

Matters More than Access:  
Challenging Cultural Barriers to Educational Technology

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Capitol High School. Baton Rouge, Louisiana. So named because it sits, almost literally, in the shadow of Louisiana's Capitol Building, the tallest such capitol skyscraper in the United States, a source of state pride for Governor Huey Long and Louisiana residents. And nestled nearby, Capitol High epitomizes the inequality that exists in technological advancement and affordance in many inner city public schools, and practically a stone's throw away from the state's governing body, the school is neglected. CHS boasts a beautiful, large campus but only possesses a modest enrollment of just over 600 students in grades nine through twelve. The school's population is 100% African American with over 80% of students on free and reduced lunch, situated in an area where the average household income is about half (\$16,900) of the state average (\$32,000). And it was here where I first realized that computer use and technological efficacy transcends mere access, that its adoption and endorsement is also tied to the sociocultural. As a preservice teacher working on my Masters, I brought my tenth- and twelfth-grade students to the school's lone computer lab for lessons, only to witness the inability, reluctance, and downright refusal to use the school's computers. I had not expected this reaction, these attitudes, nor was I schooled in how I might encourage these students to change their minds about the computers.

Equitability of technological access pervades much of the research in educational technology. In the midst of the academic discussion of availing resources, designing software, and improving technological infrastructures in poorer schools there is a conspicuous absence of references to a cultural barrier or reticence on the part of poor African American students when it comes to computer usage. This reluctance or disassociation with computers needs earnest examination if researchers and educators want to create a school culture that will embrace the possibilities and potential in having increased computing access. We need to "elucidate the aspects of the prevalent computing culture that may attract or repel different groups" (National Science Foundation, 1999). A key part to this elucidation process that the NSF calls for is an investigation

into the disassociative attitude toward a computer culture that research suggests exists in Black communities and especially in predominately lower class, Black schools. There is little disagreement, for the data bears it out, over the fact that computer access and ownership is much lower for Blacks than for Whites. The educational ambivalence towards computers in Black lower class schools, though, goes beyond that access. We need to have an understanding of the technological implications of the “burden of acting white” (Fordham & Ogbu, 1986), a phenomena that has some bearing on how accepting lower class Blacks are when it comes to using computers and seeing value in them in an educational setting. For a combination of complex cultural reasons, some clear and others less so, lower class Black students associate computers with schools other than theirs or for students who are not Black. This social assignment of computers is part of education’s calling to “understand cultural markers of status – such as coolness and geekiness – within various communities” (National Science Foundation, 1999) and, I would argue, schools. The importance lies in the fact that “no previous studies of technology access have explored the impact of environmental factors such as the economic, racial, and educational composition” of these low class areas (Mossberger, Tolber, & Gilbert, 2006, p. 585).

The disparity in computer ownership between classes has been well documented and these technological gaps in communities are reflected in schools. The numbers reveal a harsh reality; “schools with higher concentrations of racial minority enrollments do have less technology presence on many indicators of computer and Internet presence” (Anderson & Ronnkvist, 1998, p. 15). Despite the gains made as a result of initiatives and funding, “the 'digital divide' remains. There are new technologies, especially access and use of the Internet, that have been out of the reach for many types of schools [and] serious disparities still exist across important social, economic and geographic boundaries (Anderson & Ronnkvist, 1998, p. 17). In one study that took place in Detroit, where 70% of students were on free or reduced lunch, only 25% of families

who earned below \$50,000 per year owned a computer while 60% of families who earned more than \$50,000 owned a computer (Soloway, et al 2001). The connection between the home environment and school, then, become poignant. “In schools with diverse student bodies and high proportions of students from poor families, more students used the Internet at school than at home, compared to students at other schools, and more of these students viewed Internet access at school as very important, compared to students at other schools” (Thomas, Adams, Meghani, & Smith, 2002, p.163).

The communities in which these families reside also exhibit technological deficiencies. One of the greatest indicators of computer use at home is related to the internet and Blacks are the highest, by a significant margin, of Internet non-users. In 2001, 58.9% of Blacks considered themselves “non-users” of the Internet and by 2003, that number had only dropped by 4.5% whereas only 34.9% of whites considered themselves non-Internet users (National Telecommunications and Information Administration, 2004). Although the numbers are five years old, they are significant because the Pew Internet and Life Project’s tracking data “have found that the growth of the Internet user population has slowed if not stalled since late 2001” (Lenhart, Horrigan, Raine, Allen, Boyce, Madden, & O’Grady, 2003).

