

## Priorities in K–12 Distance Education: A Delphi Study Examining Multiple Perspectives on Policy, Practice, and Research

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### ABSTRACT

The Delphi Method of group communication was used with experienced distance education stakeholders in the United States from the areas of research, policy, and practice to identify priorities in K–12 distance education over the next five years. Data from the three rounds of this study were organized and compared using descriptive statistics. The results of the analyses by statement and by subscale indicated no significant differences among the policy, research, and practice subgroups ( $p > .05$ ), indicating that experts identified common priorities. Delphi panel members advocated the following priority areas for K–12 distance education over the next five years (in order of importance): 1) evaluation of course design and delivery, 2) best practice, 3) accountability, 4) access, 5) online learning/learners, 6) professional development, 7) accreditation/standards, 8) funding, and 9) technology. Results of this study provide a framework of specific priority areas to be addressed by those engaged in all facets of K–12 distance education.

### Keywords

Distance education, Online learning, E-learning, Virtual schools, K–12

The landscape of K–12 public education is changing substantially. Recent trends in United States policy (Hassel & Terrell, 2004; U.S. Department of Education, 2004) support the continued expansion of distance learning opportunities aimed at elementary- and secondary-school students. As pressure on decision-makers to implement distance learning opportunities for K–12 students continues to grow, so do questions concerning the effectiveness and scalability of existing programs, and the costs, needs, and barriers in creating new programs (Freedman, Darrow, & Watson, 2002). The decisions made today have lasting impact not only on our educational system but also on the individual students served. Therefore, it is imperative that development and growth occur in a thoughtful and systematic way (Blomeyer, 2002). Long-term strategic thinking about how best to adapt, adopt, and implement distance education into existing educational structures is necessary to ensure the most effective use of institutional resources and optimal outcomes for student success (Sarason, 1990; Verduin & Clark, 1991). The purpose of this three-round Delphi study was to identify and facilitate the prioritization of issues surrounding this rapidly evolving field.

### Background

Distance education as defined by the National Center for Educational Statistics (NCES) is “education or training courses delivered to remote (off campus) location(s) via audio, video (live or prerecorded), or computer technologies, including both synchronous and asynchronous instruction” (1999, p. 2). Web- or Internet-based education is a form of distance education that uses the Internet for content delivery. Virtual schools and programs that utilize Internet-based technologies often fall into these pre-existing definitions of distance education. E-learning or online learning is a subset of distance education that specifically incorporates web-based or Internet technologies (Simonson, Smaldino, Albright, & Zvacek, 2006).

Distance education in the form of online courses and programs targeting grade levels K–12 are often referred to as “virtual schools” or “cyber-schools” and operate in a variety of ways. They can be operated by public school districts and other local education agencies, by state education agencies, by colleges and universities, as cyber charter schools, by regional agencies, by consortia of educational entities, and as nonprofit and for-profit organizations. Regardless of how virtual schools are operated, the rise in the number of virtual schools has been dramatic. Forty-two states currently offer either state supplemental programs, full-time online programs, or both, with enrollment growth between 25 and 50 percent (Watson & Ryan, 2007) and indications that every state now has some form of cyber-school operating within its boundaries (Long, 2004).

Distance education programs may provide additional choices for high educational achievement of every child, but the challenge is to ensure that this alternative form of instruction increases the quantity of educational opportunities while maintaining or enhancing the quality of those opportunities (Roblyer & Marshall, 2003). Educators and policymakers look to researchers to provide evidence of effectiveness to assist in planning for future events and to inform classroom practice (Roybler & Knezek, 2003). Researchers may follow the lead of visionary policymakers in defining research agendas. And neither policy nor research will be effective if there is no perceived value in the adaptation and application of policy and research decisions in the classroom. Whether or not K–12 distance education programs improve educational opportunities provided to students will depend upon the identification of priorities from the multiple perspectives of these critical stakeholders.

## Methodology

This study used the Delphi method (Linstone & Turoff, 1975; Ziglio, 1996) to identify priorities for K–12 distance education policy, practice, and research over the next five years. Three questions guided the collection and analysis of data:

1. What should be the research, practice, and policy priorities surrounding K–12 distance education over the next five years?
2. What are the differences and/or similarities between the perspectives of researchers, practitioners, and those who are in a position to influence policy?
3. What are the implications of these similarities/differences for the planning and implementation of K–12 distance education programs?

