Digital Divide: Group Multimedia ePaper Project

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The National Educational Technology Standards provide performance indicators describing the technology competence that students should exhibit upon completion of various grade ranges. "They represent essential, realistic, and attainable goals for lifelong learning and productive citizenry." But, how realistic and attainable are these goals in actuality? The major component of the National Standards is that all students should have the opportunity to develop technology skills that support life long learning, personal productivity, decision-making, and daily life. However, for many groups, the opportunity is reduced due to our society's widening "digital divide". This "digital divide," or "opportunity gap," which separates individuals and communities with access to computers and the Internet from individuals and communities without access to these, affects people on many levels.

A "global digital divide" exists among nations, with citizens of some countries, the U.S. among them, benefiting from far greater access to Information and Communications Technologies (ICT) than citizens of less developed countries. Within the United States, some populations have significantly greater ICT access than others. The "digital divide" persists between the information rich and the information poor.

Based on demographics, including geographic area, income, race, age, education, and household type, many are falling into the growing "technology

gap". According to a 2004 report by the National Telecommunications and Information Administration, urban Americans have greater Internet access than rural Americans; Caucasian Americans have greater access than any minority group; and Internet access correlates directly with income – the more money an individual or family earns, the more likely he, she, or they are to use the Internet (U.S. Dept. of Commerce). At the end of 1998, over 40% of all U.S. households owned computers, and one-quarter of all households had access to the internet; but what about those who do not have technology tools and access so readily available to them?

Such discrepancies in computer access serve to expand the differences in opportunity level among Americans overall. However, these differences are especially poignant among public schools. American students are taught that all men are created equal and that they are the inheritors of the American dream. Meanwhile, the conditions in which they are educated and the resources with which they are provided tell quite a different story.

While training in ICT is valuable in nearly all fields today, our particular interest is in the necessity of computer literacy in art and design. In coming decades people interested in pursuing careers in visual arts or design will be greatly handicapped without training in modern art technology.

As a case study in the effects of the digital divide, we have looked at the ICT available in the art departments of two local schools. We have examined the differences in available technology. We have focused on the ICT classes and resources available to each student body, and interviewed an art educator

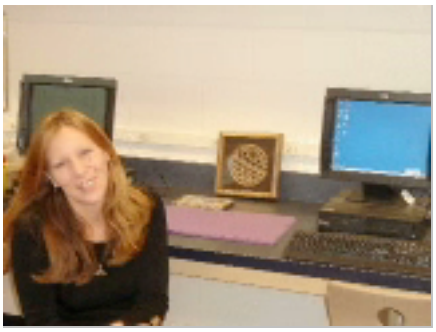
to find out what effect ICT unavailability has had on her personally as an art educator in the classroom, and what effect it has had on her students.

Technology seems to be continually changing and advancing. It is a struggle for educational facilities and educators to embrace, adapt to, and integrate the perpetually evolving ICT available. To learn and keep up with the new technological tools, change the way lessons and curriculum are designed, and be able to assess whether the change is effective is no easy task for school districts or individual educators.

Lincoln Consolidated Schools in Ypsilanti, Michigan has made great strides toward taking advantage of new possibilities in teaching and learning through technology. They have implemented technology systems at all levels of the school district. They believe that developing skills and providing access to technology is vital for educational success. We asked Tina about the technology available to her from when she started teaching 5 years ago to today to her response was a follows:

> I didn't have any computers at all when I started teaching. As I taught I got my own computer in each school. And than a few years later I received the computers for the students. In the one school I have two older computers, while in the newer elementary, the computers are newer. Finally, in about the last year or so, I have the Internet along with the ability to project images from my computer on to the T.V. for students to see. Of course, this technology is only available in the newer school (White).

To see the interview:



(Quicktime Movie file format)

When we also asked her about the programs in her department, she had little to show. There were no programs specially geared toward art, other than "Paint." "I don't really have any art related software. I have 'Art Rage' and also 'Paint.' If I could have any program I would want 'Kidpix' it would allow me to do so much more with the students that other schools are probably already doing," said Tina.

In comparison to other school districts, Lincoln Consolidated is an example of an educational facility lacking resources to substantially bridge the technology gap, especially in the area of art education. The district's mission statement states that they will provide all students with the essential skills necessary to be productive members of society in the 21st century. Although this is accurate to the degree that they have some ICT resources available, other districts are in fact ahead of the game. For example, Lincoln Consolidated has no art and technology classes, and has few computer graphic programs available to students. "…(W)e use computers in the art classroom. I have two computers at each school for the students and one computer for me at each school. We usually use the computers for stations –

which is a day in between projects (when) the students get to choose for themselves (from) a variety of activities." ICT is not integrated into the art curriculum, but is a peripheral element, a reward.

Another school district less than an hour away, the Walled Lake District, has an entire lab available to art teachers and students. Upon completion of high school, students at Walled Lake Western in Walled Lake, Michigan are comparably ahead in terms of art and technology education. This is due to a superior technology budget in general and a greater appreciation for the value of technology in art. For example, Walled Lake Western has an Intro to Computer Graphics class, explicit to art education and technology. Each student has at least one computer to themselves, 20 computers in all. Not one, but all of the computers maintain graphic programs such as Adobe Photoshop. Students spend much of their time working with Adobe Photoshop, balancing their previously gained knowledge of the artistic elements and design principles with technological experience to create artistic and intellectual compositions. At Walled Lake Western technology is not separate from art, but rather very much included with it. For instance, students must have completed an Intro to Art course as a prerequisite to the Intro to Computer Graphics course. Like it or not, we are a technology based society and should use our technological resources as an opportunity to enhance learning, increase productivity and promote and support creativity. The art curriculum at Walled Lake Western is designed to support a balance between traditional art education and an ever increasing technological society and education.

As is often the case, the technologically disadvantaged Lincoln students have, on average, fewer educational opportunities than the technologically advantaged Walled Lake students even *without* taking the technological discrepancies into account. Lincoln serves a greater population of minority students. Lincoln students come from household with lower average incomes. The yearly expenditure per Lincoln student is $7,664. The yearly expenditure per Walled Lake student is $9,196. Lincoln Consolidated's district has 34.5% economically disadvantaged students, with 19.3% receiving free lunch. While Walled Lake has a percentage of only 8.9% of their students considered economically disadvantaged with 6.4% receiving free lunch. The teacher to student ratio in the Lincoln school district is 18.0. The teacher to student ratio in Walled Lake is 17.1(NCES). The most negative aspect of the digital divide in American schools is that it exacerbates a problem of inequality that is quite separately extant.

Society must not discriminate against, but support students and school districts that do not have the resources necessary to thrive in a technology based society. However, it is the place of education to allow students equal opportunity in gaining necessary technological knowledge and in certain circumstances play "catch up." Educators, school districts, and society in general must work together in offering awareness and availability of local facilities, such as township libraries, where students can gain access to technological resources and programs. Students must be encouraged to use these other resources, if not resources in school and at home, so as not to be

left behind in the dust of a technologically advancing society and education. Technology availability, equality and familiarity should foster a positive attitude toward technology in all of its forms and all of its content areas, inhibiting the "have-not" students from feeling left behind the "haves" in a technology based society.

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