Yet another study cited race as a factor that demands consideration because “a White, two-parent household earning less than \$35,000 is nearly *three times* as likely to have Internet access as a comparable Black household... in the same income category” (National Telecommunications & Information Administration, 1999). This fact complicates the simple, narrow assignment of computer access and attitudes to that of class.

When there is such sparse computer ownership in these communities and homes, moreover, there is little impetus for businesses to bring computer-related services and businesses to the area. One example, the cybercafé, illustrates this reality: “Cybercafes are also appearing on street corners,

but unfortunately rarely in low-income neighborhoods” (Beamish, 1999, p. 352). Furthermore, “it’s likely that high-income neighborhoods will have new fiber-optic cable laid in their streets while low-income neighborhoods will be quietly bypassed because the industry sees them as less profitable markets... [and] without a good infrastructure, high-tech businesses would never consider locating in these areas” (Beamish, 1999, p. 359). I understand that Beamish’s comments are related to the commercial, rather than the educational. Nevertheless, the relevance of the commercial, relates to the association a community has with technology. In the communities where cybercafés and high-tech businesses operate, the association with computing is much more intimate, it becomes a part of the community. This communal technological identity factors heavily in Mitchell Resnick’s work discussed later in the paper. With this substantial, relevant socioeconomic context established, it is tempting to assign the lack of computer ownership simply to class.

There is no doubt that class plays a role in these reported numbers, but even among comparable socioeconomic strata, there is still a racial discrepancy. In North Carolina, for example, one study revealed that home computers and Internet access were less common among African Americans than other races despite the fact that they fell within the same socioeconomic status (Wilson, Wallin, & Reiser, 2003). In another study, nearly ten percent more whites (78%) than Blacks (69%) whose household income totals exceeded \$75,000/year use the Internet; it’s also worth noting that Hispanic families in the same study within the same income bracket eclipsed the Internet usage of the white families by a single percentage point (Lenhart, 2000). While the difference between the Hispanic and white families might seem insignificant, there’s no ignoring the ten percent gap between both the Hispanic and white families and the African American families. These numbers support the simple, yet troubling conclusion that “even at equivalent income levels, African-Americans are less likely than either whites or English-speaking Hispanics to go online” (Lenhart, et al, p. 7). Still, “there is a general

consensus that inequities are based in part on race and ethnicity, as well as income, education, and age” (Mossberger, et al, 2006) and any beneficial, constructive discussion or meaningful, authentic technological implementation needs to address needs other than simply raising the computer:student ratio in schools.

Federal and state initiatives have attempted to reduce these ratios recently. Presidents Clinton and more recently Bush have both elucidated their views on the importance of computer usage and declared technology as a key trait for all public schools. One example is the Telecommunications Act from 1996, designed specifically to target the issue of technological access. The government hoped to “combat this problem by introducing technology centers in depressed areas and targeting children as primary beneficiaries” (Sandvig, 2003, p. 172). Sandvig (2003) further explains how this initiative led to the identification of schools and libraries as “the principle place[s] for otherwise disenfranchised users to use advanced communication technology” (p. 172) and fourteen billion dollars was spent from 1997-2002 on seeing the program implemented.

Too often, though, the schools themselves are deteriorating and that creates more obstacles in creating an atmosphere conducive to computer relevance. My mother and I have both taught in inner city schools as well as schools for middle- and upper-middle class students and we have both seen the physical degradation in the lower socioeconomic schools, the unsound construction, the physical discomfort, the personal risk, and the questionable integrity of parts of the buildings themselves. It’s little wonder, then, that a U.S. Congressional survey of ten thousand schools found that “most schools required fundamental improvements to building structure, wiring, and electrical systems, air conditioning, ventilation, and security before any computer equipment could be installed” (Beamish, 1999, p. 356). With so many barriers, communal and physical, the computer is having a tough time of making itself part of schools’ cultural fabric in these areas.

Because there are so many contributing, limiting factors, the educational community must get beyond the notion that access will make the difference. Simply putting computers in front of these students and these students in front of computers and expecting technical proficiency, educational gain, and technological affinity as a product of mere presence is wayward and myopic. Simply put, we must transcend access as the only primary mitigating factor. To this point and for far too long, “policy debate and research have often shared an overly narrow definition of the divide as an issue of access alone” (Mossberger, et al, 2006, p. 589). The Organization for Economic Cooperation and Development Secretariat declared that improving ITL “is not simply a matter of running wire and providing access to public computers – it is also a matter of ensuring that people have the requisite skills to use the technology and that they see the relevance of technology in their lives” (Shelley, Thrane, Shulman, Lang, Beisser, Larson, & Mutiti, 2004, p. 259). I would expand that list, for the purposes of this paper in particular, to include community acceptance, familial familiarity, and cultural attitudes.

