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Technology and the 4th R after-school program

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Submitted by

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ABSTRACT

Economic barriers to technology in today's society hinder the growth and development of low income families continuously and widens the social economic gap of families that live below the Federal Poverty Level. These barriers contribute to and impact individuals, families and children who can live above the Federal Poverty Level (FPL) in the Sacramento region. For the year 2015, the United States Health and Human services department defines the FPL for a family of 4 in the US as $ 24,250.00 (Dept. of Health and Human Services, 2015). For many families and children that live within the impoverished areas of the Sacramento metropolitan city, daily living is a struggle. In today's world where access to technology can make a huge difference and bridge some of the socio economic gap, providing the right environment for children to be educated can enable the student and their families to get out of the cycle of poverty. By providing ample literature review, data from surveys and questionnaires, primary "AND" secondary sources of data, this research paper will focus on the outcomes of donating gently used and surplus computers equipment that organizations like Sutter Health can donate to after school programs which will in turn improve the lives of people around the Sacramento metropolitan city at practically no cost to the organization.

The primary goal within this Capstone project is to answer the questions:

1. If Sutter Health Information Technology and Sutter Health Support Services donated retired PC's, switches, servers, modems and routers to the 4th R after school program, would students benefit from increased access to information technology?

2. How does Sutter Health partner with 4th R program so that surplus and donated equipment has the necessary infrastructure within the 4th program so that donated computers and technology creates an environment for students within the after-school program do have a safe, stable learning and reliable place to educate themselves.

Chapter 1 – Introduction

Poverty has no pity and it strikes hardest on victims that are vulnerable and do not have the means to get out of the cycle. Families struggle to make ends meet every day. Providing education and the tools necessary for the children of such families to get out of the poverty cycle always takes a back seat. Priorities like providing food, water, clothing and shelter with heat during the winter and cool air during the summer months become important and take precedence. Teachers and educators see children who attend school whose lives and homes are marked with scarcity. At school, teachers and educators are the ones to make sure that a child is warm on a winter day and has lunch in-spite of the fact that they do not have lunch money. They make sure that a visit to a museum or park is still available for all children in the class. At times, the teacher himself or herself sacrifices and gives to the needy child.

One middle school in rural North Carolina decided to make a difference for the children that attend their schools. In spite of a slow economy and no support from the local government in terms of resources and money, the teachers and educators of the school decided to ensure that the lives of the children in the schools should end better than how the day may have begun. The teachers, school administrators and educators primary focus was to make a difference. The staff at Greene County Middle School (GCMS) at Snow Hill, North Carolina did small and large things for students with compassion, kindness and caring.

Some of the ways that the Greene County Middle School (GCMS) decided to help children out of poverty was to extend the school environment from the school to the

homes within the community. Events like “Relay for Life” and “Hoops for hope” helped bring out compassion, caring and kindness from families that could afford to spare a little to families that could not afford a little. One team within the school continues to work on donating a million grains of rice through the popular website www.freerice.com.

Programs were created to improve the basic skills needed for the children in the public school. One of the sound educational practices that researchers offered to help were to identify children of poverty and include and associate them closely with programs such as computer assisted learning. At GCMS, the one-to one laptop initiative has allowed every child a computer of his or her own use. In class and in their free time, students log on to learn about the world that is bigger than the rural life around them. The results of such programs also reflect itself on students with better competency and self- sufficiency in learning basic skills, like reading, comprehension and writing and are better suited to catch up with students and peers from affluent areas.

The City of Sacramento has many similar underfunded and needy after-school programs that do not have the necessary funding to purchase new computer related equipment for the students that attend its programs. Partnering with the 4th R after-school program would help the students that attend the program. It would also provide the after-school program with equipment that the children could use to help develop skills that would bring a positive change.

Purpose of the study

To evaluate, access, determine and define processes and solutions to help provide impoverished and underprivileged after-school programs like the 4th R program within the Sacramento school district. To identify the necessary processes within Sutter Health Information technology to enable a partnership between Sutter Health and the 4th R Program. The goal of this study is to help identify students within the after-school program and develop better competency in core skills like reading, comprehension and writing, mathematics and science. These skills will ultimately help students be better suited and at par with other students from affluent areas of the school district.

Research problem

The social economic divide in many parts of the United States and the City of Sacramento is large and there are many after-school programs within the Sacramento school district do not have the necessary funds and resources needed to purchase, create and maintain computers, servers, wireless routers to help with information technology within its classrooms and after-school programs. This insufficiency creates an environment where there is a digital divide between students that have access to technology and students that do not have access. The end results are continued poverty and no solutions for the children that come from poor and poverty stricken backgrounds. Students who do have any access to technology continue to be no match for students that do have the opportunity to attend, participate and be a part of well-funded and directed schools, after-school programs and colleges.

