An Exploration of the Representation of Students with Disabilities in Distance Education

Michael L. Woods, Ph.D.
Drummond Public Schools
mwoods@drummond.k12.ok.us

Jeffrey Maiden, Ph.D.
University of Oklahoma
maiden@ou.edu

Joyce A. Brandes, Ph.D.
University of Oklahoma
jbrandes@ou.edu

Abstract

The primary purpose of this study was to address the dearth of research in the area of educating students with disabilities through distance education (DE). Corollary research questions investigated perceptions, beliefs, and expectations of secondary school principals and special education teachers. Data were analyzed to determine the existence of statistically significant differences in efficacy of secondary school principals and special education teachers related to location and size of the school site. The following research questions were addressed:

1. What is the level of participation of secondary students with disabilities in distance education courses?
2. What is the representation of secondary students with disabilities participating in distance education courses compared with the total population of students with disabilities measured as a percentage of Oklahoma secondary students?
3. What are the perceptions, beliefs and expectations of secondary school principals related to students with disabilities participating in distance education courses?
4. What are the perceptions, beliefs, and expectations of special education teachers related to students with disabilities participating in distanced education courses?
5. Is there a statistically significant difference in efficacy perception of secondary school principals related to students with disabilities participating in distance education courses according to demographics?
    a. Secondary schools identified as urban, suburban or rural.
    b. Secondary school enrollments categorized as large, medium, or small.
6. Is there a statistically significant difference in efficacy perception of special education teachers related to students with disabilities participating in distance education courses according to demographics?
    a. Secondary schools identified as urban, suburban or rural.
    b. Secondary school enrollments categorized as large, medium, or small.

Background and Literature

Distance Education

The inception of distance education can be traced to 1840 when Sir Issac Pitman broke with traditional brick and mortar instructional practice and delivered shorthand instruction across America via the United States mail to students in remote locations. This practice of mail-based delivery remained virtually unchanged until the early 1960s when radio and television broadcasts became widely distributed. As new technology became commonplace for a majority of the population, integrating radio, television, video recording formats, videoconferencing, and personal computers naturally evolved into distance education (Matthews, 1999; Nasseh, 1997; Rumble, 2001).

Increased prevalence of distance education in elementary through post-secondary venues amplifies the opportunity for students with and without disabilities to complete required and elective courses. Additionally, distance education provides support to schools that must demonstrate Adequate Yearly Progress (AYP) as a whole and for each of four identified subgroups; economically disadvantaged, limited English proficient, students with disabilities, and students identified by racial and ethnic groups. Schools must document that 95% of each subgroup takes the state mandated tests demonstrates making progress (Welner, 2005).

Participation in distance education appeals to secondary students and has grown dramatically. As documented through a four-year study by the National Center for Educational Statistics (NCES), the most recent available data indicates that enrollment in distance education courses increased over 60 percent from 317,070 (2002-2003) to 506,950 (2004-2005) (Zandberg & Lewis, 2008). Despite this dramatic increase in distance education services, generally, there appears to be a lack of opportunities for students with special needs. Based on a thorough review of the literature, there does not appear to data available that specifically addresses participation of student in this population.

Research is replete with studies related to distance education (Moore & Kearsley, 2005; Christensen, Horn, & Johnson 2008; Zandberg & Lewis, 2008) and special education (Yssel, Engelbrecht, Oswald, Eloff, & Swart, 2007; Yell et al., 1998), yet research on special populations in distance education is scant. What are the ramifications for students with disabilities when their only recourse is to participate in a distance education course to complete one of the core academic courses required by NCLB?

There are varying views of just what DE is. For purposes of our study, we defined it as “teaching and planned learning in which teaching normally occurs in a different place from learning, requiring communication through technologies as well as special institutional organization” (Moore & Kearsley, 2012, p. 2.).

Special Education

Though serving students with special needs has become more commonplace since Alexander Graham Bell coined the term *special education* in 1884, the practice of teaching students in this population has been slow in developing and being embraced. One major impetus for educating students in this population arrived in the mid-1900s with the Civil Rights movement. Not only did *Brown v. Board of Education* (1954) have implications for minority students, it also provided greater constitutional protection for persons with disabilities (Jorgensen & Hoffmann, 2003; Yell, Rogers & Rodgers, 1998). The Education for All Handicapped Children Act (EAHCA), now commonly referred to as the Individuals with Disabilities Act (IDEA), was mandated in

1975 and supported “states and localities in protecting the rights of, meeting the individual needs of, and improving the results for infants, toddlers, children, and youth with disabilities and their families” (U.S. Department of Education, 2007). Until this landmark legislation, students with disabilities for the most part were denied access to public education. During the past 36 years, a great deal of legislation has been mandated that protects the right to a free and appropriate public education provided in the least restrictive environment for students with disabilities.