All of these factors, in addition to countless others, I am sure, situate the computer in education outside the poor, African American educational experience and culture because there is a tremendous absence of computers and technological relevancy. This assignment becomes even more troublesome when we look at the notion of “acting White”, its relation to the “fictive kinship” of these students (Fordham & Ogbu, 1986) and the repercussions from and attitudes toward adopting something that is not seen as part of the school or community culture. This creates a cultural barrier that is at least as vexing as any of the limitations listed above; in fact, I believe that it is because of all the factors listed above (as well as, no doubt, many others) that the computer has become something lower class Black students do not associate with their school culture and this attitudinal influence is something that has simply not received enough focus and research.

Once a particular act is seen as 'not Black' it is vulnerable to becoming stigmatized in the setting of a lower class, Black school. This association, or disassociation rather, can have troubling implications for students who actively seek to use computers. Since the mid-1980s the phenomena of "acting White" in schools has been studied and either refuted or accepted. The landmark study was Signithia Fordham and John Ogbu's 1986 work. In that piece, the scholars addressed two complicating terms, furthering the discussion of "acting white": "fictive kinship" or "collective identity" and "cultural frame of reference" (Fordham & Ogbu, 1986). These terms are relevant to the discussion here because the place of computers is, right now, situated outside of the "cultural frame of reference" for most Black students because it is not a part of their "collective identity." There exists a certain loyalty for many Black students to their "kinship" which Fordham and Ogbu have labeled "fictive" because there is no real reason for the assignment of certain educational attitudes and endeavors as 'not Black.' This "collective identity" refers to "people's sense of who they are, their 'wefeeling' or 'belonging.' People express their collective identity with emblems or cultural symbols which reflect their attitudes, beliefs, behaviors, and language or dialect" (Ogbu, 2004, p. 3). When educational activities and ambitions (or attitudes toward computers) fall outside of this identity, problems for the student arise. This question of acting white was posed in another study, one by the U.S. government, where they sought to "understand the consequences of success for different groups" and asked "How do African American family... cultures affect participation and peer culture? Is academic achievement perceived as 'acting white'?" (National Science Foundation, 1999).

The article by Fordham and Ogbu drew a great deal of criticism, primarily because objectors identified what they thought was an oppositional theory, that the scholars were proposing (or perhaps *imposing*) that the only success for Black students had to be on White grounds or in White terms, which alienated the Black students entirely (Spencer, et al, 2001). Ogbu counters in a more

recent work (2004), one that chronicles the genesis of Black cultural, collective identity to pre-slavery days, that his publication with Fordham had been misunderstood by many and stresses what's key in my argument here: that "Black students experience peer pressures from the other Black students to discourage them from adopting such White attitudes and behaviors" (Ogbu, 2004, p. 29). It is when computers and the avid, interested use of computers is seen as a "White attitude and behavior" that the need for changing attitudes toward computing in education becomes extremely important.

This dynamic of technological association with "acting White" or at the very least, not part of the Black "collective identity" has been cited beyond the merely theoretical. At a study in a community college, a Black professor told a researcher that "a lot of Black students see (the academic world) as a White world" (Wies, 1985, p. 100) and that students tend to understand "excellence" as being "White" and that association is negative (Wies, 1985, p. 100-101). In a more recent study set in a high school context, researchers documented similar attitudes. In this study, "there was almost complete consensus that 'acting white' and 'acting black' were two diametrically opposed categories of behavior.... 'Acting white' was often defined by certain styles of clothing... and certain manners of speech... More important to [the] inquiry, all students readily associated 'acting white' with being studious, 'doing your homework,' and getting good grades" (Kao, 2000, p. 413). As a result, Black students who saw other Black students earning high grades and using "proper" English referred to them as being "Oreos" and "selling out" (Kao, 2000, p. 415). Black students, though, were keenly aware of how they believed that others perceived them, that there was a nearly universal feeling that students of other races viewed them as "less intelligent" (Kao, 2000, p. 414).

When asked about their feelings toward computers in the same survey, the Black students responded that the Asian students at the school were "more likely to work on computers as a hobby (rather than sports)" (Kao, 2000, p. 414). This instance does not associate the use of computing

with “whiteness” specifically, but it does place the computer outside of the Black “collective identity.” Thus, the repercussions for students who are seen as acting contrary to that collective identity can be very real, pronounced, and damaging. If computers are seen as a part or extension of upper class/White culture, then it is something that we need to be aware of when incorporating technology into lower class, Black schools and seek constructive use and beneficial instructional integration.