Research Question

If Sutter Health Information Technology and Sutter Health Support Services donated their retired and surplus personal computers (PCs), switches, modems and routers and surplus network equipment to the 4th R after school program, students from under privileged and impoverished neighborhoods within the Sacramento school districts and the 4th R after-school program would benefit from increased access to information technology, better learning and overall better outcomes.

Every three to four years, Sutter Health and its regional affiliate's cycle through computers, wireless routers, network equipment as part of it refresh life cycle program. The refresh lifecycle program brings in newer technologies, better and faster computers, high resolution monitors and equipment to help deliver faster and better results to providers, clinicians and staff in the many different divisions of healthcare. The primary goals and the need for newer, faster computers and technology is to provide better, faster, secure and reliable clinical and healthcare information to clinicians and physician's so that the patient and the health of the patient improves quickly. After newer equipment is purchased, implemented and deployed for use, the older ones are either completely or partially destroyed and send away to an electronic recycle program. Some equipment like monitors may be given back to the vendor for newer monitors if a buy back agreement is in place. Very old computers are destroyed because their hard may have been used to store patient sensitive information. The computer and electronic components are sold to an electronic waste management company to ensure proper disposal of the equipment. All this does cost Sutter Health dollars and cents to ensure the proper disposal of electronic equipment adhering to state and federal standards.

Research hypothesis

Sutter Health's donation of surplus and retired computer equipment will benefit the Sacramento Unified School District and community both economically and socially.

Additional sub hypothesis questions.

1. There is a need to provide students who are enrolled in after-school programs within the Sacramento Unified School District with computers and technology and the provision would benefit the children.
2. Students from under privileged and impoverished neighborhoods within the Sacramento school districts, like the 4th R after-school program, would benefit the most from increased access to information technology, better learning, and improved computer skills. They will have academic and social outcomes that are at par with students from privileged schools and after school programs.

Background and History

With the advent of technology in schools and classrooms in the United States it is surprising to still find schools and after school programs who do not have the funds from either the state or federal government to bridge the need of preparing students for the next decade. Reports show that about 20 percent of American students in 2009 still did not know how to use a computer. By not having the right computer skills, jobs and careers become harder to find (Wyatt, 2013).

Officials and government policy makers agree that about 50 to 60 million individuals who do not have the necessary computer and technology skills in turn are

left out of government services, healthcare and education. The socio-economic impacts of such a gap for students, children and the families are of great concern. Students and households who do not have access to technology and the internet are left behind in most instances. Those who do get exposed to technology do not have the necessary skills to attend higher education schools and colleges. Students who do not have the skills and exposure to computers will be left behind when compared to other students who have had the opportunity and have access to technology. This lack of access will impact and reflect itself in socio economic ways and the prospect of these students moving out of poverty is large and huge. The poverty cycle begins and getting out of it can be hard and long.

Scope and Limitations

Some of the limitations of this capstone are related to computer equipment that can be expensive and where there are rebates anywhere from 1 to 5 % for the purchase of new equipment from the manufacturer or the reseller of the equipment. That rebate can be additional cost savings towards Sutter Health if it decided to purchase newer equipment from the same manufacturer or reseller. In such situations, Sutter Health would have to weigh the socio economic benefit and value that the donation of the equipment would bring to the value that they would receive as a rebate from the manufacturer.

Similarly, there is a cost associated with electronically cleaning a computer and equipment that can be donated to after school programs of all sensitive and patient care information before it can be donated to any other organization that needs the

equipment. Sutter Health would have to leverage one of its desktop engineers and technicians to follow the necessary process and methodology to clean an equipment of all of its encrypted data so that no patient or Sutter Health related data and information are on the computer equipment.

Sutter Health would have to have a legally binding agreement and a Memorandum of Understanding (MOU) between the 4Th R after-school program and Sutter Health to transfer responsibility and all liability of the donated equipment from one organization to another.

Many after-school programs are situated within the schools campuses and are part of the schools administration. In such cases it is important to work with the school administration and the school district in addition to the after-school program administrators to evaluate, access and define processes and solutions to help provide the underprivileged after-school program the necessary equipment. The time factor and resources necessary to address the solution will need to be added to the development of the solution in such cases.