No Child Left Behind (NCLB, 2001), is an example of recent legislation that encompasses education of students with special needs as a component of the larger bill intended to provide an educational environment that is more inclusive, flexible and accountable (U.S. Department of Education, 2006) – attributes associated with distance education. Moore and Kearsley (2012) report that some of the reasons for implementing distance education include increasing access to learning, improving cost effectiveness, improving the quality of existing educational structures, and enhancing the capacity of the educational system.

Legislation

No Child Left Behind (2001) may be one of the main catalyst for accelerating the use of distance education as the primary option for students with disabilities who are acquiring required core coursework. Proliferation of courses delivered via distance education, coupled with expanded demands for core academic courses brought on by the Oklahoma Achieving Classroom Excellence statute, implies the potential inclusion of students with varying levels of abilities in distance education courses. “In the United States, inclusion is broadly defined as placing students with disabilities full time in general education classrooms with special education support services provided in general education classrooms” (Yssel, 2007, p. 358). Inclusion is more than a state of physical presence. It is a shared responsibility and sense of community where diversity and human relations are valued. It is clear that inclusion encompasses the whole of the educational experience, involving the possibility of distance education when the situation warrants.

In a letter introducing the *No Child Left Behind Desktop Reference*, Secretary of Education Rod Paige stated, “This historic reform gives states and school districts unprecedented flexibility in how they spend their education dollars, in return for setting standards for student achievement and holding students and educators accountable for results” (U.S. Department of Education, 2002). Accountability requires each state to establish high academic standards and create assessments that align with those standards. Student performance data is disaggregated by poverty levels, race, ethnicities, disabilities, and limited English proficiencies. NCLB caps the percentage of students with disabilities who can be administered an alternate or modified assessment that may be applied towards Adequate Yearly Progress (AYP) at 3.0% total. A percentage greater than 3% of the total number of students with disabilities may take an alternate or modified test, but results are counted as non-proficient. “Non-proficient” indicates scores of limited knowledge or unsatisfactory on the Oklahoma End of Instruction tests.

Distance education has documented success in meeting the educational needs of learners detached from instructional, intellectual, and institutional resources whether the student is a single learner in an isolated location or a room full of students in a school lacking the finances and personnel to provide a required core curriculum (Anderson, 2008; Hughes, McLeod, Brown, Maeda, & Choi, 2007). NCLB creates an environment where all students’ achievements are assessed and accounted for—regardless of disability or disadvantage.

Perceptions, Beliefs, and Expectations

Despite the reported legislation and evolving practice of students with disabilities successfully navigating distance education, there appears to be limited research that addresses the perceptions, beliefs and expectations of secondary school principals and special education personnel (Butz, 2004). The importance of exploring this cannot be overstated since belief systems impact behavior (Ajzen, 1991).

In light of the fact that DE addresses students in a wide variety of locals, it is important to investigate if there is a statistically significant difference in efficacy perception of secondary school principals and special education teachers related to students with disabilities in urban, suburban or rural environments. This research needs also needs to investigate the potential impact of large, medium or small schools as they relate to DE.

Design

Data Collection

The sample population examined in this study consisted of principals and special education teachers employed in public high schools in Oklahoma. These schools were classified into categories according to school size (large, medium, and small) and location (urban, suburban, and rural). The Oklahoma Secondary School Athletic Association (OSSAA) determines classifications by each high school's average daily membership. The classification is used to group schools into classes for the determination of athletic competition championships (National Federation of High School Athletics, n.d.). Urban, suburban, or rural is not defined; therefore, it is left to the survey respondent to report location category.

Principals and special education teachers received separate surveys (see Appendix A). The substantive items were equivalent; principals were asked to provide demographic data as additional survey items. The instrument sent to principals contained 15 items (5 demographic, 10 substantive), while the special education teacher instrument consisted of 10 items (all substantive).

Procedures and Instruments

The research instruments were single response requests for demographic and geographic collection and a five category Likert scale response for attitudes, perceptions and beliefs. The instruments were validated in a two-step process. Initial review was provided by a three-person panel consisting of subject matter experts in their related fields. Each reviewer evaluated the research instrument independently and supplied feedback related to the clarity, content and construction of the research instrument.

The second step in the validation process was the collection of data from a pilot sample. Thirty-six schools, that represented the four geographic quadrants of the state, were identified through selective sampling which included representation across size and location categories.

The instrument endeavored to elicit educator attitudes, perceptions and beliefs related to:

1. Successful student participation in distance education courses;
2. Educator and parent preparation and notification; and,
3. Policy, practice and procedures related to students with disabilities and distance education

Items were framed around students’ Individualized Education Program (IEP) which was delivered in the least restrictive environment (LRE).