Originally developed at the Research and Development Corporation (RAND) in the 1950s as a systematic methodology for examining likely futures, the Delphi method was initially used in forecasting technological innovations and the social and economic impact of technological change (Brown, 1968; Ziglio, 1996). Since that time, the Delphi method has been used to obtain consensual and consistent opinions from experts and has been employed in a variety of fields, such as health care (Dawson & Brucker, 2001; Powell, 2002), business, policy (Linstone & Turoff, 1975), and education (Herring, 2004; Pollard & Pollard, 2004). The Delphi method represents a systematic approach to the data-gathering process. First, it is a structured process of group communication. Second, it allows for the quantitative assessment of group opinion and disagreement. Third, it enables respondents to participate anonymously. Finally, the Delphi process of group communication provides an avenue for a thoughtful analysis of practice, policy, and research goals from individuals in positions of authority, experience, and knowledge of the field (Adler & Sainsbury, 1996; Linstone & Turoff, 1975; Ziglio, 1996).

All Delphi studies must maintain three critical components: 1) anonymity, 2) structured information flow, and 3) controlled feedback, typically in the form of descriptive statistics. In addition, the Delphi method is particularly useful when

- the problem does not lend itself to precise analytical techniques but can benefit from subjective judgments on a collective basis.
- the individuals need to contribute to the examination of a broad or complex problem, have no history of adequate communication, and may represent diverse backgrounds with respect to experience or expertise.
- More individuals are needed than can effectively interact in a face-to-face exchange.
- The heterogeneity of the participants must be preserved to assure validity of the results, that is, avoidance of domination by quantity or by strength of personality (“bandwagon effect”) (Linstone & Turoff, 1975, p. 4).

To encourage a broad range of potential priorities, this study sought input from three disparate professional areas, each with a specialized area of expertise (Anderson & Kanuka, 2003; Ziglio, 1996). The three expert subgroups consisted of the following: 1) practitioners engaged in the day-to-day operations of distance learning ( $n = 10$ ), 2) those influential in creating policy or making policy decisions that directly affect distance education programs or schools ( $n = 11$ ), and 3) those engaged in research activities in distance education ( $n = 8$ ). Data was collected over a three-month period in the fall of 2005. A letter of invitation to participate in this study was sent by electronic mail to 86 potential participants (within the United States) identified through a search of state-level technology administration websites, university websites, websites associated with virtual schools and programs, and a thorough review of the literature. Twenty-nine respondents, from 12 states, became the participants for the Round One questionnaire.

## Results

### Round One, Two, and Three Results

In Round One, 29 expert panel members generated 149 total statements that were coded and consolidated into 96 statements. Statements were also organized into nine subscales. To reduce threats to internal validity, a peer checking process was used to code the open-ended responses (Krathwohl, 1998). The two analyses were then compared and any differences were resolved with the assistance of a third objective rater. Individual statement importance was rated, and subscales were ranked by panel members in subsequent rounds. Panel members were also given the opportunity to comment on each item during the Round Three iteration of the study.

Data from the three rounds of this study were organized and compared using descriptive statistics. A summary of the total and consolidated responses arranged by nine priority areas or subscales (in alphabetical order) is presented in Table 1.

*Table 1. Number of Round One responses by subscale*

Subscale	All statements	Consolidated statements
1. Access	12	10
2. Accountability	11	8
3. Accreditation/standards	14	6
4. Best practice	34	16
5. Evaluation of course design and delivery	9	8
6. Funding	13	6
7. Online learning/learners	23	17
8. Professional development	19	11
9. Technology	<u>14</u>	<u>14</u>
<b>Total</b>	<b>149</b>	<b>96</b>

### Comparison of individual items from Rounds Two and Three

In Delphi studies, the same questionnaire is used in both Round Two and Round Three. The data from Round Three are considered the final results, but the results from Round Two can be used to illustrate potential convergence between rounds. Table 2 displays the distribution of mean scores for all items on the questionnaire for Round Two and Round Three. The mean scores from the responses of 36 of the 96 questionnaire items increased from Round Two to Round Three.

*Table 2. Frequency distribution of mean scores for all items from Rounds Two and Three*

Mean Score <sup>a</sup>	Round 2		Round 3		Net Change
	Frequency	Percent	Frequency	Percent	
≥ 4.50	0	0.0	2	2.1	+2
≥ 4.00 < 4.50	14	14.6	11	11.5	-3
≥ 3.50 < 4.00	49	51.0	45	46.9	-4
≥ 3.00 < 3.50	28	29.2	30	31.3	+2
≥ 2.50 < 3.00	5	5.2	8	8.2	+3
≥ 0 < 2.50	<u>0</u>	<u>0.0</u>	<u>0</u>	<u>0.0</u>	<u>0</u>
Total	96	100	96	100	0

<sup>a</sup> Responses were rated on a scale of 1 to 5, with 1 = no importance, 2 = low importance, 3 = medium importance, 4 = high importance, 5 = very high importance.