Chapter 2 – Literature Review

Large information technology organizational leaders like Microsoft, Dell, Intel, AMD and Amazon have helped and continue to help individuals, schools and students around the world by providing access to computers and technology. The primary recipients of the technology are individuals, schools and even start up coops that cannot completely afford to purchase new computers and equipment to help in the growth and education of children academically. Such socio-economic programs have helped create a better learning environment for schools and after-school programs. More importantly such programs have helped with the economic opportunities for students who graduate from these schools and classrooms (Making a difference – Microsoft, 2013). Technology organizations often are looking for ways to give back to the communities that they are a part of. The primary themes of the scholarly work and practitioner studies include:

1. after school programs and its effectiveness
2. the digital divide
3. corporate social responsibility

After School Programs

There has always been a debate on the amount of academic, social, knowledge and skills that children and youth need to succeed as workers, community, family members and most importantly as a citizen of this world this world. Most individuals agree that this is only possible through a sustained participation in well-structured and well-implemented schools and after school programs (Little, Wimer and

Weiss, 2007). In the past decade, there has been a push to develop and increase funding for after-school programs to a standard so that programs within the after-school program enhances academic performance, socio-economic growth and social skill development. Children need to be taught life skills that develop good behavior, sustain healthy eating habits and prevent obesity. They need to be disengaged from crime, drugs and sex prevention. The question that is asked very often is, "Does participation in after school programs make a difference?" The answer is "yes" and the primary reasons is that the programs have shown to increase in academic performance through enrichment programs during the school year and summer months. After-school programs focus beyond just the academics. Numerous after-school programs focus on improving a youth's social and development outcomes, such as social skills, self-esteem, initiative, leadership and personal skills (Newman, Fox, Flynn, Christenson, 2000). They help address crime, drug and sex prevention. The after school hours of 3 to 6 PM week days presents several potential hazards to a young person's development. These are typically the hours associated with peak time for juvenile crime and victimization. These are the hours when high-school young adults between the ages 16-17 are most likely to be in or cause a car accident.

Most importantly, based on a survey of 2,000 high school students that looked at the relationships between after school supervision and sexual activity, the American Academy of Pediatrics found that 56% of youth surveyed reported being alone after school for 4 or more hours (Cohen, Farley, Taylor, Martin and Schuster, 2002). Youth who are left alone for more than 30 hours a week are more likely to be sexually active. Beyond being a safe haven, after-school programs help with a

multitude of preventions outcomes. After school programs have the potential to support, promote and develop healthy learning centers for children who want to participate and be a part of after-school programs. Many critics of after-school programs are looking forward to reframing a regular school day and subsequent after-school programs. The research and evaluation of after-school programs demonstrate how complex it is to provide high quality effective programs that bring results and the necessary key factors needed to be addressed through continued participation from invested staff, parents and the community.

The Digital Divide

The term digital divide refers to the gap that exists between individuals that have good access to technology and those that do not have access to technology. A report from the National Telecommunications Information Administration found in the year 2000 that a young affluent, college educated, white or Asian student that lived in a city was more likely to have a computer and technology available at his or her disposal than a student who was poor, older, less educated, African American. Hispanic or Native American and live in rural America. All of the above findings changed with the advent of mobile smart phone technology in the last decade. Access to technology became cheaper with the access of smart cell phones and hence one would think that the digital divide would be nonexistent.

Today the digital divide is not about access, but it is about what is being accessed, when it is being accessed, and for what purpose. The divide is more about primary access to the internet to help with learning, academics, and understanding the

different styles and methods associated with learning. The questions today are, is the technology and internet connection broad enough to support access for students in a school to address their academic work? Are there sufficient computers per student to allow for students to learn independently? Are the teachers and staff trained to teach others on how to use technology? A simple example is schools in Philadelphia which have 130,000 plus K-12 students. Technology is purchased through individual school based annual budgets. Principals, leadership, and administrators have to make tough choices about how to allocate funding when there is not enough to begin with. Many of America's cities and schools are in similar situations. Fewer than 20 % of teachers say that their schools have the necessary internet band width to support the students internet needs. The White House Administration in June 2013 unveiled a ConnectED initiative to bring US schools into the digital age (White House Press Release, 2013). The ConnectED program is an initiative to connect 99 percent of the American schools to the internet through high-speed broadband and high-speed wireless technology within a span of 5 years. The initiative calls on federally funded organizations like the FCC to modernize and create partnerships with the private sector corporations to create high speed broadband internet connections to help address educational technology in classrooms.