Methodology

Descriptive statistics were used to analyze participation rates and compare the impact secondary school size and location may have on the degree of participation. A two tailed independent t-test was used to ascertain if there was a statistically significant difference in the participation of students with disabilities engaging in distance education classes and the general education population’s membership in distance education. Additionally, a two-tailed

independent t-test was employed to determine if a statistically significant difference between principal and special education teacher responses, for each survey item. Two factorial Analyses of Variance (ANOVA) were used to determine if there is were statistically significant differences in participation based on school location and school size.

Results

Data Analysis

Table 1 provides a picture of the participation of students on an IEP based on demographic data. Principals reported that students with disabilities participate in distance education at every size and location of a secondary school site. Participation in distance education courses by students with disabilities decreased as the school location moved from an urban to rural setting. The range of urban to rural is in excess of 10%, while the number of urban schools reporting responses was a fraction of the number of rural schools completing and returning surveys. The percentage of students with special needs did not follow any particular pattern of participation based on school size. The difference between the numbers of schools reporting by size was much smaller than the number of schools reporting by location. The range from urban to rural was 136 while the range from large to small was 38. The range from the smallest percentage, medium, to the largest percentage, small, is 2.3%.

Table 1: School Size and Location Descriptive Statistics

Percent of Students on an IEP in Distance Education Courses Based on School Location			
Location	M	SD	N
Urban	12.50%	35.355%	8
Suburban	2.93%	11.870%	26
Rural	2.22%	6.736%	144
Total	2.79%	10.513%	178

Percent of Students on an IEP in Distance Education Courses Based on Size			
Size	M	SD	N
Large	2.14%	9.138%	46
Medium	1.62%	5.072%	47
Small	3.91%	13.333%	84
Total	2.84%	10.629%	177

Comparison of Students on an IEP to Total Number of Students Based on School Location			
Location	M	SD	N
Urban	17.36%	4.405%	9
Suburban	11.66%	5.652%	27
Rural	15.39%	6.746%	142
Total	14.93%	6.628%	178

Comparison of Students on an IEP to Total Number of Students Based on School Size			
Size	M	SD	N
Large	13.86%	5.351%	47
Medium	13.91%	5.460%	49
Small	16.20%	7.664%	81
Total	14.94%	6.607%	177

Table 1 provides insight into the number of students on an IEP compared to the total number of students at sites according to size and location. As school size decreased, the percentage of students on an IEP increased. Location did not appear to follow any discernible pattern related to the percentage of students on IEPs. Suburban schools had the smallest percentage of participation of students with disabilities in distance education, while urban schools had the largest percentage of participation and rural schools fell in the middle.

Table 2 provides an overall percentage of students on an IEP as compared to the total population of regular education students reported by secondary school principals responding to the study survey instrument. The total mean score of 14.96% is consistent with data posted on the Oklahoma State Department of Education (OSDE) web site for all regular education students and students in special education. The 2007-08 Facts: Oklahoma Public Schools states the average number of students enrolled daily in Oklahoma schools to be 634,251 and students in special education age 3 to 21 to be 95,323 or a mean of 15.0%.

Table 2: Special Education and Distance Education Descriptive Statistics and t-test Results

Whole sample statistics			
	M	SD	N
Percent total student population in Special Ed	14.95%	6.6%	180
Percent total student population in Distance Ed	3.93%	9.87%	185
Percent total students on IEP in Distance Ed	2.92%	10.65%	180

Students on an IEP in Distance Education and General Education Students in Distance Education Courses Based on School Location						
	IEP Students			General Ed Students		
Size	M	SD	N	M	SD	N
Urban	12.50%	35.355%	8	13.84%	34.918%	8
Suburban	2.93%	11.870%	26	1.41%	2.309%	27
Rural	2.22%	6.736%	144	3.52%	6.327%	148
Total	2.79%	10.513%	178	3.66%	9.237%	183

Students on an IEP in Distance Education to General Education Students in Distance Education Courses Based on School Size						
	IEP Students			General Ed Students		
Size	M	SD	N	M	SD	N
Large	2.14%	9.138%	46	1.58%	24.440%	47
Medium	1.62%	5.072%	47	2.81%	7.798%	49
Small	3.91%	13.333%	84	5.77%	12.762%	86
Total	2.84%	10.629%	177	3.89%	9.875%	182

Table 2 provides a comparison of the percentage of students on an IEP participating in distance education courses to the percentage of general education students participating in distance education based on location. No clear pattern emerged in the comparison between students with disabilities participating in distance education courses and students in general education courses. Urban and rural schools aligned with the total comparison of students with disabilities participating in distance education courses to general education students participating in distance education while suburban schools did not. Fewer students with disabilities than those without disabilities participated in distance education courses in urban and rural schools. Yet, more students with disabilities participated in suburban schools.