The academic disassociation includes an aversion to computer use in school as well. One study focused on the attitudes of eight-, nine-, and ten-year old female participants who were Black and from families with low socioeconomic status. Pearson (2003) even used a quote from one of her participants as a section title within her dissertation, “Black people don’t do computers.” In this section, she explored the overt relegation of computers as something not meant for Blacks and outside their culture. The girls believed that “all of the white children would want to be computer programmers” (Pearson, 2003, p. 104) – a generalization that is obviously not true; not all white children want to be computer programmers. But we do see here something beyond a connection between computers and white students in these participants’ eyes, a reference to their future, a career beyond school. The girls, unwittingly, supply us with insight regarding their ideas about their lives beyond school, and computers are not a part of it. Pearson (2003) concluded that these statements were not intentionally biased but evinced the reality that “they clearly hold racial views about who works with computers. Comments about who ‘does’ computers or whether or not it is important who ‘does’ computers were the most interesting finding of this study because these responses reflect their views of race” (p. 104) and it is precisely here where I see the importance of this work.

Many of these students belong to families described earlier in the paper: Black, low socioeconomic status, and lacking a computer at home and it’s proven that “home computer use contributes enormously to the acquisition of computer epistemology and skills” (Tekyi-Annan, 2005,

p. 107). This epistemology informs their general attitudes toward computers and reflects the distance that the parents feel toward technology in their children's education, and it becomes an issue of empowerment. These parents face multiple barriers, especially those who are single parents and are limited by their own finances, education, and other resources. "They need guidance in how to gain social and cultural capital so that they can become self-regulated decision makers and advocates for children's learning. Their interests and talents remain untapped in multigenerational whirlpools of poverty and in a cycle of not knowing how to enter in their children's learning" (Samaras & Wilson, 1998, p. 4). Parental involvement can lead to more widespread community acceptance, a sentiment explored further in the course of the paper.

Another fascinating study, this one by Wills (2002), examines the manner in which this technological aversion to accepted forms of use manifests itself in a summer camp during which the lower class, Black students used the computers in ways that their white, middle class researchers and teachers did not expect. These middle schoolers were referred to as "hip hoppers" and one student participant explained her reluctance to use computer the way her white teachers wanted her to by declaring: "I am ghetto, my parents are ghetto, I will always be ghetto" (Wills, 2002, p. 13). Wills evokes Bourdieu as she explains how difficult it is for these students to escape the class markers of their family. The students in the study wanted to use the technology at the writing camp to "[invert] the paradigm of black words on the white pages.... To break the stability of the written typeset page by hypertext and motion is to confront readers with the [point that] the written message is in flux" (Wills, 2002, p. 13).

This cultural aversion, on a larger scale, is cited in several studies referenced by Mossberger, et al (2006) including: Kretchmer & Carveth, 2001; Hoffman, Novak, and Schlosser, 2000; Kretchmer and Larveth, 2001. These studies highlighted the fact that the "lower rates of access and skill among African-Americans... are due to differences in motivation or cultural perceptions [and]

many African-American commentators have bemoaned a lack of interest in technology among African-Americans” (Mossberger, et al, 2006, p. 587-588). With so many contributing studies, it’s difficult to deny that “culture, therefore, affects the individual’s response to computer-related systems” (Tekyi-Annan, 2006, p. 37).

There are a number of other cultural and community-related problems around these schools that further contribute to the prevailing attitude toward technology. These problems include teacher training and their instructional skill base in technology. Despite the federal initiatives and increased spending, “the federal E-rate program has not closed the technology gap in poor urban schools, despite an increase in the number of computers in poor districts. Students in low-income schools may use technology less frequently because of insufficient teacher training” (Mossberger, et al, 2006, p. 591). The lack of hardware and software is likewise problematic for most of these inner city schools, but additionally, “one of the biggest obstacles to introducing technology into schools was the lack of teachers trained to use technology effectively in the classroom and to integrate it into the curriculum” (Beamish, 1999, p. 356). Without teachers providing constructive models of usage, presenting examples of computing potential and relevance, and even having positive attitudes about computers, it becomes tougher to convince their students of a computer’s value within and without the educational environment.