Corporate social responsivity and the recycling of used ICT equipment

The final theme addressed in this literature review is corporate social responsibility (CSR) and what it means to the technology sector. The success of technology in the Unites States in recent years has rapidly proliferated to industries other than the technology sector. This success within the technology industry has faced

mounting calls to address greater contributions to society and the community that technology companies do business in. Concerns about corporate social responsibility are particularly true in San Francisco, California which is home to a large number of the nation's technology companies. The technology sector is blamed for the high price of real estate and the cost of living which ranks as one of the highest in the world. Resentment against the technology industry has been witnessed in manifestations like the well-known blockades of Google buses transporting San Francisco residents to Mountain View, where a lot of companies are located. At the heart of the issue and debate is the concern on how technology organizations interact with the surrounding cities and communities in which it does business (Morfit 2014). One of the questions being asked is, what are technology organizations doing to communities apart from making a profit on the products that are created and sold to the communities? A lot of questions are being asked on how corporations give back and what does it look like. A few notable ones have happened in recent years and need mentioning. Google's Person Finder web application (https://google.org/personfinder/global/home.html) allows individuals to post and search for friends and relatives during and following emergencies (such as the Boston marathon bombing). Similarly following the Haiti earthquake disaster on 2010, Google shared its mapping service with the United Nations and other relief agencies.

Most technology organizations go through a large amount of computer and technology related equipment and hardware annually. They do this to release the very best product to the market for the ever demanding consumer. Developing software and hardware with the very best computers and related equipment can make better products

in a shorter amount of time. On the other hand in the since 2008 as a byproduct of a slow recovering economy, many public schools and after-school programs from California to Maine have not been able to afford new computers for their classrooms. Many state budgets that fund public schools have limitations, priorities, resources, and unions to address annually. To address this shortage in state budgets, funding and resources, many schools have begun to be creative. Schools and after-school programs are looking at new ways to supplement the cost of purchase of new computer equipment with refurbished and slightly used computers that may have fulfilled their lifecycle at another organization, but is still good enough to be used in schools and after school programs. This helps the annual school budget with the low cost of purchasing technology for students and classrooms. In Delaware three ex-military employees that participate in Delaware's Partners in technology program, "Par-Tech", bring hundreds of donated computers annually to schools so that they can reduce the number of computers that the school actually have to purchase (Veron, 2011). Such programs, organizations and individuals help with the growing need to address the change that is necessary in our school but cannot be afforded. It also helps the veterans with a feeling of accomplishment and a desire to leave a lasting change in the community that they serve.

A recent Rand Study documented that there are numerous programs within the US, where companies are able to donate used computers and equipment to schools and after-school programs (K – 12). The study also found that by the time the computers reach the intended recipients, the device was outdated, broken or was missing crucial parts like disk drives and keyboards. This in some cases has led to

additional administrative costs to help with the cost of reviving the machine so that it can be used (Baer & Farnsworth, G.1997). Such problems have now encouraged private companies to donate to third party companies that help with the diagnosis and the repair of the machine. Current recycling programs emphasize refurbishing and upgrading computers that can run multimedia software and that can access the Internet.

Recycling programs are certainly not the complete solution to a school's technological needs. But if properly managed, they can add substantially to helping students, classrooms, schools and after-school programs with a number of capable computers in elementary and secondary school classrooms.

A recent article in the New York Times discusses a partnership between one of the many technology giants in the US and a high school in New York. The school located in Brooklyn's Crown Heights was being phased out because of failing performance. The technology organization, International Business Machines (IBM) international foundation in partnership with the high school helped develop a curriculum, in partnership with the high school administrative office. IBM also promised to work hard with the graduating class with a goal of providing careers for students who wanted to work at IBM. From IBM's point of view it is not just enough to donate the technology. It was critical to taking an active and participate the high school education as much as possible. Rashid Davis, the new principal to the high school admits that this partnership between the school and IBM has started to create opportunities that has the power to change generations. The partnership between the school and the company will offer students attain job skills that will help them with getting jobs in the future (Banchero, 2011). It may be looked upon as being easy for an organization or corporation to

donate equipment like computers and technology that has finished its lifecycle to a school or charitable organization. Critics of such programs argue that corporations are simply shifting the ownership, liability and responsibility of the technology or computer from itself to a school or any other organization. IBM feels differently and values the creation of an environment that benefits students with learning, creativity and career knowledge.

Foundations like the Otto Bremer Foundation has been supporting and donating computers, technology and PC's for kids in a similar effort to bridge the gap between those who do and do not have technology at their disposal. Through the "PC's for kids" program, the foundation was able to donate 2,400 computers to low-income families with school aged children in 22 communities across the states of Minnesota, North Dakota and Wisconsin. The goal of "PCs for Kids" program is to provide an opportunity for every child in a school to have a home computer. Prior to arrival in a city, PCs for kids partnered with the city's school district, local businesses, and internet service providers (ISPs).

