – the use of quasi-experimental designs that fail to account for both student backgrounds and other important issues such as time on task and thus do not allow us to create a full picture of how distance education differentially effects students. Future research needs to continue to probe student outcomes through empirical assessment with randomized selection and multiple controls and to do so across institutions, as well as to match student outcomes with espoused missions of the distance education programs being provided. These types of study are still too lacking in our knowledge base. Furthermore, we need to understand better how distance education programs or degrees compare. We also should take a more longitudinal approach in such cases, as the majority of studies continue to focus on single course, single- or multiple section offerings.

Examine Student Retention

A corollary question of influence of technology on students may arise from the student satisfaction and belongingness literature, and that is

TABLE 1. Summary of Lessons Learned about Distance Education

	Lessons for Practice	Lessons for Research
Institutions	• Develop defined and realistic goals • Assign and be able to track allocated resources for distance education • Track enrollment and demographic patterns to ensure meeting goals • Use institutional research data, along with self-collected reports from students and faculty, to track student performance, faculty grading • Provide the best technology available, and have technology support available at all times (particularly during class times for synchronous approaches)	• Study the link between expenditures and outcomes • Consider the success and mixture of overall institutional course offerings, including main campus, extended or affiliated campuses, and distance education together
Faculty	• Provide incentives: promotion and tenure, financial rewards, workload release time • Provide faculty time to train and to develop courses • Settle all intellectual property rights discussions ahead of time, through institutional policy rather than case by case negotiation	• Study faculty and intrinsic motivation to teach these courses • Longitudinal tracking of distance education efforts • Consider the size and scope of incentives, and their success over time

TABLE. 1 (*CONTINUED*)

| Student Learning | • Plan for students from different professional, demographic, and needs backgrounds
• Provide timely feedback, and keep a regular pattern of communication

• Use clear, well-organized materials
• Ensure active learning and interaction is incorporated into the class
• Avoid mixed modes of delivery that can fracture faculty attention and students' sense of belongingness (i.e., video and live campus based at the same time) | • Randomized, controlled studies

• Look for disciplinary differences (particularly along typological lines, such as Biglan's pure versus applied fields)
• Multi-institution projects and data sharing
• Compare on demographic backgrounds in more detail
• Look at students who enroll in distance and campus classes |

the issue of student retention. On one hand, it seems likely that distance education, properly managed and disseminated, could be used as a method to allow students facing difficulties in continuing enrollment a positive way to remain linked to their institutions. Some colleges are even allowing and encouraging alumni to take some distance courses for free to foster that sense of belongingness and attachment over time. Considering Tinto's theory of student departure and its elements of academic and social integration, distance education seems to provide possible advantages for both. However, Braxton, Sullivan, and Johnson's (1997) analysis of studies of Tinto's theory indicate the particular importance of social integration for student retention. An increased focus on the integration of students and making them feel a part of the institution as a whole, as well as their class, is a critical part of fostering a vital online community.

CONCLUSIONS

In order to end the cycle of failure of technology for distance education that we outlined in the introduction of this work, we must learn from the research to improve practice; improved practice must then provide new questions for examination. Research on distance education to date provides an interesting dichotomy; at times, it provides some very specific ideas about how to organize overall offerings or conduct classroom pedagogy, but in other instances, it seems like we know almost nothing in terms of a shared, holistic knowledge. Our overarching conclusions about the implications for both practice and research that can be made at present from empirical work are found in Table 1.

Institutions need to better formulate a cohesive plan for distance education delivery and assessment in order to ensure it is meeting institutional needs and goals. Specifically, colleges and universities need to collect and evaluate data on their goals for the distance education program, determine how allocation of resources to the program will be decided, as well as evaluation of how effectively those resources are used. Similarly, institutions need to come to an explicit understanding with faculty about intellectual property rights and consideration of distance education course development and delivery in promotion and tenure decisions. Addition issues requiring attention in order to increase faculty participation are giving faculty release time to develop courses, providing remuneration for their efforts, and ensuring sufficient technology support. Although examples of bad distance education certainly exist, properly conducted distance education, with no technology difficulties and easy access to the instructor, can lead to a very satisfying

learning experience for students. On some level, then, it seems possible that it is the pedagogy rather than the delivery method that is the most important for student learning and growth.

Colleges and universities continue to struggle with reconciling the promise of distance education to its actual practice and researchers have not kept pace with the changing and increasing complexity of distance education leaving a literature base that is somewhat weak. However, we are making progress in our knowledge of the role and effect of distance education in higher education and its implication for future research and practice.

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