Table 2 also includes a comparison of the percentage of students on an IEP participating in distance education courses to the percentage of general education students participating in distance education based on location. No trend was determined as participation in distance education courses by students with disabilities was greater for large schools and lesser for medium and small schools as compared to participation in distance education by general education students. Participation by general education students in distance education increased inversely to school size while there was no pattern in the comparison between school size and participation of students with disabilities in distance education courses.

The data in Table 2 exhibit a wide degree of variation, this large discrepancy in standard deviation may be the result of the reporting function. There is no requirement to report the number of students with disabilities enrolled in distance education courses. Reporting the number of students with disabilities necessitated the principal identifying students on an Individualized Education Program enrolled in a distance education course, the data gleaned from this process may have produced results that are less than accurate.

Table 2 also includes the results of an Independent t-test to determine if there exists a statistically significant difference between students on an IEP participating in distance education courses and regular education students participating in distance education courses. The result indicates that there is no statistically significant difference in the percentage of students on an IEP participating in distance education courses and regular education students participating in distance education.

Table 3 provides a summary of responses from secondary principals and special education teachers. Both surveys, Secondary Principal and Special Education Teacher, contain the same questions. The Secondary Principals survey included demographic data responses that required the perception question to begin with item 6. A printing error omitted item 13 from the Secondary Principals survey, therefore item 8 on the Special Education Teacher survey did not have a corresponding response. As demonstrated by Table 3 Secondary Principals and Special Education Teachers responses were very similar and followed a similar pattern. The mean of all items trended towards the direction of agreement with the question's statement. Item 2 or 7, "Students with an Individualized Education Program (IEP) and their parents or guardians should be informed about distance education courses offered" elicited the strongest alignment with agreement with the questions premise with a mean in excess of 4 score.

Table 3: Secondary Principal and Special Education Teacher Responses

Descriptive Statistics

	Role	M	SD	SE	N
Question 1 or 6	Principal	3.46	1.011	.074	185
	Teacher	3.40	1.104	.081	187
Question 2 or 7	Principal	4.09	.960	.070	186
	Teacher	4.22	.831	.061	187
Question 3 or 8	Principal	3.09	1.223	.090	186
	Teacher	3.27	1.136	.083	186
Question 4 or 9	Principal	3.47	.883	.065	186
	Teacher	3.40	.937	.069	186
Question 5 or 10	Principal	3.21	.843	.062	185
	Teacher	3.17	.971	.071	186
Question 6 or 11	Principal	3.29	.820	.060	185
	Teacher	3.22	.918	.067	186
Question 7 or 12	Principal	3.56	1.042	.077	185
	Teacher	3.81	1.116	.082	186
Question 8 or 13	Principal	.	.	.	0a
	Teacher	3.74	.952	.070	186
Question 9 or 14	Principal	3.63	.905	.066	186
	Teacher	3.72	1.020	.075	187
Question 10 or 15	Principal	3.59	.963	.071	185
	Teacher	3.78	.944	.069	185

t-test results

	t	df	Sig.	Mean Diff.	SE
Question 1 or 6	.581	370	.562	.064	.110
Question 2 or 7	-1.490	371	.137	-.139	.093
Question 3 or 8	-1.494	370	.136	-.183	.122
Question 4 or 9	.797	370	.426	.075	.094
Question 5 or 10	.410	369	.682	.039	.094
Question 6 or 11	.731	369	.465	.066	.090
Question 7 or 12	-2.275	369	.023	-.255	.112
Question 9 or 14	-.930	371	.353	-.093	.100
Question 10 or 15	-1.908	368	.057	-.189	.099

Independent sample t-test did not produce any statistically significant difference between Secondary Principals and Special Education Teachers responses (refer to Table 3). Bonferroni correction was employed to reduce the risk of a Type 1 error due to multiple comparisons, with a concomitant significance level at <.005. None of the results demonstrated a statistically significant difference between Secondary Principals and Special Education Teachers responses.

Table 4 provides results for Secondary School Principals responses to survey items 6 through 15 designed to provide insight to the principal's perceptions, beliefs and expectations of students with disabilities participation in distance education. The means of principal responses are categorized by location; urban, suburban, rural and the total population responding. Secondary School Principals responses tend to group towards the "Neutral" or average score of 3. Items 7 "Students with an Individualized Education Program (IEP) and their parents or guardians should be informed about distance education courses offered" and 14 "Distance education courses should be considered as an option when considering Least Restrictive Environment (LRE)" trended more toward "Agree" or an average score of 4.