The local school district helps identify families in need and those who currently do not own a computer. Businesses are given an opportunity to recycle their retired computer systems and accessories for free while giving back to the community. Finally, because an affordable internet connection is critical to getting the most out of a computer, local internet service providers are invited to attend events to provide discounted rates to the computer recipients.

From a business stand point, this is a win-win situation for businesses needing to manage their end-of-life cycle of digital assets in a cost-effective way. Not only are businesses receiving valuable data-wiping and hardware recycling services but it is also a way of donating surplus and used equipment to the local community, schools and organizations that is potentially going to benefit the program. The goal of such projects are to help empower people by providing them with access to technology so that they may enjoy the personal, economic and educational benefits of owning a personal computer which many of us take for granted. To make this event successful local businesses and organizations must be willing to donate their gently used computer equipment and technology.

There are many wins for donating used, surplus technology to after-school programs. One example of a successful after-school program is the Think Quest New York City program (www.tqnyc.org). Most students can hardly wait for the final school bell to be rung. For New York City Public school students in Adrienne Wilands's fifth grade classroom, their eagerness is not to leave the school grounds and head for home but to stay in class and enjoy the after school technology program. The school technology program is where creativity is introduced to children to learn new things in a collaborative effort brings out the best. Wiland, the fifth grade teacher started the program with a grant from a federally subsidized New York Public School initiative, which targeted low performing students that scored below state academic standards throughout the 96 schools within the New York City boroughs of Queens and Brooklyn. The after-school program started in 2004 and received funding through the Enhancing Education through Technology program (EETT) till 2007. The program was extremely

successful that the after-school program was able to find additional funding from external sources and has made the program successful. (T.H.E. Journal, July 2008). The initiative has been responsible for “The Great American Patent Caper” and “On Your Mark! Get Set! Gold” program. The school took first and second prize in the elementary division of the 2007 Think Quest New York City competition. None of this would have resulted and be possible if teachers and individuals like Prof. Wiland had not taking the initiative to think, design and develop programs that help schools perform better.

There are critics to programs like this. Some critics say that by having programs where technology is reused multiple times and ownership of a computer and equipment moves from organization to another, one is moving the eventual destruction and recycling of the computer and technology to a future date. In some cases, the eventual destruction and recycling may happen in a different country. Critics say that the cost of recycling will be larger and may even cause more harm as the expiration on some of the major components and minerals begin to become dated and time sensitive.

The federal government in its research and findings has been requesting companies and organizations to help public schools and after-school programs (Knight Ridder Tribune Business News, Sept 2004). In 2004, the head of the US Dept. of Education urged New Jersey companies like Prudential Financial, Verizon and Merck and Company, to donate technology resources and time in developing programs that provide children with the tools necessary to build careers and simultaneously support the schools and after-school programs. The recommendations requested companies to help educators better prepare students for the work force by adopting schools, setting

up mentoring programs and donating computers and technology to elevate the children in school to prepare them for the work force.

Finally, according to the American Institute of Certified Public accountants, there are tax benefits and incentives to corporations that donate technology and computer related equipment to schools and charities. The tax payer relief Act of 1997 augments the deduction rule to include computers and computer technology to schools (American Institute of Certified Public Accountants, CPA Client Bulletin, Dec 1997). Corporations can receive a deduction and an incentive from the federal government if the computer technology and equipment is used in the US for educational purposes between the grades of K to 12.

The value of the literature on this topic is immeasurable. The evidence presented provides insight into the legitimacy and reasons to address the question and hypothesis or not. It provides a foundation of information already investigated that aids in the advancement of providing donated and surplus computer equipment to after-school programs. These after-school programs do not have the privilege and budget necessary to purchase them. At times the after-school programs may or may not have the complete infrastructure and resources to support and maintain the technical infrastructure. It is important for organizations to share their knowledge, resources and experience to help schools and after-school programs in creating, supporting and maintaining technology for the better good of the next generation.

What is supported based on the literature review is that evidence exists on the benefits of creating programs that will help under privileged schools, after-school

programs that impact children from low-income families that attend these schools with the necessary technology so that children from low income households and impoverished neighborhoods are not left behind in the digital revolution.

Chapter 3 – Research Methodology

This research project is a qualitative case study to evaluate the added value and benefit or lack thereof of from creating a partnership between the Sutter Health Information Technology, Sutter Health Support Services and the 4th R after-school program within the Sacramento City Unified School district to provide gently used and surplus computer equipment and related technology to students that attend the program.

Useful to this study is the researchers experience in information technology where he gets to experience the lifecycle of equipment as they are purchased within the organization, the deployment and use of the equipment over a period of time and the final recycling of the equipment after it has finished its useful life within the organization.

