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ABSTRACT

This brief paper summarizes findings of a 1996 national survey of approximately 1,000 school administrators about the use of advanced telecommunications in their schools. One question asked administrators to report the extent to which five barriers hindered the use of advanced telecommunications by students with disabilities. Findings indicated that students with disabilities were equally likely as those without disabilities to have access to the Internet. Insufficiently trained special education teachers was the most frequently cited moderate or major barrier (47 percent) to the use of advanced telecommunications by students with disabilities. Fewer public schools cited a lack of computers available to students with disabilities (34 percent), not having enough computers with alternative input/output devices for student with disabilities (38 percent), and inadequate evaluation and support services to meet the special technology needs of these students. Three tables provide data on: (1) the percent of students with access to the Internet by disability status; (2) the percent of schools indicating specific barriers to use of telecommunications by school characteristics; and (3) the extent of lack of teacher training as a barrier to telecommunications usage. (DB)

NATIONAL CENTER FOR EDUCATION STATISTICS

ISSUE BRIEF

WHAT ARE THE BARRIERS TO THE USE OF ADVANCED TELECOMMUNICATIONS FOR STUDENTS WITH DISABILITIES IN PUBLIC SCHOOLS?

JANUARY 2000

ISSUE BRIEF

What are the Barriers to the Use of Advanced Telecommunications for Students with Disabilities in Public Schools?

January 2000

As schools become more technologically advanced, questions arise about access to these advancements for all types of students. Although studies have suggested that advanced telecommunications and computers may be especially beneficial for students with disabilities (e.g., Johnson 1986), providing access to computers and advanced telecommunications for students with disabilities may be considerably more costly than providing access for students without disabilities, since students with disabilities may require alternative input/output devices or other costly adaptations. This issue brief focuses on school reports of access to advanced telecommunications for students who receive special education and related services. Such students will be referred to as "students with disabilities" in the remainder of this issue brief.

In 1996, a nationally representative survey conducted by the National Center for Education Statistics queried approximately 1,000 school administrators about the use of advanced telecommunications in their school. For this survey, advanced telecommunications were defined as ***modes of communication used to transmit information from one place to another, including broadcast and interactive television, networked computers, etc.*** This survey also included two questions about the use of advanced telecommunications by students with disabilities. The first question asked schools to report the percentage of students that received special education and related services. The survey found that in the fall of 1996, approximately 11 percent of students attending regular public elementary and secondary schools received special education and related services. The second question asked administrators to report the extent to which five barriers hindered the use of advanced telecommunications by students with disabilities. These data provide insights about the access of students with disabilities to advanced telecommunications.

Do students with disabilities attend schools where students have access to the Internet?

Access to and use of advanced telecommunications in public schools have opened a multitude of new opportunities for American students and their teachers. Through the Internet, students are gaining access to many of the world's largest and best-equipped libraries and communicating with authors and experts around the world—all without leaving their school buildings. Brought about by the presence and application of telecommunications and technologies in classrooms, labs, and libraries, these opportunities are spreading at a rapid rate. Between 1994 and 1998, the proportion of regular public schools with Internet access increased from 35 to 89 percent (U.S. Department of Education 1999a).

In fall 1996, 65 percent of public schools had Internet access (U.S. Department of Education 1997), and 73 percent of these schools indicated that students had access to the Internet, either through e-mail, newsgroups, or the World Wide Web. The proportion of students with disabilities attending regular public schools with Internet access was similar to that for students without disabilities. In fall 1996, 51 percent of students with disabilities and 51 percent of students without disabilities attended regular public schools where students had access to the Internet (table 1).

Are there barriers to the use of advanced telecommunications by students with disabilities?