Table 4: Secondary Principal Item Responses by school location and size

Principal responses by school location

	Urban			Suburban			Rural			Total		
Item	M	SD	N	M	SD	N	M	SD	N	M	SD	N
Question 6	3.11	1.16	9	3.38	0.89	26	3.50	1.02	148	3.46	1.01	183
Question 7	3.89	1.05	9	4.04	0.77	26	4.12	0.97	149	4.10	0.95	184
Question 8	2.78	1.20	9	3.35	0.97	26	3.08	1.25	149	3.10	1.21	184
Question 9	3.44	1.13	9	3.35	0.79	26	3.50	0.88	149	3.48	0.88	184
Question 10	3.11	1.16	9	3.23	0.76	26	3.22	0.84	148	3.21	0.84	183
Question 11	3.44	1.13	9	3.23	0.76	26	3.28	0.81	148	3.28	0.82	183
Question 12	3.33	1.00	9	3.54	0.90	26	3.57	1.06	148	3.56	1.03	183
Question 14	4.00	0.50	9	3.58	0.85	26	3.62	0.92	149	3.64	0.90	184
Question 15	3.44	1.13	9	3.77	0.76	26	3.57	0.98	148	3.60	0.96	183

Principal Responses by School Size

	Large			Medium			Small			Total		
Item	M	SD	N	M	SD	N	M	SD	N	M	SD	N
Question 6	3.17	0.86	47	3.35	1.18	49	3.73	0.88	86	3.48	1.00	182
Question 7	4.00	0.86	47	4.00	1.03	50	4.20	0.91	86	4.09	0.94	183
Question 8	3.34	1.10	47	3.12	1.27	50	2.91	1.24	86	3.08	1.23	183
Question 9	3.28	0.82	47	3.22	0.95	50	3.73	0.80	86	3.48	0.88	183
Question 10	3.13	0.76	47	3.06	0.98	49	3.36	0.78	86	3.22	0.85	182
Question 11	3.26	0.73	47	3.16	0.96	49	3.38	0.77	86	3.29	0.82	182
Question 12	3.77	0.93	47	3.73	1.07	49	3.35	1.01	86	3.56	1.03	182
Question 14	3.60	0.82	47	3.62	0.96	50	3.66	0.90	86	3.63	0.90	183
Question 15	3.91	0.69	46	3.30	1.05	50	3.63	0.90	86	3.61	0.93	182

Table 4 provides results for Secondary School Principals responses to survey items 6 through 15. The means of principal responses are categorized by location; large, medium, small and the total population responding. Items 7 “Students with an Individualized Education Program (IEP) and their parents or guardians should be informed about distance education courses offered” had a mean of 4 (Agree) or greater for all school sizes and the total for all populations.

Table 5 includes the results of the principal ANOVAs. Item 15, “Administrators, teachers, and parents should receive training related to students on an Individualized Education Program (IEP) and distance education” showed a statistically significant difference according to school size. The follow up Tukey test indicated that the sole significant difference for item 15 was between principals in large and medium schools (Table 5).

Table 5: Secondary Principal Item Responses by school location and size

ANOVA results by size and location (principal responses)

Item	Source	F	df	Sig.
6	Location	0.54	2	0.580
	Size	2.16	2	0.110
	Location*Size	0.36	4	0.830
7	Location	0.28	2	0.750
	Size	0.10	2	0.890
	Location*Size	0.34	4	0.849
8	Location	1.44	2	0.238
	Size	3.26	2	0.040
	Location*Size	1.20	4	0.310
9	Location	0.09	2	0.914
	Size	0.42	2	0.654
	Location*Size	0.28	4	0.889
10	Location	0.44	2	0.645
	Size	0.60	2	0.547
	Location*Size	0.34	4	0.848
11	Location	0.43	2	0.645
	Size	0.70	2	0.496
	Location*Size	0.42	4	0.792
12	Location	1.10	2	0.333
	Size	1.17	2	0.313
	Location*Size	0.22	4	0.923
14	Location	1.02	2	0.363
	Size	0.11	2	0.889
	Location*Size	0.78	4	0.537
15	Location	1.80	2	0.167
	Size	6.47	2	0.002
	Location*Size	1.14	4	0.338

Tukey HSD for Item 15

Size	Size	Mean Differ	Std. Error	Sig.
Large	Medium	.67*	.185	.001
	Small	.33	.165	.118
Medium	Large	-.67*	.185	.001

	Small	-.34	.160	.086
Small	Large	-.33	.165	.118
	Medium	.34	.160	.086
*The mean difference is significant at the .005 level				

Table 6 provides results of the Special Education Teachers survey responses. Special Education Teachers responses trended towards a mean score of 3 or "Neutral" although a greater number of questions did trend toward a mean of 4 or "Agree." Item 2 "Students with an Individualized Education Program (IEP) and their parents or guardians should be informed about distance education courses offered" has all locations mean greater than 4 or "Agree." While question 10 "Administrators, teachers, and parents should receive training related to students on an Individualized Education Program (IEP) and distance education" did not exceed a mean of 4 (Agree) or greater the trend was towards a mean of 4 or "Agree."