The process of purchase begins with a need for faster, better, modern and at times a pre-requisite for an application to be used. A typical example would be the need for accurate and precise information that monitors a patients vital signs during an intervention Cardiology procedure within the Cathlab. The deployment of 24 to 26 inch monitors along with faster computers within the Cathlab is a prerequisite. The primary reason for this upgrade is so that surgeons and physicians can better view and analyze placement of catheters on a patient for future non-invasive cardiology treatment. The ultimate goal is to provide the best patient care possible to the patient. Providing higher resolution monitors and faster computers is a standard and a requirement for physicians and surgeons who practice within the intervention cardiology departments at Sutter Health. When the computers become slow or when it becomes necessary to enhance

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the application through an upgrade for better technology, a newer computer model is purchased and put in place. It is critical that patient care is never compromised. It is important that during procedures, the performance of the computer device and equipment are at its optimum with the lab. There can be no failure during a procedure as the cost of doing such procedures goes up exponentially with an equipment failure and subsequent change in rooms, staff and resources.

A computer equipment may also be replaced when additional memory is needed or a faster processer is warranted for an upgrade to a newer technology. The old computer and equipment is replaced with a faster computer and a larger memory. The older PC is scheduled for recycled and is taken to the warehouse. The hard drive of the computer is removed and destroyed. The process of destroying the hard drive meets federals and state guidelines. This is done to avoid any information that may get in the hands of the wrong individual. The rest of the device is scheduled to be destroyed through an e-waste program.

The devices are primarily sold to 2 vendors

1. One of the organizations salvages some of the useful parts of the computer device and destroys the remaining components. The organization looks to sell the salvaged items and keep the returns from selling the salvage items.
2. The other organization recycles the device and is able to extract useful minerals like copper and silver from the devices. Sutter Health pays the organization $2 per device to record hard drive serial numbers and the organization credits $1

per device back to Sutter Health for the minerals that it secured through the recycling process.

Research Hypothesis and Sub-questions:

Sutter Health's donation of surplus and retired equipment will benefit the Sacramento City Unified School District 4Th R after-school program both economically and socially.

Additional sub hypothesis questions.

3. Students enrolled in after-school programs within the Sacramento City Unified School District will benefit from the donation of Sutter Health Information Technology and Sutter Health Support Services' retired and surplus information technology equipment.
4. Students from under privileged and impoverished neighborhoods within the Sacramento City Unified School districts, like the 4th R after-school program, would benefit the most from increased access to information technology, better learning, improved computer skills and have academic and social outcomes that are at par with students from privileged schools and after-school programs.

Independent variable

If Sutter Health Information Technology and Sutter Health Support Services donated retired personal computers and technology to the 4th R after-school program.

Dependent variable

Students from the 4th R after school program would benefit from increased access to Information technology, better learning, improved computer skills and better academic and social outcomes.

Relationships between Dependent and Independent Variables

The research study is comprised of a hypothesis, sub-hypothesis and sub-questions that looks at the value of providing after-school programs with technology. Children between K through 6 grade spend a lot of time daily in schools and after-school programs. The students participate in learning, observing and developing good social skills. It is also the place where children learn and develop academic skills. It prepares them for Middle school and high school, where children develop individual personalities and form interests into their future. Hence schools and after-school programs for children K through 6 are places where it is important to provide fertile grounds to help their interests grow. After-school programs often focus on the academic work that is necessary for school. They also help with developing goals, understanding likes and dislikes, building social skills, developing self-esteem, bringing initiatives to a task, and culturing leadership and personal skills.

Improved outcomes - Technology is one such avenue. Knowing how to work with computers is essential in the today's world-economy. It can make a significant difference in the lives of the children and in many instances can make a difference to the lives of their families. It can be the ticket out of poverty for a lot of families that are or below the poverty level.

Implementation of the program - There are multiple avenues in which Sutter Health can help the community in which it serves. One such community benefit program could be partnering with the 4th R after-school program to donate barely used computers and technology equipment. It could provide computer equipment to the 4th R after-school program once the hard drive has been sterilized and free of all Sutter Health information. Sutter Health can also provide the computer and technology equipment to the 4th R program after removing the hard drive from the computer and requesting the 4th R program to purchase a replacement hard drive. The cost of a new hard drive ranges anywhere from $50 to $85 dollars. In this case the cost of the purchasing a fairly used computer will be about $50 to $85 dollars.

Underfunded school and after-school program – With state and federal funding for school decreasing and diminishing year after year since 2008, the simultaneous cut back in school and after-school programs, and the provision of computers would enable programs that can use computers to enable better education like music, photography, science and technology.