Cost is also prohibitive for many of these families, for computer purchase and subscription to an online service are deemed too expensive and this “concentrated poverty has a larger impact in reducing technology access for African-Americans than for whites” (Mossberger, et al, 2006, p. 606). African Americans were also among those most likely to point to “cost pressure as a major reason why they aren’t online” (Lenhart, et al, 2003, p. 11). These non-users, lower on the socioeconomic scale were also most pessimistic about their computing future, for only 38% believed that they would ever go online (Lenhart, 2003). And it is predominately African Americans who inhabit these

urban areas who suffer from such technological woes, as three out of every four impoverished African Americans reside in this segregated, concentrated poverty areas and Mossberger, et al (2006) suggest that combined culture, race, and poverty further reduces the access that these groups will have to technology, displacing technology further and further from their own realm of interaction and experience.

These geographical areas are the intersection of so many factors discussed thus far, e.g. socioeconomic status, race, education levels, technological infrastructure, teacher training. These social networks are extraordinarily important in achieving the sorts of lofty goals for impoverished students and potential gain from an educative-technocratic infusion. Luckett (2003) even believes that the surrounding community and culture's attitude toward computers is actually more important than the student's possession of a computer. This belief is extraordinarily important and underscores the point at the heart of this paper: the government and school boards can invest a great deal of money in wiring these schools, but unless they understand the situation-sensitive attitudes and belief systems endemic to these areas regarding technology, there will never be worthwhile endorsement. If attitudes can be changed and people can be informed and researchers and teachers are willing to investigate meaningful inclusion, not only could the move save money but it would also go a very long way in creating the inner city technocratic campus that most envision. But the responses of these target communities "show that the issues of race have not been addressed with them. They, therefore, have adopted viewpoints presented in media outlets, their community, school, ... and any other institution or person they come in contact with" (Pearson, 2003, p. 104). Therefore, we must study the different messages from all of these different sources, such as the media, and earnestly investigate them, for they are integral to changing minds which can lead to changing educational habits – both in terms of student use and teacher expectation.

I should point out, before moving on, however, that there are studies that operate under assumptions and draw conclusions that are contrary to the premise I've worked to establish here. In Luckett's (2003) study, for example, she concluded that there were "no differences in computer attitudes [evident] between African American and Caucasian college students" (p. 50). I believe, though, that the study leading to these conclusions suffers from some limitations that cannot be ignored and are worth pointing out. She admits that "since individuals who participated in this study were not randomly selected" (her sample comprised of only college students who were enrolled in computer courses and only 10% of whom were African American), it would be "inappropriate to conclude from the results that all African American and Caucasian college students had similar attitudes about computers" (Luckett, 2003, p. 60). Luckett (2003) goes on to recommend that more research on ethnicity be conducted, a vital need I'm arguing for as well.

Mossberger, et al (2006) also point out that there is no aversion to technology or computers on the part of Blacks and that their desires toward technology even supercede those of whites. In their study, they found that 78% of African Americans agreed that computers and Internet use were important for "keeping up" as opposed to only 65% of Whites, across comparable demographic categories and that 76% of African Americans identified computer skills as being necessary to "get ahead" compared to 66% of Whites. (Mossberger, et al, 2006). The authors also point out that African American non-users are among the most likely to believe that they will eventually use the Internet someday. This study, though, focused on the opinions and beliefs of adults in these geographical areas rather than those of students; the adults reflected on their own education and the workplace today which is more speculative on the respondents' parts than practical. These adults, which conceivably include parents of school-age children, have little recourse or power to incite technological change in their surrounding schools and communities. They may very well see the value of technology and having computer skills in today's workplace, but that neither equates nor

translates to a transformation of prevailing attitudes of those in these impoverished schools. I believe these ideas and hopes do, however, represent part of the starting point for change, but I cannot endorse it as a meaningful disqualifier of the impact negative attitudes towards current technological implementation goals addressed thus far.

I realize that this discussion of negative attitudes could result in a technological despair, for what are we to do if Black students don't want to succeed because they don't want to be accused of "acting White"? Those two elements, though, are not interchangeable. There are relatively few Black students who reject good grades because it is perceived as "White." "On the contrary, they want to make good grades and many report that they are well received by close friends when they get good grades" (Ogbu & Simons, 1994, p. 95). Kao discovered the same in the course of her research; she "found no evidence that Black students are less oriented toward school than their White counterparts.... Their general understanding that school is important and that it is desirable to be successful in school is consistent with findings from survey research, which shows Blacks to have extremely high educational aspirations" (Kao, 2000, p. 416). Just because they are aware of the educational importance, though, does not discount or negate the reality of the peer pressure they face by adopting academic practices deemed outside the "cultural identity"; this seeming contradiction is a tough one to reconcile but it does not eliminate the realities of the attitudes documented. Still, this understanding is extremely important because it shows that school has a place within the community and that success is, for the most part, recognized by students as influential in their own growth. Now, it becomes a matter of making computing a seamless part of the educational experience and convincing the students of its importance.