Table 6: Special education teacher Item Responses by school location and size

Teacher responses by school location

Item	Urban			Suburban			Rural			Total		
	M	SD	N	M	SD	N	M	SD	N	M	SD	N
Question 1	3.27	1.19	11	3.11	1.12	27	3.45	1.11	140	3.39	1.12	178
Question 2	4.36	0.67	11	4.22	0.69	27	4.23	0.86	140	4.24	0.83	178
Question 3	4.09	0.83	11	3.67	0.92	27	3.11	1.15	139	3.25	1.13	177
Question 4	3.55	0.82	11	3.15	0.94	27	3.42	0.93	140	3.39	0.92	178
Question 5	2.55	0.68	11	2.85	0.94	27	3.29	0.96	140	3.17	0.96	178
Question 6	2.82	0.87	11	3.04	0.89	27	3.29	0.91	140	3.22	0.91	178
Question 7	3.73	0.78	11	3.78	1.25	27	3.80	1.13	140	3.79	1.13	178
Question 8	3.91	1.04	11	3.56	1.01	27	3.76	0.92	139	3.74	0.94	177
Question 9	3.91	1.04	11	3.22	1.12	27	3.78	0.99	140	3.70	1.03	178
Question 10	4.09	0.83	11	3.89	0.93	27	3.71	0.95	139	3.76	0.94	177

Teacher responses by school size

Item	Large			Medium			Small			Total		
	M	N	SD	M	N	SD	M	N	SD	M	N	SD
Question 1	3.24	49	1.01	3.17	46	1.19	3.64	74	1.06	3.40	169	1.10
Question 2	4.12	49	0.75	4.20	46	0.95	4.35	74	0.74	4.24	169	0.81
Question 3	3.51	49	1.06	3.20	46	1.14	3.12	73	1.15	3.26	168	1.13
Question 4	3.35	49	0.77	3.39	46	1.04	3.47	74	0.92	3.41	169	0.91
Question 5	3.00	49	0.93	3.13	46	1.04	3.42	74	0.82	3.22	169	0.93
Question 6	3.14	49	0.86	3.22	46	1.03	3.32	74	0.87	3.24	169	0.91
Question 7	3.55	49	1.13	4.02	46	1.00	3.77	74	1.14	3.78	169	1.11
Question 8	3.67	49	0.87	3.73	45	1.00	3.80	74	0.90	3.75	168	0.92
Question 9	3.47	49	1.04	3.72	46	1.06	3.91	74	0.87	3.73	169	0.99
Question 10	3.84	49	0.96	3.74	46	0.99	3.81	73	0.89	3.80	168	0.93

Table 7 includes results of ANOVAs for Special Education Teachers responses. No statistically significant difference was determined to exist as related to location or size.

Table 7: Special Education Teacher Item Responses by school location and size

ANOVA results by size and location (special education teacher responses)

Item	Source	F	df	Sig
1	Location	2.28	2	0.106
	Size	1.77	2	0.175
	Location*Size	3.16	2	0.045
2	Location	0.25	2	0.781
	Size	0.84	2	0.434
	Location*Size	0.31	2	0.732
3	Location	2.35	2	0.099
	Size	0.26	2	0.769
	Location*Size	0.33	2	0.720
4	Location	2.47	2	0.088
	Size	0.04	2	0.963
	Location*Size	2.09	2	0.127
5	Location	3.06	2	0.050
	Size	0.78	2	0.460
	Location*Size	0.61	2	0.544
6	Location	2.15	2	0.120
	Size	0.35	2	0.705
	Location*Size	0.37	2	0.693
7	Location	0.54	2	0.586
	Size	1.15	2	0.318
	Location*Size	0.02	2	0.983
8	Location	1.60	2	0.206
	Size	0.90	2	0.409
	Location*Size	2.19	2	0.115
9	Location	2.36	2	0.098
	Size	0.84	2	0.432

	Location*Size	0.56	2	0.573
10	Location	0.28	2	0.757
	Size	0.01	2	0.988
	Location*Size	0.10	4??	0.905

Discussion

The results of the analyses indicated students with disabilities are participating in distance education courses at a rate roughly equivalent to the general education population. Approximately 2.9% of students with disabilities were participating in distance education, compared to 3.9% of the general education population (the difference was not statistically significant). Nationally, the participation rate for grades 9-12 is approximately 4.6% of all students (Picciano & Seaman, 2007). Zandberg & Lewis (2008) state, "A higher percentage of schools in rural districts than schools in suburban or urban districts had students enrolled in technology-based distance education courses (16 percent compared to 9 and 5 percent, respectively)." The findings of the current study are at odds with this assertion. Secondary school principals reported that urban school participation was 13.9%, suburban school 1.4%, and rural school 3.7% of the general education population in Oklahoma enrolled in distance education courses.