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Operational definitions

- **Sutter Health Sacramento Sierra Region Information Technology** is the technology related functional department or the arm of Sutter Health Support Services within the Sacramento Sierra Region. Sutter Health Information Technology supports the implementation of technology within the 5 main regions to help physicians and clinicians administer quality care for the patients within the community that it serves.

- **Sutter Health Support Services (**SHSS) is comprised of the various businesses, departments and technology departments that supports and serves the Sutter Health organization. It partners with the hospitals, physician and clinical communities and other health care entities across the Sutter Health network to primarily provide quality, accessible care to it patients. Its primary offices are located in Sacramento and San Francisco.
- **Donation of retired computers and technology equipment:** Sutter Health purchases technology and computer related components to help with administering technology within its Acute and Ambulatory centers within the Sutter health network. The goal of implanting technical solutions is to provide better, faster and timely patient care. The technology purchased has a life span financially and also operationally. After 3 to 5 years of cost depreciation, the cost of the purchase of the technology is finally depreciated from its books for accounting purposes. As new technology is purchased to replace old ones, retired PC's, switches, modem routers, access points and technology support equipment can be made eligible for donation.
- **4th R after-school program** is located on many Sacramento elementary school campuses in the Sacramento metropolitan and suburban region. The program provides year-round child care for Kindergarten through 6th grade children. It offers a safe, well supervised, comfortable, and supportive environment for a child attending school. The 4th "R" program introduces children to a variety of recreational activities while providing a well-planned, nurturing environment that promotes healthy development of the child. The qualified staff provide a wide

variety of group and individual activities to enhance the child's physical, social and emotional development. Students and children have unique experiences such as: singing, dancing, instrument exploration, opportunities for development in visual arts, participation in active games and sports, involvement in dramatic productions, introduction to cooking and nutrition, physical and life sciences, nature exploration, problem solving, and interesting local and out-of-town field trips.

- **Recipients of the 4thR after school program** comprise of students from underprivileged neighborhoods and families. Approximately 30 to 35% of the students come from low –income families. They may or may not have access to a computer or a PC to help with education within their homes.
- **Determination of benefit.** Evaluating the benefits are detailed through cumulative information that should include short-term, long-term, qualitative, quantitative, conventional, and innovative elements. The data collected should address performance assessments, standardized tests, observations, writing samples, and any other indicators of the impact of technology on achievement. Teachers can also participate in surveys and focus groups with students (and parents) to help determine if the use of technology in the after school program has helped the student in the classroom.
- **Access to technology** would mean on average 1, 2 or 3 students per computer. The computer device should be able to process multi-media, be able to access the internet.

- **Information technology** with respect to the hypothesis will include the access to a single computer. The computer device should provide students within the 4th R program the ability to learn basic computer skills. It must be able to run multimedia and access the internet. The device should be able to perform word processing tasks, develop mathematical and scientific skills with the use of technology.

Data Collection Plan Overview

In order to gather the information for this project, the following measurement techniques are being planned for utilization

- **Quantitative Data**

Detailed observations and tracking of a computer device that has been classified as being old and needs to be replaced. Identify resources that are used to collect the equipment. Determine the workflows that they follow to collect equipment, destroy hard drives and recycle portions of equipment that has to be destroyed

- **Qualitative Data**

Key informant interviews - Interview with the leadership (Directors and Managers) of the Sutter Health Sac Sierra Region and staff at Sutter Health Support Services to identify new process, work-flows and challenges that a partnership like this would entail.

E-waste workflow - Interview third party vendors that will play a part in the e-waste recycling process. Identify workflows and costs associated with the process to determine true costs associated with this process.

Surveys - Population sampling will be based on employees with the information technology and Support services departments of The Sutter Health organization. There are about 1000 full time and part employees with the Sutter health Sac sierra region information technology and Support services teams that work in the Sacramento metropolitan region. Obtaining data from interview questions will include the following 7 structured questions.

Survey Questions:

1. How valuable is it for children to be taught basic computer skills in school?
2. How valuable is it for children to be taught basic computer skills in after-school programs?
3. Do you think there is value is donating “gently used” computers and information technology equipment to under-resourced after-school programs like the 4th R program?
4. What is an effective computer to student ration for students in grades Kindergarten through 6?
5. Sutter Health should develop and support a formal organizational program that partners with local schools and afterschool programs within the Sacramento region to donate gently used computers and technology equipment

6. Would you be interested in developing and supporting a formal program that partners with local schools and after schools programs within the Sacramento region to help donate gently used computer and technology equipment?
7. Sutter Health has a socio-economic responsibility to help underfunded and impoverished schools and after-school programs in its community with resources so that schools and afterschool programs can be a better learning place for children that attend them.