Consistency between rounds is illustrated in Table 3, which contains descriptive statistics for the items rated as having very high importance ( $M \geq 4.00$ ) in Round Three and the corresponding ratings in Round Two. Ten of the 14 items from Round Three were also rated as having very high importance in Round Two. In addition, there was an overall increase in mean scores from Round Two to Round Three and a corresponding decrease in standard

deviations. These highly rated items included responses from seven of the nine identified subscales. No mean response values from items in the subscales of professional development or technology met the criteria for highest-rated responses. The overlap in content from one subscale to another might explain their exclusion. For example, the subscales of best practice and funding contain responses that imply the necessity of professional development funding and the need for technological resources. Two of the highest-rated items were from the best practice subscale, providing further evidence of the importance this panel placed on identifying effective pedagogical practices of online teachers in the K–12 environment.

It should be noted that although the original research questions used the terminology “K–12 distance education,” an overwhelming number of responses specifically referred to “online” or “virtual” courses and programs. This slight shift in usage was left intact in order to present panel members’ intent as closely as possible.

*Table 3.* Comparison of items rated “high importance” to “very high importance” ( $M \geq 4.00$ ) from Round Three (R3) and corresponding ratings from Round Two (R2)

Subscale	Statement	R3 Rank	R3 <i>M</i>	R3 <i>SD</i>	R2 Rank	R2 <i>M</i>	R2 <i>SD</i>
Best practice	Defining the characteristics of effective pedagogical and technological applications that lead to achievement gains.	1	4.59	.57	2	4.36	.73
Account	Making virtual schools as accountable as brick-and-mortar schools.	2	4.52	.89	1	4.36	.73
Access	Removing state-level barriers to the establishment and operation of virtual public schools as a legitimate choice within a state’s public education system.	3	4.22	.89	7	4.07	1.05
Best practice	Identifying effective pedagogical practices in the distance learning environment.	4	4.16	.80	8	4.07	.60
Access	Studying relative accessibility, equity, and quality of online programs.	5	4.15	.66	10	4.04	.98
Accred.	Aligning online courses and curriculum to states’ academic standards.	6	4.15	.66	3	4.21	.74
Accred. <sup>a</sup>	Offering an accredited program.	7	4.11	.70	20	3.89	.80
Access <sup>a</sup>	Providing an education for those students and families who are in unusual situations such as traveling, dealing with a long illness, living in remote areas, running businesses, etc.	8	4.07	.62	37	3.71	.94
Accred.	Offering a high-school program that is accredited by the state that is providing the program.	9	4.07	.96	6	4.12	.082
Eval.	Developing a comprehensive and effective method for evaluating the effectiveness of teaching and learning in an online K–12 school.	10	4.04	.60	5	4.18	.67
Eval.	Researching effective online course design and delivery.	11	4.04	.59	9	4.07	.81

Online learning/ Learners	Educating the public as to what distance learning is, what the purpose is, and why it may be a method for some children while not for others.	12	4.04	.65	11	4.04	.98
Funding <sup>a</sup>	Providing financial resources for the extensive training of teachers and administrators of online K–12 schools in order to assure that effective teaching and learning is taking place.	13	4.00	.96	24	3.85	.99

<sup>a</sup> Indicates an item not rated “very high importance” ( $M \geq 4.00$ ) in Round Two.

The lowest rated items from Round Three ( $M \leq 3.00$ ) and the corresponding ratings from Round Two are presented in Table 4. Seven of the nine items included in this category were also rated similarly in Round Two.

*Table 4. Comparison of lowest rated items ( $M \leq 3.00$ ) from Round Three and corresponding items from Round Two*

Subscale	Statement	R3	R3	R3	R2	R2	R2
		Rank	<i>M</i>	<i>SD</i>	Rank	<i>M</i>	<i>SD</i>
Online learning/ Learners	Ability as a field of study to provide a synthesis of principles and concepts capable of explaining and predicting developments in the 21st century.	1	2.52	1.05	2	2.81	1.24
Best practice	Enrichment opportunities to stretch the curriculum through student activities such as chess clubs, research teams, study groups, reading buddies, or student-to-student mentors.	2	2.70	.78	1	2.74	.90
Online learning/ Learners	Information literacy studies.	3	2.70	1.03	3	2.85	1.03
Tech.	Technology safety: Examine the obligation of distance education providers to deal with issues associated with the Internet (i.e., spyware, malware, pop-ups, and unwanted IMs, etc.) and the associated costs.	4	2.74	.66	6	3.04	.90
Online learning/ Learners	Examination of student development issues	5	2.78	.85	5	2.96	1.00
Eval.	Research into commercial elementary virtual providers' models, effectiveness, socialization of students, etc.	6	2.85	.82	15	3.32	1.02
Tech.	Development of classes that reach students with the lowest connection speed	7	2.93	.68	9	3.22	.85
Tech.	Use of e-texts	8	2.96	.87	4	2.89	1.05
Account.	Exploration of how student, teacher, school, and program data may be made interchangeable and accessible to promote large-scale comparisons	9	3.00	.92	21	3.39	1.10

## Comparison of priority areas from Rounds Two and Three

In addition to the individual ratings within each subscale, respondents were also asked to rank the importance of the subscales relative to each other. The rankings for the nine subscales from Round Three and the corresponding rankings from Round Two are presented in Table 5. The rankings from Round Two to Round Three are virtually identical, with the exception of the Accreditation/Standards subscale, which fell from a Round Two ranking of four to a Round Three ranking of seven. An examination of the results demonstrates a reduction in standard deviation values for all subscales from Round Two to Round Three.