Public schools were asked about five possible barriers to the use of their advanced telecommunications resources by students with disabilities. The factor schools were most likely to cite as a moderate or major barrier (47 percent) was special education teachers not being sufficiently trained in using advanced telecommunications[1] (table 2). Fewer public schools cited not having enough computers available to students with disabilities (34 percent), not having enough computers with alternative input/output devices for students with disabilities (38 percent), and inadequate evaluation and support services to meet the special technology needs of students with disabilities (39 percent).

Table 1.—Percent of students in regular public schools where students have access to the Internet, by student disability status: Fall 1996

	Percent of public school students with Internet access		
School characteristics	Total	Students without disabilities	Students with disabilities
All public schools	**51**	**51**	**51**
Instructional level			
Elementary	42	42	43
Secondary	67	68	67
Students eligible for free or reduced-price lunch			
10 percent or less	64	64	68
11 to 30 percent	60	60	63
31 to 70 percent	44	45	41
71 percent or more	32	31	35

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1996," FRSS 61, 1996.

Are barriers to advanced telecommunications use by students with disabilities greater in some schools than in others?

Public schools with higher concentrations of poor students, as measured by the proportion of students in the school eligible for the federally funded free or reduced-price lunch program, were generally more likely to report moderate or major barriers to the use of advanced telecommunications by students with disabilities (table 2). For example, the proportion of regular public schools reporting insufficient training of special education teachers in the use of advanced telecommunications as a moderate or major barrier was 37 percent for schools with the fewest poor students compared to 58 percent of schools with the highest proportion of poor students.[2]

School size, but not the percentage of students with disabilities (table 2), was related to the likelihood of reporting some of the five factors as moderate or major barriers. Large schools (those with enrollments of 1,000 or more students) were more likely than small schools (enrollments under 300 students) to report lack of alternative input/output devices and insufficient training in advanced telecommunications among special education teachers as moderate or major barriers to the use of the school's advanced telecommunications resources by students with disabilities.

Do policies on teacher training in the use of advanced telecommunications at the school relate to administrators' citing lack of training of special education teachers as a barrier?

As discussed above, the barrier to providing access to advanced telecommunications for students with disabilities most frequently cited by schools was lack of sufficiently trained special education teachers. One item on the questionnaire asked school administrators to report on the type of advanced telecommunications training available to all teachers at their school. Responses to the two items (types of training available to all teachers, and administrators' perceptions of lack of training of special education teachers) were examined to see if they were related. Public schools in which participation in advanced telecommunications training for all teachers was encouraged by incentives were less likely to report that lack of training for special education teachers was a moderate or major barrier than other schools. Thirty-seven percent of schools with incentives for all teachers to participate in telecommunications training reported special education teacher training as a moderate or major barrier, compared to 50 percent of schools where training for all

Table 2.—Number of regular public schools enrolling students with disabilities, and the percent of these schools indicating barriers to the use of advanced telecommunications by students with disabilities: Fall 1996

School characteristics	Number of schools enrolling students with disabilities*	Percent indicating factor a moderate or major barrier: Special education teachers are not sufficiently trained to use	Insufficient evaluation and support services to meet special technology needs	Too few computers with alternative input–output devices	Too few computers available to students with disabilities	Telecommunications not seen as relevant for many students with disabilities by administrators
All public schools	**76,100**	**47**	**39**	**38**	**34**	**16**
Percent of students with disabilities						
1 to 9 percent	28,100	42	40	35	32	12
10 to 15 percent	30,800	48	35	38	32	18
16 percent or more	16,800	53	44	44	42	20
Percent of students eligible for free or reduced-price lunch						
10 percent or less	13,400	37	25	26	23	11
11 to 30 percent	21,800	41	38	36	33	13
31 to 70 percent	29,000	52	42	42	36	20
71 percent or more	11,500	58	49	50	45	21
Size of enrollment						
Less than 300	19,400	40	35	33	30	11
300 to 999	49,300	48	39	39	35	18
1,000 or more	7,300	56	46	49	39	18

*Ninety-seven percent of regular public schools enrolled students with disabilities. The number of schools in each category has been rounded to the nearest 100.