Likewise, it is not accurate to broadly generalize that all Black students have negative attitudes toward technology. The case I am making centers on the way in which computers

specifically are currently indiscriminately thrust in front of these students without care or concern for their needs and wishes, for both the school and surrounding community.

There are many schools, after all, in poor neighborhoods that have computers in them; they have successfully managed to negotiate the hurdles of technological incorporation and managed to secure computers, Capitol High School, after all, possessed a lab, however outdated its hardware and singular its campus presence. Even though they've accomplished this inclusion, there are still difficulties in making computers immediate, relevant, and even necessary. Part of the problem lies in goals that are "vague, simplistic, and unrealistically utopian,... [that] the technology [is] an end in itself rather than a means to an end" (Beamish, 1999, p. 351). This lack of inclusive vision and focus is seen in the community as well, where there is a "vagueness of community's computing goals and the underlying assumption that the technology itself will automatically improve the lives of low-income residents and their neighborhoods" (Beamish, 1999, p. 364). The goals for technology in education need to be clear and immediate but their impact has been minimal thus far, a result from a combination of factors: limited community (including school) access and technological identity, the difficulty with which computers are procured and secured, the lack of meaningful, relevant inclusion in schools, and the lack of adequate exemplary modeling on the part of the school (from district initiatives and goals to individual classroom teacher instruction). There are several studies and projects that make meaningful strides in changing the attitudes of the teachers, administrators, and students toward technology and its place in the inner city classroom. But it becomes a matter of hard work and investigating what the needs are and the values these students place in technology, working to close the distance between these communities' technological goals and those of any administrative entity.

One must begin by not assuming that the reluctance to use computers in a particular way specifically reflects an aversion to technology generally. For "minority and low-income communities

certainly aren't suffering from 'technophobia' as evidenced by the high penetration of modern technologies such as pagers and mobile telephones" (Pinkett, 2000). These cell phones, MP3 players, pagers and other devices are computers, but

...these technologies immediately suggest specific benefits and uses. They address certain cultural practices in that they are valued (and often given symbols of status). On the other hand [conventional] computer technology, given its inherently inflexible nature, does not immediately suggest a particular benefit or use, because it can support a variety of aims.... The internet can achieve even greater levels of penetration, and associated patterns of meaningful use, when sociocultural considerations are carefully taken into account. In other words, when people can readily see the benefits of these technologies toward improving their life, their family, and their community, they will be much more likely to embrace them, thus achieving some measure of resonance with their social and cultural milieu." (Pinkett, 2000).

Quite a bit of the work Resnick has done on computers in lower class contexts has been in the community. One of the most influential results of his work is the Computer Clubhouse which offers members of communities the opportunity to use computers to create and engage in projects, gaining a technological fluency (Resnick, 1998). This involvement in the community is extremely important in changing collective attitudes toward computers. There remains a gap, though, on an additional front: that of the individual student in the school setting, during school hours. It is here where Pinkett's words of immediacy related to benefits and uses are most important. In the course of his work, Pinkett refers to the community, asking specific questions and identifying specific concerns:

The preliminary evaluation should seek to identify the community's interests and how technology can support their interest.... How could a computer improve their lives? What

are the issues that they would like to see addressed that could be supported by technology?  
Health care? Safety? Education? Employment? (2000)

The validity of these questions, I think, is beyond doubt but I see the same gap here as in Resnick's work – though their focus requires this; please do not read this as academic condemnation. But I believe the same questions above posed to the community can be useful when asking them to individual students in schools.

There were students in another study who also clearly identified closely with computers, but it was not in the way that the researchers or teachers initially expected or desired. At a summer computer writing camp for inner city African American middle schoolers, it was clear from the beginning that they identified “very closely with the technology of computers and writing” (Wills, 2002, p. 11) and that “contrary to the graduate teachers' assumptions, ... the middle schoolers had already internalized a technological aesthetic and politic.” (Wills, 2002, p. 9). However, and this distinction is vital, these students did not “identify with technology and writing in the same ways as traditional college bound students might” (Wills, 2002, p. 5) and that “the ways in which the middle schoolers wanted to write using technology and the ways in which they wanted to know their environment was contrary to the ways of knowing of the graduate camp instructors” (Wills, 2002, p. 3-4).