Table 5. Round Three priority areas' rankings and corresponding rankings from Round Two

Priority area <sup>a</sup>	R3	R3	R3	R2	R2	R2
	Rank	<i>M</i>	<i>SD</i>	Rank	<i>M</i>	<i>SD</i>
Evaluation of course design and delivery	1	2.62	1.75	1	4.07	2.06
Best practice	2	3.65	2.43	2	4.11	2.68
Accountability	3	3.81	1.92	3	4.33	2.34
Access	4	3.88	2.12	5	4.96	2.74
Online learning/learners	5	5.96	1.68	6	5.22	2.33
Professional development	6	6.08	1.67	7	5.37	2.31
Accreditation/standards	7	6.19	2.12	4	4.89	2.91
Funding	8	6.50	2.18	8	5.70	2.49
Technology	9	8.19	1.67	9	6.33	2.79

<sup>a</sup> Respondents were asked to rank each area in order of priority from 1 = highest priority to 9 = lowest priority.

### Subgroup analysis

Data were analyzed to determine whether membership in a particular subgroup resulted in any important differences in the responses to individual statements using the Kruskal-Wallis H test, the nonparametric equivalent of the one-way analysis of variance test (Huck, 2004). The results of the subgroup analyses in both Rounds Two and Three indicated no significant differences between subgroups for any of the individual statement importance ratings ( $p > .05$ ).

In addition to analyses of responses to individual statements, mean responses within the nine major subscales were generated and analyzed to determine if there were differences among subgroup responses. The means and standard deviations presented in Table 6 illustrate the similar responses among groups on all subscales.

Table 6. Means and standard deviations for subscales by subgroup, in order of rank

Subscales	Subgroup					
	Research		policy		Practice	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Evaluation of course design and delivery	3.57	.28	3.54	.52	3.51	.40
Best practice	3.76	.34	3.55	.50	3.63	.43
Accountability	3.70	.52	3.81	.55	3.68	.47
Access	3.61	.28	3.52	.37	3.67	.25
Online learning/learners	3.53	.31	3.31	.59	3.45	.48
Professional development	3.70	.55	3.69	.58	3.56	.51
Accreditation/standards	3.81	.57	3.92	.47	4.02	.40
Funding	3.74	.59	3.47	.49	3.48	.49
Technology	3.47	.48	3.15	.50	3.34	.50

Part Two of the questionnaires asked panel members to rank the priority of each subscale on a scale from one (highest) to nine (lowest). These rankings were also analyzed using the Kruskal-Wallis H test. No significant differences were detected among the subgroups in either Round Two or Round Three.

## Discussion

Delphi panel members advocated the following priority areas for K–12 distance education over the next five years (in order of ranking):

1. Evaluation of course design and delivery — research on effective online course design and delivery, and development of a comprehensive and effective method for evaluating that effectiveness.
2. Best practice — define and identify characteristics of effective pedagogical practices and technological applications that lead to achievement gains.
3. Accountability — hold virtual schools to the same accountability requirements as brick-and-mortar schools.
4. Access — increase access to distance education programs for all students by removing state-level barriers to the establishment and operation of virtual public schools, developing programs to better assist special needs students, and implementing statewide open enrollment policies.
5. Online learning/learners — educate the public about the function and purpose of distance education while increasing awareness of the potential advantages and disadvantages distance learning opportunities may present to learners.
6. Professional development — ensure that online instructors have the proper training to be effective teachers in the online environment, perhaps in the form of a credential or certificate.
7. Accreditation/standards — align online courses and curriculum to states’ academic standards and offer an accredited program.
8. Funding — ensure that effective teaching and learning is taking place by providing financial resources for the extensive training of teachers and administrators of online K–12 schools or programs.
9. Technology — improve high-speed access to allow more engaging online learning while examining those tools and processes that make teachers more successful, efficient, and productive.