Secondary school principals and special education teachers were basically consistent in their expressed perceptions, beliefs and expectations related to students with disabilities participating in distance education. Both groups reported an average score on every survey question, with the exception of "Student with an Individualized Education Program (IEP) and their parents or guardians should be informed about distance education courses offered" (the mean response for principals was 4.09, and the mean score for special education teachers was 4.22). There was not a statistically significant difference between any of the responses on the instrument, with the exception of Question 15, "Administrators, teachers, and parents should receive training related to students on an Individualized Education Program (IEP) and distance education."

Survey questions related to the actual instructional or academic machinery of including students with disabilities in distance education garnered the lowest mean scores for both teachers and administrators. It is difficult to determine if the lower mean scores were a result of a belief that students with disabilities would not benefit from participation in distance education or the underlying theme that the term "students on an IEP" was too general thereby eliciting neutral responses. Respondents did agree across administrative and instructional boundaries that the physical presence of a teacher in the classroom was required. It may be valuable if special education reporting included in conjunction with the student's disability category were to indicate whether the student participated in distance education. Parents are presented a survey as a component of the Individualized Education Program (IEP) team meeting that could be expanded to include questions regarding their student's participation in distance education and the satisfaction of such participation.

Results of this survey bode well for distance education and students with and without disabilities. Based on the common ground established through the responses of the administrators and special education teachers, it appears the standard for determining subscription to distance education lies in recognizing the strengths, needs, interests, and levels of abilities for all students rather than only those with disabilities.

Administrators and secondary special education teachers repeatedly stated that decisions to implement distance education with any students with disabilities varied and were dependent upon their [students'] unique strengths, needs, and interests. They stressed the importance of remembering that each student was guaranteed through their *Individualized* Education Program (IEP) an *appropriate* public education. This requires case-by-case consideration of instructional delivery and support. Therefore, they often entered a neutral response to the survey simply because a more direct answer would require knowing which student the question was addressing. They noted other topics to consider when developing an individualized program for the students with disabilities and the possibility of distance education.

Enhanced accessibility is identified as one of the reasons for embracing distance education. Accessibility can be specific to rural, suburban, and urban locals, schools of any size, and based on additional constraints (e.g., transportation needs, family responsibilities, family members' work schedules - including the secondary students') that may or may not coincide with schedules established by brick and mortar learning facilities, and specific strengths and needs of some of the students with disabilities.

Flexibility in when the distance education instruction is available as well as how long each session lasts are valid considerations. For example, if a student is diagnosed with a disability that makes it difficult for him to participate appropriately in a general education classroom and if his IEP team determines it is in his best interest to attend school half-day, it is possible he would do quite well in continuing to learn through distance education. He could learn in the natural setting of his home where he has familiar and appropriate accommodations, supports, and supplemental aides and services that help facilitate his learning.

Family and school economics relative to distance education must be considered. Travel expenses, clothing, and school supplies can put a burden on a family that is struggling to make ends meet. School systems, too, must be aware of the "bottom line." In an effort to address the budget, some schools are eliminating faculty positions and replacing instruction of some core curriculum educators with distance education delivered to classrooms of students with a teacher who makes himself available to assist students in their learning. For students who receive their distance education at home, travel and clothing costs decrease.

Quality of distance education can be hard to define since it is based on how well its design and delivery addresses the strengths, needs and interests of the students with disabilities. Because distance education is here to stay, it must be regarded as an important "tool" for helping students learn to work with and support others. By being part of learning communities and developing skills that serve them as they seek employment and share their knowledge and skills, students put themselves in good stead as they pursue becoming independent and productive members of society.

Dissemination of a common framework should include in-service, professional development, and training for parents, board members, administrators and instructors related to the participation of students with disabilities in distance education courses. Federal, state, and local laws as well as mandates and policies should be reflected in the methods students and parents are informed about the availability, enrollment and expectations of distance education opportunities. During the IEP meeting the Least Restrictive Environment (LRE) discussion may include consideration of delivery via distance education technology. At the proper juncture, the determination of appropriate placement would be established by the IEP team members as to the participation in distance education courses by the student.