NOTE: Details may not sum to total due to rounding and due to missing data on the school characteristic variables.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1996," FRSS 61, 1996.

teachers was mandated and 52 percent of schools in which training for all teachers was left up to the initiative of the individual teacher (table 3).

Further, when a school reported that training for all teachers was provided by the school or district, that school was less likely than schools that did not report providing training for all teachers to report that lack of training for special education teachers was a moderate or major barrier to the use of advanced telecommunications by students with disabilities (table 3). Schools were asked about whether training was available on use of computers, use of advanced telecommunications, or integration of technology into the curriculum. From 41 to 45 percent of schools where these types of training were available for all teachers indicated special education teacher training was a moderate or major barrier compared with 57 to 61 percent in schools where such training was not available for all teachers.

Summary

Students with disabilities were as likely to be enrolled in schools where students have Internet access as were those without disabilities (51 percent of both groups) in fall 1996. Insufficiently trained special education teachers was the most frequently cited moderate or major barrier (47 percent) to the use of advanced telecommunications by students with disabilities. But this factor was less of a barrier in schools where training in advanced telecommunications was available for all teachers and where incentives were provided to all teachers to participate in such training. About one-third of public schools reported the following factors were moderate or major barriers to the use of advanced telecommunications by students with disabilities: too few computers available to students with disabilities, too few computers with alternative input/output devices for students with disabilities, and insufficient evaluation and support services to meet the special technology needs of students with disabilities. Generally, barriers to such use by disabled students were more frequently cited in schools with higher proportions of poor students and in larger schools.

[1] A survey in 1995 found that 61 percent of schools reported lack of or inadequately trained staff as a major or moderate barrier to using advanced telecommunications in all schools (U.S. Department of Education 1996), and a 1998 survey found that 20 percent of regular classroom teachers in public schools reported feeling "very well prepared" to integrate technology into classroom instruction (U.S. Department of Education 1999b).

[2] This pattern was evident for four of the five barriers by the poverty measure. The exception was whether administrators saw advanced telecommunications as relevant for the instruction of disabled students.

Table 3.—Percentage distribution of regular public schools according to teacher training policies for all teachers and the extent lack of teacher training is a barrier to the use of advanced telecommunications by students with disabilities: Fall 1996

School policy and practice related to advanced telecommunications training for all teachers in a school	Total	Degree to which lack of telecommunications training for special education teachers is a barrier: Not a barrier	Minor barrier	Moderate or major barrier
Policies on training:				
Mandated by district, school, or teacher certification agencies	13	28	21	50
Encouraged by incentives	31	32	30	37
Left to teacher's initiative	52	26	22	52
Type of training provided by school or district:				
Use of computers				
Yes	91	29	25	45
No	9	30	9	61
Use of advanced telecommunications				
Yes	62	31	28	41
No	38	26	17	57
Integration of technology into curriculum				
Yes	73	31	26	42
No	27	23	18	59

NOTE: Percentages may not sum to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1996," FRSS 61, 1996.

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Issue Briefs present information on education topics of current interest. All estimates shown are based on samples and are subject to sampling variability. All differences are statistically significant at the 5 percent level. In the design, conduct, and data processing of NCES surveys, efforts are made to minimize the effects of nonsampling errors, such as item nonresponse, measurement error, data processing error, or other systematic error.

— is Issue Brief was prepared by Sheila Heaviside and Cassandra Rowand of Westat, David Hurst of ESSI, and Edith McArthur of NCES. To obtain standard errors or definitions of terms for s Issue Brief, or to obtain additional information about the Fast Response Survey System or the FRSS telecommunications surveys, contact Edith McArthur at NCES 202-219-1442 or th_mcarthur@ed.gov. To order additional copies of this Issue Brief or other NCES publications, call 1-877-433-7827. NCES publications are available on the Internet at http://nces.ed.gov.

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