## Evaluation of course design and delivery

Although the subscale of evaluation of course design and delivery received the fewest number of responses in Round One, it was ranked as the highest priority by the panelists as a whole. Panel members proposed that research on effective online course design and delivery and on the development of a comprehensive and effective method for evaluating that effectiveness are of high priority for the future of K–12 distance education. Research supports this finding and advocates the use of program evaluations as a tool in both policy development and implementation (Watson, 2005). A comprehensive study conducted by the University of California College Preparatory Initiative examined the condition of virtual high schools both within the state and across the country and is one example of the value of evaluation data. By looking at multiple aspects of online education across a wide number of programs — course development, instruction, growth, state policies, program organization, and technologies — researchers were able to construct a model to guide the development of online education in the state (Freedman et al., 2002). Dickson (2005) agrees, and suggests that an organized and consistent data collection system be a high priority at the start-up phase of any distance education program. The benefits of such a system are far reaching, especially if standard forms of data collection across programs are implemented.

Research in the area of commercial providers was rated as medium to low importance. This may indicate that panelists viewed evaluation of all programs as important rather than singling out one type of program for investigation. One panelist suggested that this area is of interest, but “the greater need is higher grades where so many more students are currently impacted.” In addition, panel members cited the need to differentiate between online learning instruction and delivery models when conducting research and evaluations as well as the need to examine the conditions of use. This finding reiterates the message from the research regarding the limitations of comparative studies focusing extensively on outcomes (Bernard, Abrami, Lou, & Borokhovski, 2004; Cavanaugh, 2001; Cavanaugh, Gillan, Kromrey, Hess, & Blomeyer, 2004).

## Best practice

The area of best practice was the second-highest ranked priority area overall. The statement “Defining characteristics of effective pedagogical and technological applications that lead to achievement gains” was the highest-rated item

within this category as well as the highest-rated item of all responses ( $M = 4.59$ ). However, strictly focusing on student outcomes caused one panel member to comment that

Measuring student outcomes has often been the focus of research in this area. However, factors that can contribute to student learning (e.g., instructional strategies employed, student motivation, teacher/student interaction, etc.) have been overlooked because they are difficult to control and measure. Can research be designed to effectively measure these types of contributing factors?

Researchers continually argue for more research into the specific factors associated with effective programs (Ferdig, DiPietro, & Papanastasiou, 2005; Roblyer & Knezek, 2003). While developments continue to be made in developing and documenting promising practices (Watson & Ryan, 2007), a systematic investigation of the critical components of successful programs is necessary, not only to ensure success for students, but also to inform policy.

Panel members also cited the need for “research into what works best for high school, middle school, and elementary school,” indicating the need to differentiate and expand the research base from a focus on adult learners to a focus on younger learners. Although much research has been done in the context of adult learners, very little has been done with younger students. This is an important consideration when making decisions, because young learners can be fundamentally different from adults, both cognitively and emotionally (Cavanaugh, et al., 2004).

The adult research base provides a starting point, but it has not established an ideal record in terms of quality (Bernard, Abrami, Lou, & Borokhovski, 2004; Phipps & Merisotis, 1999). Current K–12 distance research efforts attempt to ameliorate the difficulties found in adult research by focusing on quality studies that examine predictive characteristics (Roblyer & Marshall, 2003; Simpson, 2004), the impact of professional development and student perception on outcomes (Hughes, McLeod, Brown, Maeda, & Choi, 2005), and the value of student-to-student interactions in online courses (Zucker, 2005). However, qualitative, descriptive studies still represent the greatest amount of research to date. This focus on descriptive research is apparent in studies exploring learner supports (Frid, 2001), teacher-to-student interaction (Vrasidas & Zembyas, 2003), and quantity and quality of interactions with the use of synchronous communication tools (Murphy & Coffin, 2003).

In addition to general statements regarding effective practices, respondents also indicated the importance of creating partnerships with parents and offering individualized instruction based on student needs. Finally, panel members indicated that consideration should be given to practices specific to distance education. These include creating collaborative environments through the use of various synchronous and asynchronous technologies, community building, research analyzing interaction types, and consideration of student to teacher ratios.

## **Accountability**

Holding virtual schools to the same accountability requirements as brick-and-mortar schools was seen as a high-priority area. The accountability subscale received the third-highest priority ranking overall and the statement “virtual schools should be as accountable as brick-and-mortar schools” received the second-highest ranking of all statements from the Round Three survey instrument ( $M = 4.52$ ). This finding seems appropriate considering the influence of national and state-level accountability requirements in all areas of education (U.S. Department of Education, 2001). However, one panel member cautioned:

As a simple statement of policy, I agree strongly with the notion that virtual schools should be as accountable as B & M [brick & mortar] schools. My own experience is that most virtual schools (at least full-time schools) are as accountable, if not more so, than typical B & M schools. I would not be supportive of placing more accountability on virtual schools than is placed on B & M schools.

In addition to the same accountability requirements, panel members thought it was important to establish that online learning situations are of the same quality as face-to-face but were less inclined to do this through comparison studies. Panel members rated examining student performance in the distance learning environment versus the traditional face-to-face environment as less important, but this item still retained a medium- to high-importance rating. Distance programs and virtual schools are in a unique position, similar to other alternative forms of education. They have been placed in the position of not only establishing value through traditional accountability methods but they must also establish credibility through comparisons with traditional schools. The energy focused on comparative studies and the number of related statements generated in this study reflects this tension.