These researchers ultimately had to readjust their own views of using technology and reevaluate their intentions for these students participating in the camp. It's a call that I think any educator involved with technological implementation in these schools should heed. Some might see my argument as one of deficiency or opposition, but I would categorize that as an oversimplification. Part of the call is for teachers to complicate their own assumptions, which for some might be a challenge. I believe an attitude of deficit resounds in one teacher's troublesome opinion in one study: “Inner-city who don't have the computers at home are the ones who need

them at school. They need to be forced to use them” (Thomas, et al, 2002, p. 274). This statement endorses a neocolonial attitude, one in which teachers ought “force” the students to use the computers regardless of the ways in which the student might want to use the computer or prioritize its utility. Another teacher even questioned the needs for these students to have computers and accompanying technical skill when she says that “You should look at who you are trying to educate.” (Thomas, et al, 2002, p. 275). This teacher proceeds to provide us with a “not to be negative” disclaimer – so we already know to expect the negative – and eventually questions that “Most of our students aren’t going to go into the field of science, so how many computers do we want for the kids? Do we want every kid to be using the Internet?” (Thomas, et al, 2002, p. 275). With attitudes such as these operational in the very classrooms in question, it becomes clear that the attitudes of the students aren’t the only ones that need questioning and possibly challenging.

The middle schoolers at the summer camp, meanwhile, were using technology in a completely different way. They “wrote across the curriculum by writing with and writing about technology. They wrote in color and sound for themselves and their community. Through writing the middle schoolers took power... They subverted institutional and disciplinary notions of technology and writing and thus succeeded in being empowered in one way” (Wills, 2002, p. 17). And a key reason why these students were able to empower themselves was because the instructors allowed the techno-subversion to take place and make room for the students to express themselves through the technology, though it might not have been aligned with their own preconceived notions. At some points, the instructors were a bit uncomfortable as they “resist[ed] the graduate teachers’ control of virtual and physical space [and] raised volume on music sites, broke into spontaneous dance, often clustered in xenophobic peer groups” (Wills, 2002, p.8), yet they resisted the temptation to impose too much authority, lest it lead to a severing of the connection they felt with the technology.

Wills (2002) extended her discussion through using the music the students listened to, hip hop, as an allegory for their need to express. This approach reflects and highlights what Wills believes the students value most in the technology; for these students on the educational margin, the technology “must be used for its immediate value: be it utilitarian or aesthetic” (p. 11). The proliferation of cell phone usage and personal music players for lower class African American students, including many of those whom I taught, reflect a technological intimacy because these items are indeed personal – unlike the oxymoronic personal computer, a gray tower housing computer components that moves nowhere – as well as utilitarian and aesthetic. The genre of hip hop also features a great deal of technology in its production. In the hip hop production world, musicians use sampling equipment; a sampler is a “digital computer that manipulate[s] sound primarily rather than words” (Wills, 2002, p. 10). Technology, then, becomes an important means for personal and cultural expression.

Like Ogbu in his 2004 defense of his 1986 landmark paper, Wills (2002) uses slavery as a point of comparison, this time to describe the relationship between technology and music to slavery and means of expression:

I compare the Hip Hop music that the middle schoolers wanted to blast from the 24 computers (that’s 48 speakers) to slave fieldwork songs. The slaves are no longer limited to a category of imported Africans but inclusive of a disenfranchised indigenous people from Hip Hop class consciousness – whether Black, Female, male, White, Hispanic, Native American. The expression through music and images reifies the middle schoolers as hegemonic outsiders, or the ‘gangstas.’ (p. 9)

The students are aware of their status as “hegemonic outsiders” and for them technology becomes a way of expression, but I imagine one would be hard pressed to find a curriculum objective that explicitly justifies the use of music and technology in this way. There’s no

denying, though, its importance in the students' agency. The recognition and flexibility these instructors showed is an example of the type of attitude it might take to impact the way in which students can potentially value technology in their immediate world.

Preservice teachers, then, are an ideal audience for this sort of reconceptualization around technology and its place in the inner city classroom. In Samaras and Wilson's study (1998) they worked closely with their graduate, preservice students in meaningful ways. They stressed the importance of the students' families in the educational process and tried to get the students to reflect on the different needs inherent in an inner city classroom predominately African American. The researchers recognized that the majority of their students "come from Caucasian, middle- to upper-class backgrounds and attended private schools" and, as a result, needed to "reflect in schooling situations that may differ substantially from their own schooling experiences, calling into question the moral and ethical perspectives in their role as teacher" (Samaras & Wilson, 1998, p. 20). The other target of this study was the school's parent population. They cleverly used the children as a means to reach the parents as the students displayed "their computer skills and [taught] their families about the technology, building children's sense of efficacy and self-confidence" while increasing the parents' ideas about "their own computer skills [while spending] time with their children" (Samaras & Wilson, 1998, p. 8). While this comes off as possibly overly utopian given the limitations on most parents in these communities, the study makes a clear attempt to connect computers to the world outside of the computer lab, outside of the classroom and into their homes and communities.

