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Project Proposal
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Digital divides exist on the local scale as well as the global scale. Even within a community where many of the residents have access to information and communication technologies (ICT's), there will still be those who are at a disadvantage. K-12 students suffer most in this situation; schools may think they're solving the problem if the infrastructure exists on campus, but, as there is limited time during the already-rushed school day for students to access these resources, they still cannot fully integrate the technology into their schoolwork and lifestyle. To increase access, I propose that the computer labs of the Maria Baldwin School in Cambridge be open and staffed during evenings and weekends. However, just because something is open does not necessarily mean it's accessible; to that effect, my project would also include starting a volunteer-staffed shuttle service. Should the project expand, these volunteers could also provide supervision at community centers and libraries in areas where the schools themselves lack the infrastructure.

Even within technologically developed countries such as the United States, and even within generally developed communities within those countries, a digital divide can and does exist. In any school district in which the students do not universally have home access to information and communication technologies (ICT's) such as computers and the internet, it is impossible for teachers to fully integrate technology into their curriculum. It would be unfair to require a student who lacks ready access to ICT's to use them in her daily assignments, but, given the state of technology in society, it is also unreasonable to not train students to incorporate technology into their lives. A school can have a top-of-the-line infrastructure, but as long as those resources are only available at odd times during the school day, the digital divide cannot truly be bridged. There is a key difference between having resources and having accessible resources, and I propose that keeping schools' technological facilities open outside of school hours, in conjunction with running a volunteer-manned shuttle service among these facilities, community centers, libraries, and students' neighborhoods, would take the status of ICT's from the former to the latter.

I would like to implement a trial run of this project at the Maria Baldwin School, which is a K-8 school in the Cambridge School District, in the spring. Between now and then I would have a lot of preparation work to do. I would spend the fall making the necessary contacts; the most important step would be to meet with district and school officials to receive approval to use facilities outside of school hours. Once that hurdle was passed, I would recruit staff supervisors as well as parent and student volunteers; if necessary, these volunteers would have to be trained to use the technology themselves. During January, I would organize such training and take care of other logistical issues, such as scheduling these staff members and volunteers, drawing up shuttle routes, and coordinating with any community centers or libraries which might be involved. However, even if all these logistics were taken care of, this project would not be truly successful without detailed input from the students. It must be determined what hours and what locations would be most beneficial to and most used by students, and that would take a lot of research. A survey would need to be drawn up and distributed to determine these things so that limited resources could be distributed in a way that maximizes student benefit. This would take place before January so that the necessary information would be available when logistics were being arranged.

I think that increasing the accessibility to ICT's will allow students and teachers to view technology as a tool rather than a self-contained entity. As it stands right now, many members of the educational community see computers as something which live in a lab and are visited for an hour a week. My ultimate goal would be for the distinction between "class" and "computer class" to disappear. I want students and teachers to view ICT's the way they would view pencils or books: as tools and resources that are applicable in every aspect of the curriculum. The first step this

program would have to take towards achieving that goal would be to raise the students' general computer skills; this could be accomplished during the first few weeks of the program through basic tutorials on skills such as e-mail and using search engines.

When students have access to ICT's as well as the skills necessary to use them, teachers would have the freedom to fully integrate ICT's into their classrooms. These integrations would improve every aspect of the student experience; changes could be as small as e-mailing out assignments or grades and as large as utilizing the internet and presentation software to give the students an almost unlimited source of information and hands-on experience at skills they will certainly require later in their careers. Interactive multimedia educational software and online resources (such as the math and physics java applets found at <http://www.ies.co.jp/math/java/> and <http://www.ngsir.netfirms.com/englishVersion.htm>) could be used to better reach out to students whose individual learning styles are not always suited to traditional lecture and textbook formats.

Motivated students could also use the resources to pursue their own interests. Rather than being limited to subjects studied in class or covered by the school library, a student would have an unlimited source of information at her fingertips. Volunteers could organize students into groups based on interests; aided by their group mentors (who would ideally be high school or college volunteers) and the resources at hand, the groups could learn more about their topics and develop a way to display their findings to other groups, building real-world skills such as teamwork and presentation skills as well as technological skills.

I chose this project because I have witnessed first-hand what occurs when there is widespread- but not universal- access to ICT's among the students of a school.

When access is common, many teachers take it for granted and bear no qualms about requiring students to do research on the internet or type their papers. This makes assignments very difficult for those who lack home access, and the actual learning value of the work gets lost in the scramble to find a computer to do it on. However, if the alternative is to completely segregate technology from the rest of the curriculum, the students will not be prepared for a "real world" which is becoming more and more inundated with technology every day.

I feel my strengths are more general education-based than technology based; I do not know how to program myself, let alone teach someone else how to, and I don't know the first step in creating an infrastructure from scratch. However, one of my goals is to be a secondary educator, and I have invested a lot of time and effort in observing how students learn and figuring out how educators can best suit their needs. As part of MIT's Teacher Education Program, I worked with two seventh-grade science classes at the Baldwin School. One of the primary goals of Baldwin School educators is to note that students all exhibit different learning styles. Upon observing what these styles are, an educator should strive to vary her assignments and teaching approaches to cater to them. However, out of practicality, traditional textbook assignments and in-classroom groupwork often prevail. A visual learner or a child who learns more effectively on her own are just two instances where technology-aided learning might be better suited for a student's needs. There are countless software and online resources which could be used to this effect, but they cannot be used to their full potential unless student access is increased.

The primary expenditures for this project would be overtime pay for staff members and any fee a school charges for after-hours use of its facilities. While I envision that the drivers and off-campus supervisors would be parent or older student

volunteers, I would like to be able to reimburse them for the cost of gas.

All told, I see this as being a very financially sustainable project. If the facilities were to be kept open an extra twenty-five hours per week (three extra hours per weekday, five hours each on Saturday and Sunday), I would expect costs to run about 2000 dollars per month, including overtime pay, facility costs and reimbursement for gas. While most grants I have looked into cannot provide money to reimburse organizations for staff members' salaries, the fact that this project is associated with a specific school and district allows for the possibility of direct funding from the district. Future levies could also be put on local ballots if the test run proves effective.

I am currently in contact with Mark Kelsey, who is the Technology Integration Specialist at the Maria Baldwin School. Mary Woodilla, the seventh and eighth grade science teacher I worked with at the Baldwin School last year, gave me his contact information after I discussed my project idea with her.

While an ideal world would completely do away with any sort of inequality in resources and education, we as a society have yet to come up with a way to accomplish that goal. Until then, we must find ways to maximize the accessibility and efficiency of the resources which can be acquired. The first step would be to take what has already been acquired and make it as freely accessible as possible, and I feel my plan to keep facilities open longer and provide transport to and from these facilities helps to accomplish that goal.

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