## **Access**

Panel members' responses suggest that removing state-level barriers to the development of distance education programs is of high importance. Regarding this statement, one panel member commented: "Before we start removing 'barriers' we had better be very sure our students are successful. There are many psychological issues which need to be studied first." No items in this category were ranked below medium importance. The highest-rated items in the access subscale address the importance of issues related to improving not only the quantity of accessible online programs, but ensuring that programs are developed that meet the needs of the students in those programs.

Providing access to an alternative route for education is perhaps the most important aspect of distance education. It has been argued that distance education environments may offer the advantage of a more personalized and instructionally diverse educational experience. Virtual schools and programs in particular may also offer increased educational options for students who lack access to highly qualified teachers or courses that would not otherwise be available, or who are simply unsuccessful in traditional learning environments (Chaney, 2001; Setzer & Lewis, 2005). Panel member responses reflect these beliefs. Not only did they indicate the importance of removing state-level barriers to the establishment of virtual public schools but the higher-than-average number of comments in this area suggest that panel members are reluctant to restrict access by establishing rigid eligibility requirements.

The question of effectiveness is an important one in this context, especially when considering the proclivity for attracting at-risk student populations and when taking into consideration the unique requirements of special needs students. Although the research in this area is limited, the number and quality of interactions appear to be important components of student satisfaction and retention rates of adult learners (Downs & Moller, 1999; Kuh & Hu, 2001; Muirhead, 2001; Picciano, 2002; Stein, Wanstreet, Calvin, Overtoom, & Wheaton, 2005; Stith & Fitz, 1994). We also know that younger students who experience consistent, positive relationships with their teachers are more likely to persist in traditional schools (Barr & Parrett, 2001; Lee & Burkham, 2001). These findings suggest that there is the potential for greater student satisfaction in courses and programs that emphasize strengthened social supports (Passey, 2000).

The requirements of special needs students present additional challenges to distance education programs on several fronts. Panel members cited the need for the development of online programs and assistive technology that provide for the continued progress of special needs students. Although great gains have been made in assistive and adaptive technologies, little is known about their use and implementation in distance environments. In addition, special needs students often require physical access to special services. This necessitates cooperation from all levels of the educational infrastructure — from state, district, and school levels — and often entails the use of outside entities. Obviously, further research is needed to explore the benefits and drawbacks of distance education not only for these special populations of students, but for all students.

## **Online learning/learners**

Seventeen statements were generated for the area of online learning/learners, the fifth-ranked category. Educating the public about distance learning was the highest-rated item in this area. Panel members also cited the importance of finding ways to improve the success of students interested in distance education through adaptable yet rigorous curricula, individualized instruction and assessment, support systems, and collaboration. The statement: "research into the characteristics of successful distance learning students" received some interesting comments. Two panelists from the research subgroup suggested that this type of research was "more valid than trying to define successful characteristics of the educational process" and that "this type of research could really help inform instructors who are designing learning classes." However, restricting research to identify only those characteristics found in successful learners caused one policymaker to voice the concern that "the 'ideal' student will be directed that way and others not — but different pedagogies and modalities wouldn't be included."

## **Professional development**

The area of professional development ranked sixth in the priority rankings overall. This finding is interesting because the highest-rated item overall was a statement from the best practice subscale: "defining the characteristics of effective pedagogical and technological applications which lead to achievement gains." Also rated of high

importance to very high importance was “identifying effective pedagogical practices in the distance learning environment.” These statements imply that high importance should be placed on best practice not only for organizational programs/processes but also to ensure that teachers, who will eventually be the direct contact between the student and the technology, are provided with opportunities to develop the proper skills to effectively teach in the online environment. Although the category as a whole ranked lower on the list of priorities, panel members also rated funding for training the highest within the funding category, suggesting that this panel deems it of high priority - at least in the area of funding.

Within this area, panel members indicated that proper training of online teachers, perhaps in the form of a credential, and an examination of the necessary knowledge, skills, and dispositions of online instruction, ranked highest. This finding is supported by the National Educational Technology Plan, which stipulates that every teacher should have the opportunity to participate in e-learning training (U.S. Department of Education, 2004). However, “less than 1 percent of all teachers nationwide are trained as online teachers” (Smith, Clark & Blomeyer, 2005, p. 52). State agencies and university education programs have been slow in meeting the professional development needs of K–12 online teachers. As a result, the majority of training has been provided by the school, program, or organization with which the teacher is affiliated (Rice & Dawley, 2007).