It is evident from the findings of the current study that students with disabilities participate in distance education courses. Further study to determine which type of distance education delivery would be best suited for the different types of learning differences is warranted. Reproducing this study to determine which type of distance education delivery is most appropriate for each disability category would be beneficial. Investigating the potential relationship between delivery methods and learning needs could provide valuable insight as students with disabilities'

Individualized Education Programs are developed that include consideration for the Least Restrictive Environment. Conversely, identifying the participation of students by disability category would provide valuable insight into the development of distance education programs for specific disabilities. If a preponderance of students with a specific learning disability are participating successfully in one method of distance education delivery, future program development could concentrate on that style of distance education delivery.

Future research that defines and describes distance education delivery by type would benefit researchers as they identified the effective and ineffective characteristics of each type of delivery method. Testing the relationship between delivery method technological strengths and pedagogical approaches to students individual needs may further the integration of distance education technology as a viable instructional tool for students with disabilities.

Administrators and secondary special education teachers should find it reassuring that they share much the same perspective regarding distance learning as it applies to students with disabilities. Especially comforting is that the skill set required of administrators and teachers is the same for students with disabilities as for those without. All students are to receive an appropriate education that addresses their needs and is buttressed by their strengths and interests. Helping students assume responsibility for lifelong learning is a cornerstone of good teaching for all students.

References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes. 50, 179-221.*

Anderson, T. (2008). Is videoconferencing the killer app for K-12 distance education? *Journal of Distance Education. 22*(2), 109-124.

Butz, C.W. (2004). *Student and parent satisfaction with online education at the elementary and secondary levels*. Doctoral Dissertation, University of Nevada, Las Vegas (ProQuest Information and Learning Company, UMI Number 3143377).

Christensen, C.M., Horn, M.B. & Johnson, C.W. (2008). *Disrupting class: How disruptive innovation will change the way the world learns.* New York: McGraw-Hill.

Hughes, J.E., McLeod, S., Brown, R., Maeda, Y., & Choi, J. (2007). Academic achievement and perceptions of the learning environment in virtual and traditional secondary mathematics classrooms. *American Journal of Distance Education, 21*(4), 199-214.

Jorgensen, M.A., & Hoffmann, J. (2003). *History of the No Child Left Behind Act of 2001 (NCLB)* (pp. 1-8). Pearson Education.

Matthews, D. (1999). The origins of distance education and its use in the United States. *T.H.E. Journal Online*. Retrieved from http://www.thejournal.com/magazine/vault/articleprintversion.cfm?aid=2222

Michigan Department of Education. (2006). *Michigan Merit Curriculum High School Graduation Requirements*. Retrieved from http://www.michigan.gov/documents/mde/FAQ_-Entire_Document_12.07_217841_7.pdf

Moore, M.G., & Kearsley, G. (2005). *Distance education: A systems view (*2nd ed.). New York: Wadsworth.

Moore, M. G., & Kearsley, G. (2012). *Distance education: A systems view* (3rd ed.). Belmont, CA : Wadsworth.

Nasseh, B. (1997). A brief history of distance education. *Adult Education in the News*. Retrieved from http://www.seniornet.org/edu/art/history.html

National Federation of High School Athletics. (n.d.). Retreived from http://www.nfhs.org/No Child Left Behind http://www.ed.gov/policy/elsec/leg/esea02/107-110.pdf PUBLIC LAW 107–110—JAN. 8, 2002 115 STAT. 1425 Public Law 107–110 107th Congress HR 1 Jan 8, 2002.

Oklahoma State Department of Education. (2008). *2007-2008 Facts: Oklahoma Public Schools*. Retrieved from http://www.sde.state.ok.us/Services/Data/statcard.html

Picciano, A.G., & Seaman, J. (2007). *K-12 Online learning: A survey of U.S. school district administrators*. Needham, MA: The Sloan Consortium.

Rumble, G. (2001). Re-inventing distance education, 1971-2001. *International Journal of Lifelong Education, 20*(1), 31-43.

U.S. Department of Education (2007). *Twenty-Five Years of Progress in Educating Children with Disabilities through IDEA.* Washington D.C. Retrieved from http://www.ed.gov/nclb/overview/intro/guide/guide_pg12.html#history.117

Welner, K.G. (2005). Can irrational become unconstitutional? NCLB's 100% presumptions. *Equity & Excellence in Education, 38*(3), 171-179.

Yell, M.L., Rogers, D. & Rodgers, E.L. (1998). The legal history of Special Education. *Remedial and Special Education, 19*(4), 219-229.

Yssel, N., Engelbrecht, P, Oswald, M.M., Eloff, I., & Swart, E. (2007). Views of inclusion: A comparative study of parent's perceptions in South Africa and the United States. *Remedial and Special Education, 28*(6), 356-365.

Zandberg, I., & Lewis, L. (2008). *Technology-based Distance Education Courses for Public Elementary and Secondary School Students: 2002-03 and 2004-05*. (NCES 2008-008). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington DC.