I think another technology that fulfills the criteria of immediacy, relevance, and support is the handheld computer. The handheld's affordances have the potential to combat or at least disarm some of the cultural disassociation through their unique affordances.

One of the most obvious benefits of the handheld computer over the desktop is the relative affordability of the units with respect to the more expensive desktops. It is primarily because of this cost that a “one-to-one ratio” (Brown, 2001) is more easily achieved. Resulting access, then, is much greater than could be accomplished with desktops under the referenced restrictive budgets that many lower class schools are dealing with. I have argued, though, that successful, meaningful integration goes beyond mere access. In addition to more favorable ratios, PDAs become a truly “personal” computer, “enabling [students] to practice information literacy by gathering, storing, and receiving important information that is necessary for their own learning” (Pownell & Bailey, 2002) thereby avoiding the oxymoronic nature of the term “personal computer” (Soloway, et al, 2004). Such behavior was discovered and even encouraged in one study where students used the PDA as a means for “organizing personal information, such as assignment calendars, contacts, and to-do lists” (Brown, 2001). Such usage gives the PDA meaning and a sense of personal immediacy that desktops and even laptops are deficient in providing. I have seen many of my students, at all schools I’ve taught – regardless of socioeconomic status, use their cell phones for the same purposes but they do not view their mobiles as computers because there is an individual attachment and association with them, even though their cell phones possess more computing power than the earliest computers produced.

Even though PDAs are computers, the same identification with the PDAs can be achieved. Colella (2001) was the first to observe this “first-person experience” as she and her classes performed a virus simulation and the same phenomenon has been cited on other PDA-centered research projects. In a tooth-decay experiment with four- and five-year olds at a daycare, “it was noticed that the students made comments such as, ‘I’m eating the crackers’ and ‘I have a cavity’ suggesting that they were able to personally identify with the characteristics of their [Thinking] Tag” (Andrews, et al, 2003); such identity associative comments accounted for “40.9% of the total 44

rated comments” (Andrews, et al, 2003). Though the ‘Thinking Tags differ somewhat from PDAs in form and function, they are small computers capable of storing information, displaying results, interacting with other Tags, and, most importantly, being worn on or held by the person without being unobtrusive and these characteristics are shared with PDAs. It is this ownership, this sense of intimate and personal association that Black students have for their MP3 players and cell phones; to see the same value in a PDA represents a tangible connection between their identity and that of the computer’s.

The handheld computers also provide extended portability which is much more conducive to “social interaction”, a point that Resnick has identified as desirable in his work (Resnick, 1998). Once the PDAs find their way into a classroom and into a community, then adoption and intimate, personal associations are possible. Once this takes place, then we have a means to more authentic and meaningful attitudes toward and constructive incorporation of computers into the curriculum and the classroom. PDAs are “ubiquitous, affordable, and widely available” and, as a result, can “provide individualized experiences to computer users” (Roschelle & Pea, 2002); all of these attributes and affordances are tailored to battling the distance and disassociation that many Black students feel toward “computers.”

A bottom line has already been offered: “It’s unreasonable to expect computers to have a positive impact on learning and teaching if students and teachers have limited access to them” (Soloway, et al, 2001). While I am not going to argue with the veracity of the statement, I have endeavored to counter and complicate it. For I believe it is short-sighted not to take into account the potential cultural barriers to the seamless acceptance of computers as part of the lower class, Black community and classrooms. Teaching at Capitol High was an eye-opener for me, a working class white male, in many ways, not the least of which was the attitude toward computers. Their reluctance to use computers, their lack of familiarity with even the basics of computer usage and

word programming, and their attitude of computing irrelevance and ambivalence went beyond simply access; the computers, after all, were right there in front of them. Access at that point was not a factor and yet the reticence to use them and their difficulties in using them provoked more questions and other issues in my mind. So, the question of access might be the sole or primary issue in some sociocultural contexts, but for Black schools in the inner cities especially, educators need to be cognizant of the place the computer has in the students' "collective identity" and endeavor to find ways to meaningfully incorporate the two. The approach is necessarily multifaceted and certainly won't be achieved easily. But there have been strides already made and there are promising starting points for approaches, all of which transcend access as the only obstacle for true technological acceptance.

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