On a national scale, the Southern Regional Education Board (SREB, 2006), the National Education Association (NEA, 2006), the North American Council for Online Learning (NACOL, 2008), and the International Society for Technology in Education (ISTE, 2008), have developed guidelines and standards that can help guide professional development activities for K–12 online teachers. The standards proposed by these regional and national organizations are similar in their emphasis on student-centered instructional environments where courses are collaborative, flexible, and facilitated by highly qualified teachers; allow multiple paths for learning; and address a variety of learning styles.

Little research specifically exploring the benefits of teacher training in distance education has been done, but other sources suggest that it continues to be a high priority for researchers (Smith et al., 2005). Knowledge about subject matter and traditional instructional approaches are as necessary for online teachers as they are for those teaching in traditional environments, but online teachers require additional knowledge in order to be able to successfully motivate and engage learners. These include qualities such as good communication skills, especially written communication skills, since many of the avenues for communication in the online environment are text-based. Quality online teaching also requires creativity in developing and delivering activities that are collaborative and highly interactive and requires teachers to be technologically capable. The latter quality alone suggests that ongoing training is necessary in order for online teachers to keep up with the most recent technological advances.

Other statements in this area suggest the need for the identification of administrative skills necessary to manage an online education program. The recent expansion of distance learning to the early elementary grades has necessitated an examination of the increasingly important role of the parent. Two items relating to this concept include providing training opportunities to learning coaches, and examining more closely the changing role of the parent as educator.

## **Accreditation and standards**

The accreditation and standards subscale was the only area where the priority ranking changed from Round Two to Round Three (from a ranking of four to a ranking of seven). Alignment of online courses and curriculum to the states’ academic standards received the highest rating in this category. Interestingly, panel members seemed somewhat reluctant to align online course content to standards because of the perception that standards cover only the minimum requirements of proficiency and capabilities. For example, one panel member stated, “standards tend to trend practice toward mediocrity. I’d rather see ideals defined.” Another stated, “I am not sure we want to merely align with state standards given these standards may not be the best test of educated persons.” And finally a third commented, “certainly must set some requirements here, if not outright standards, which tend to cover the bare minimum competencies.”

Panel members also cited accreditation of programs as very important. Regarding the differentiation between offering an accredited program or offering a program that is accredited by the state in which the program is being provided, one panel member commented, “it is less important who does the accreditation than the details and quality

of the accreditation process.” Finally, developing policies for online course delivery across state borders received the lowest rating in this group but still retained a medium- to high-importance rating.

## **Funding**

Only a small percentage of students in the K–12 educational system are served by distance education programs, which perhaps explains why panel members ranked funding eighth in priority overall. In fact, the only statement from the funding category that received a “high importance” to “very high importance” rating ( $M \geq 4.00$ ) suggests that current funding initiatives should be targeted toward the training of teachers and administrators. However, if current growth is any indication, the number of students served will increase substantially in the future and the pressure to address funding issues will only intensify as expansion occurs.

Although ranked lower in importance ( $3.70 \geq M \geq 3.11$ ), the remaining five funding statements reflect an awareness of increasing pressure to address funding issues as growth and expansion continue. For example, panel members cited the need to equalize funding between virtual schools and brick-and-mortar schools, the need for research into the cost benefits of implementing a distance learning program, and the need to work toward consensus on financing the system.

Funding of virtual schools has occurred in a variety of ways, depending on the state and the type of school. In some cases, virtual schools are funded in traditional ways based on average daily attendance. In the case of the Florida Virtual School, funding is based on course completion. Some online programs charge student fees while others provide courses free of charge. Unfortunately, it is unclear how much it costs to educate a student in a virtual school (Augenblick, Palaich, & Associates, 2005). Virtual schools often must address unique funding issues that don’t fit into traditional funding formulas. For example, many virtual schools provide such things as computers and complete curriculum packages to individual learners, something that is not typical in a traditional school setting. There are also costs associated with curriculum or course development as well as student support. On the other hand, the costs for virtual school facilities tend to be lower than those for traditional brick-and-mortar schools.

There are additional cost savings that can often be considered as well. There is the potential for the sharing of resources by tying K–12 to higher education, potential cost savings in state resources by improving the drop-out rate, and potential cost savings in accelerated graduation programs (Thomas, 2002). Fortunately, as growth continues, more and more states enter the arena providing policymakers with a diverse assortment of alternatives from which to choose. What is clear from this study is that panel members who responded with additional comments were less inclined to support policies that attempted to take funding from traditional brick-and-mortar schools as evidenced in this passage: “We need to develop funding which does not take away from brick & mortar schools.”

## **Technology**

The lowest-ranked subscale was in the area of technology. Those items that were rated higher within this category relate to the effectiveness and efficiency of the tools used to engage in distance education. These include improving high-speed access, examining the effectiveness and improving the availability of administrative tools, and studying learning objects in relation to learners and content areas. Technology safety was ranked lowest in this area perhaps because of the perception by one panel member that “if parents are involved, they should monitor this issue.”

