

## The Digital Divide: What Schools in Low Socioeconomic Areas Must Teach

BY DIANNE THOMAS



The purpose of this research study was to determine if a digital divide existed in homes and schools for children in the Mississippi Delta. The study compared computer access, use, and skill level of children living in low socioeconomic areas, which were rural, and those in middle or upper socioeconomic areas, which were more densely populated. Results showed that the digital divide has closed in the school setting. Although the gap is closing in homes, there remains a gap in home computer access and use, and a significant gap exists in the skill level between the two socioeconomic groups.

Former President Bill Clinton asserted that technology provided the tools needed to assure no child, regardless of socioeconomic status, was left behind in education. Ideally through the use of technology, children living in the lowest socioeconomic homes have access to the same information as children living in the wealthiest (Kennedy & Argon, 1999). However, are students living in low socioeconomic areas truly accessing this information? If so, where do children living in low socioeconomic areas access technology?

In 2007, a survey comparing computer access, use, and skills of third grade students from both low and middle or upper socioeconomic areas was conducted in the Mississippi Delta. Socioeconomic status of areas was determined by the State Department of Education based on free and reduced priced meals provided for students. A total of 1,119 surveys were completed with 571 being completed by students enrolled in schools determined to be Title I by the state. Students surveyed in Title I schools typically resided in rural or small town settings. Title I status is given to those schools whose entire population receives

either free or reduced priced meals. When an entire school is deemed Title I, it indicates that the students live in a low socioeconomic area. Five hundred forty-eight surveys were completed by students enrolled in non-Title I schools, which are those schools where no students received free or reduced priced meals. A school's status as a non-Title I school is the best indicator of middle to upper socioeconomic levels. Those surveyed in non-Title I schools lived in areas that were more densely populated.

The results of this body of research indicate that students in low socioeconomic areas do not have the same computer access, use, or skill level as those living in middle or upper socioeconomic areas. Because the research data were in the form of frequency counts for two categories, chi-square tests were used to analyze the data to determine the degree

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of impact socioeconomic status had on home computer and Internet access, school computer and Internet access, and computer technology skill levels across groups of students (Gall, Gall, & Borg, 2003). When students were asked if they had access to computers at home, 76.4% of Title I students indicated they did, while 94.3% of non-Title I students indicated they had access at home (see Figure 1). The gap in home Internet access was even larger, with 86.7% of non-Title I students having access while only 65.5% of Title I students had access. Chi-square tests of survey questions revealed that there was a significant relationship between socioeconomic status and a student's ability to access a computer and the Internet at home (see Table 1). Student responses to the survey question that asked if they had Internet access at home and the chi-square analysis of that question are shown in Tables 2 and 3, respectively.

The technology gap, however, lessened when comparing school computer and Internet use with a 4% difference in access. Answers to the survey questions indicated that 95.8% of Title I students used computers at school while 99.8% of non-Title I students did so (see Table 4). Table 5 shows the chi-square results of this comparison, showing that there is a relationship between socioeconomic status and a student's ability to access a computer at school at  $p < .001$ . While Title I students indicated they used the computers at school more frequently, non-Title I students indicated they spent more time at the computers during school hours. Non-Title I students indicated they had Internet access at only a 5.6% higher rate than Title I students.

Students were also asked to rate themselves on their ability to complete certain computer activities. Classifications for skill levels were as follows: *I can do this without help*, *I can do this with help*, and *I cannot do this*.

Of the 11 categories (see Table 8), non-Title I students believed they could do the activity without help at a higher rate than their Title I peers. Of noteworthiness is that other than the *Play Games* category, the three categories in which Title I students felt they could do the activity without help at a higher rate than non-Title I students were *Watch DVDs*, *Listen to Music*, and *Publish Pictures*. These categories

require the least amount of skill level and technology knowledge.

This research indicated that there was a technology gap for students living in low socioeconomic areas. For the students in this study, that gap also fell along home settings. Students in rural areas indicated they had less computer access, use, and skills than their peers living in middle or higher socioeconomic areas, which for this study were the more densely populated areas.

Because U.S. citizens now need to compete globally for technology based jobs, the lack of technological skills means even more disparity between workers both within and outside of the country. This belief is fully detailed in *The World is Flat: A Brief History of the Twenty-First Century* (2006) by Thomas Friedman. In the text, Friedman details the technology trends that have occurred in history. He notes that while the physical world is round, the speed of information travel via technology has caused him to discover that "the world is flat" (Friedman, p. 5). He also lists the ten forces he believes have flattened the world. Those begin with the fall of the Berlin Wall and include the development of work flow software, information uploading, work outsourcing, as well as other forces. Friedman discusses what this means in relationship to education in America. Of key importance is the fact that technology allows anyone with the proper training and education to complete a huge amount of corporate work. If workers in America cannot do the work, the work will go to other places.

Americans hold strong beliefs about the benefits of technology for learning and social progress (Brown, 2002). A common belief today is that technology use is now "a prerequisite for the most desirable jobs, and access to the new technology is every child's democratic right" (Marx, 2001, p. 133). Parents and community members anticipate that learning about technology will not only improve students' academic achievement but also ensure their socioeconomic future, especially if they are from groups that are marginalized such as people from low socioeconomic backgrounds (Mossberger, Tolbert, & Stansbury, 2003; Warschauer, 2003).