Although a low ranking for technology may be a surprising outcome of this investigation, caution should be taken when interpreting this finding. Despite the necessity for computer-mediated technologies in the process of online learning, the focus of this panel appeared to center around technologies in the context of effective instruction. Actually, this view makes sense given that distance education, like other more traditional forms of education, is about the learner, the teacher, the content, and the complex interactions that facilitate learning. The technologies used to deliver that instruction are merely tools to assist in enhancing those learning opportunities. In addition, the ninth-place ranking in no way suggests that the technologies used in distance education are unimportant. First, all of the subscales identified in this investigation are considered high-priority areas. Second, the technology subscale was comprised only of those statements related strictly to technological improvements independent of their current or

potential instructional applications. Statements focusing on instructional applications are contained in all of the other subscales.

## Conclusion

K–12 distance education programs have the potential for impacting traditional educational purposes and processes in substantial ways. They provide access to educational opportunities where they would not otherwise exist, in an environment conducive to the development of important skills for the 21<sup>st</sup> century. Furthermore,

Beyond access, distance education gives a greater degree of control to the learner in relation to the teaching institution, with effects on what the institution offers to teach and the way it teaches. We are in the middle of a Copernican revolution as it becomes ever more apparent that the learner constitutes the center of the universe, and that teaching no longer drives learning; instead, teaching responds to and supports learning (Moore & Kearsley, 2005, p. 20).

However, rapid growth in online programs and schools has added complexity and confusion in the areas of research, policy, and practice. Although it appears as though distance education in the K–12 environment will continue to have a role in public education (Freedman et al., 2002), what that role is and how it is integrated into current systems will depend largely on a concerted effort between knowledgeable and enlightened stakeholders.

The findings from this study have been positioned with existing research findings to better reflect the status of K–12 distance education, to identify further research potential, and to identify policy and implementation recommendations. Primarily, the results are useful in that they provide a framework of priorities in K–12 distance education taken from the perspectives of three essential stakeholder groups: researchers, policymakers, and practitioners. The nine subscales identified by study participants offer a structured lens through which to view those areas of primary importance to the individuals intimately involved in facing the challenges associated with this new and innovative approach to learning.

The results of this study are also helpful in identifying future research potential. Much of the past research in distance education has focused on studies comparing student performance in distance education to student performance in face-to-face environments (Bernard, Abrami, Lou, Borokhovski, Wade, Wozney, et al., 2004; Cavanaugh et al., 2004; Phipps & Merisotis, 1999). Results from this study indicate that although comparative research studies per se are not a high priority, it appears to be important to establish that the distance learning environment is the same as or better than face-to-face learning environments. However, the possibility of ever determining whether online courses are equal to face-to-face courses seems unlikely. “The complexity in sources of variability in performance in online courses means there is little prospect of giving a definitive answer to the question of the relative superiority of online versus traditional courses” (Dickson, 2005, p. 23). More important is determining the potential impact and success of a program on student outcomes and identifying, empirically, the specific factors associated with that success.

The following recommendations for policy implementation and/or research potential are also supported by the findings from this study (in no particular order):

- Develop organized evaluation systems that examine multiple aspects of distance learning to facilitate consistent data collection. These would include elements common to all programs (i.e., attendance, retention, and student outcomes).
- Investigate the specific factors associated with effective programs: best practice, online learning environments, and the influence of learner characteristics on success. Develop processes that allow for formal documentation of these factors.
- Improve the quality of research that examines critical components of learning directly related to younger learners.
- Implement research initiatives for special needs and at-risk learners in distance education environments.
- Ensure that distance programs are as accountable as traditional programs through alignment with states’ curriculum standards and accreditation.
- Remove barriers and restrictions while ensuring that student needs are being met.

- Provide funding for training and require that distance educators possess the specific qualities necessary for success. This includes training for administrators as well as teachers. As growth continues, the need for administrators with leadership and evaluation skills in online environments will only intensify.

Panel members clearly recognize the need to identify and define the specific pedagogical, learner, and technological characteristics of successful programs. As more and more agencies explore the viability of online programs and schools, it will be the role of the research community to inform policy decisions and lead the way to establishment of standards for best practice and comprehensive program evaluation. The detailed collection and reporting of data can only begin when common goals are identified by policy makers and evaluators (Cavanaugh et al., 2004). This type of planning and forethought requires open and collaborative relationships between all stakeholders: those who approve a program, those who administer a program, and those who analyze data to determine a program's effectiveness. The results of this study suggest that stakeholders do advocate common goals and are in agreement in the establishment of a framework of priorities for the next five years. This framework is an important first step in developing constructive plans for implementation and study.

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