When weighing economic and educational considerations, it becomes evident that schools must assume the responsibility for closing at least the knowledge portion of the remaining digital divide. One recommendation is that school personnel follow national technology standards when planning and implementing technology education. School personnel in charge of funding should provide needed equipment and computer labs and classes to meet the growing needs students have to keep up to date in the fast advancing technology world. Local school boards, districts, and the State Board of Education should provide funds to meet these needs. Teachers surveyed as a part of this study indicated that meaningful staff development that taught ways to integrate technology into all subject areas was needed.

Bridging the technology education gap for students in rural or low socioeconomic areas requires determination on the part of educators in these areas. Those educators in the field must develop and keep a strong voice for their students—a voice that is loud and clear in the admonition that our students must be provided up-to-date technology education that allows them to compete in a world job market.

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## Figures and Tables

Figure 1

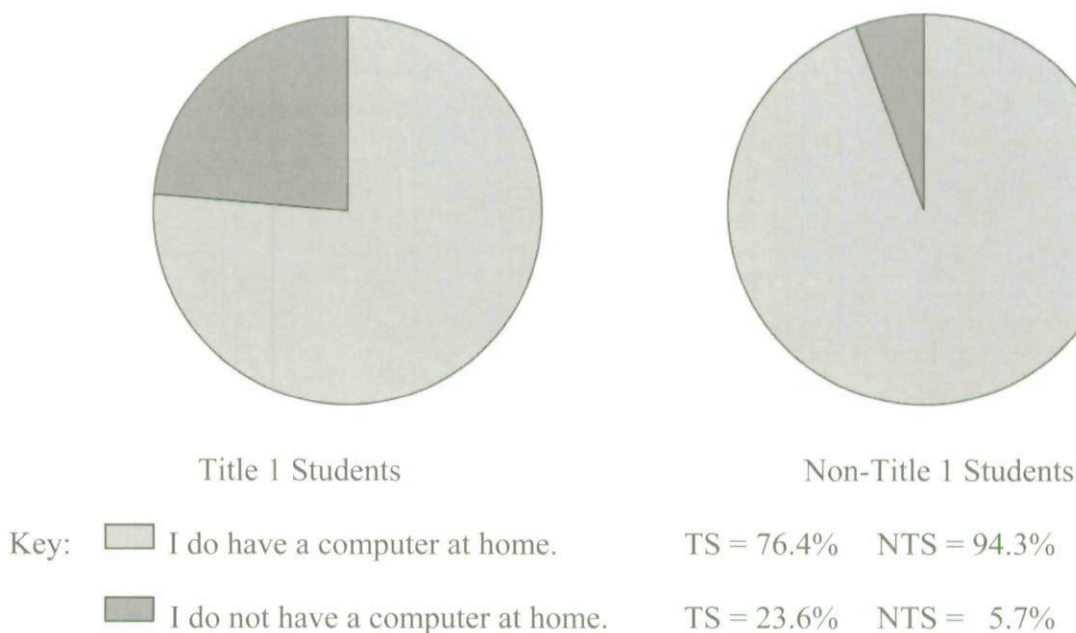


Table 1

*Chi-square analysis of survey question: Do you have a computer at home?*

	Value	df	Asymp. Significance
Pearson's Chi-Square	69.81	1	.000
N of Valid cases	1118		

Table 2

*Student response to survey question: Do you have Internet access at home?*

	Frequency		Percent	
	TS	NTS	TS	NTS
Yes	374	475	65.5	86.7
No	62	42	10.9	7.7
No Computer	134	31	23.5	5.6
Missing	1	0	0.1	0.0
Totals	571	548	100.0	100.0

Table 3

*Chi-square analysis of survey question: Is your computer at home connected to the Internet?*

	Value	df	Asymp. Significance
Pearson's Chi-Square	79.756	2	.000
N of Valid Cases	1118		

Table 4

*Student response to survey question 1: Do you use a computer at school?*

	Frequency		Percent	
	TS	NTS	TS	NTS
Yes	547	547	95.8	99.8
No	24	1	4.2	.2
Totals	571	548	100.0	100.0

Table 5

*Chi-square analysis of survey question 1: Do you use a computer at school?*

	Value	df	Asymp. Significance
Pearson's Chi-Square N of Valid Cases	20.696 1119	1	.000

Table 6

*Student response to survey question 6: Do you get on the Internet (for research or fun) at school?*

	Frequency		Percent	
	TS	NTS	TS	NTS
Yes	355	422	62.2	77.0
No	191	123	33.5	22.4
No Computer	24	1	4.2	.2
Missing	1	2	0.1	0.4
Totals	571	548	100.0	100.0

Table 7

*Chi-square analysis of survey question six: Do you get on the Internet (for research or fun) at school?*

	Value	df	Asymp. Significance
Pearson's Chi-Square	28.224	2	.000
N of Valid Cases	1116		

Table 8

Percent of Students Responding "I can do this without help."	TS	NTS
Play Games	86.7	92.5
Surf the Net	46.1	53.8
E-mail	26.6	27.7
Watch DVDs	46.6	36.7
Music CDs	60.4	42.3
Type Letter/Report	33.3	45.8
Spreadsheet	1.8	3.5
Database	4.6	8.8
Publish Pictures	26.8	24.5
Create Pictures	55.5	76.6
Create Power Point	5.6	8.4

TS – Title I Students

NTS – Non-Title I Students

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