Interview questions:

The primary data is obtained through structured survey questions. In addition, unstructured face-to-face interviews will be performed with a few leadership staff. They include the Chief Medical information Officer, the Chief Information officer, Directors of Technical Services, Director of Application Services and the Director of Imaging Services. The following question and sub-questions are being addressed.

1. Do you think a program like this can be emulated in other departments within the organization, for example: Surgical services, Food services, Imaging Services and Bio-Medical services

   If yes- how can it be emulated?

   If no – why do you think that it cannot be emulated?

2. Sutter Health as an organization includes 5 regions, Sutter Health Sac Sierra region, Sutter health East Bay Region, Sutter health West Bay region, Sutter Health Central valley region and Sutter health Peninsula Coast Region. Do you think such programs can be emulated within the other 4 regions

   If yes – how can it be emulated?

If no- why?

The intent of the primary interview questions and secondary interviews are to determine the validity of a program and find ways of emulating this practice in other departments and regions within the Sutter Health organization. There are multiple departments such as surgical services, pharmacy, radiology, and food services within the organization where surplus equipment and services are recycled or put to waste by the organization. The question that is being asked is, can such programs and partnerships be emulated in other departments within the organization. Can it also be emulated within the other regions within the organization?

Controlling for Internal and External Validity and Bias

As with any research, this case study has threats to validity, both internal and external. In order to manage these threats, the study documents limitations within the research study, including the short time span for the survey and interview and small Sutter Health staff sampling. The use of Sutter Health staff to participate in the survey does have its benefits and drawbacks. The many benefits include the awareness by staff with respect to Sutter Health as an organization and its participation in the community. One could also define similar drawback to the knowledge of the Sutter Health's participation in varies community benefits programs and partnerships with varies charity organizations within the local community. The researcher has tried to limit any bias by not providing prior knowledge of the different community benefit and partnership programs that are already in place within the organization.

Operational definitions

- **Sutter Health Sacramento Sierra Region Information Technology** is the technology related functional department or the arm of Sutter Health Support Services within the Sacramento Sierra Region. Sutter Health Information Technology supports the implementation of technology within the 5 main regions to help physicians and clinicians administer quality care for the patients within the community that it serves.
- **Sutter Health Support Services (**SHSS) is comprised of the various businesses, departments and technology departments that supports and serves the Sutter Health organization. It partners with the hospitals, physician and clinical communities and other health care entities across the Sutter Health network to primarily provide quality, accessible care to it patients. Its primary offices are located in Sacramento and San Francisco.
- **Donation of retired computers and technology equipment:** Sutter Health purchases technology and computer related components to help with administering technology within its Acute and Ambulatory centers within the Sutter health network. The goal of implanting technical solutions is to provide better, faster and timely patient care. The technology purchased has a life span financially and also operationally. After 3 to 5 years of cost depreciation, the cost of the purchase of the technology is finally depreciated from its books for accounting purposes. As new technology is purchased to replace old ones, retired PC's, switches, modem routers, access points and technology support equipment can be made eligible for donation.

- **4th R after-school program** is located on many Sacramento elementary school campuses in the Sacramento metropolitan and suburban region. The program provides year-round child care for Kindergarten through 6th grade children. It offers a safe, well supervised, comfortable, and supportive environment for a child attending school. The 4th "R" program introduces children to a variety of recreational activities while providing a well-planned, nurturing environment that promotes healthy development of the child. The qualified staff provide a wide variety of group and individual activities to enhance the child's physical, social and emotional development. Students and children have unique experiences such as: singing, dancing, instrument exploration, opportunities for development in visual arts, participation in active games and sports, involvement in dramatic productions, introduction to cooking and nutrition, physical and life sciences, nature exploration, problem solving, and interesting local and out-of-town field trips.
- **Recipients of the 4thR after school program** comprise of students from underprivileged neighborhoods and families. Approximately 30 to 35% of the students come from low –income families. They may or may not have access to a computer or a PC to help with education within their homes.
- **Determination of benefit.** Evaluating the benefits are detailed through cumulative information that should include short-term, long-term, qualitative, quantitative, conventional, and innovative elements. The data collected should address performance assessments, standardized tests, observations, writing samples, and any other indicators of the impact of technology on achievement.

Teachers can also participate in surveys and focus groups with students (and parents) to help determine if the use of technology in the after school program has helped the student in the classroom.

- **Access to technology** would mean on average 1, 2 or 3 students per computer. The computer device should be able to process multi-media, be able to access the internet.
- **Information technology** with respect to the hypothesis will include the access to a single computer. The computer device should provide students within the 4th R program the ability to learn basic computer skills. It must be able to run multimedia and access the internet. The device should be able to perform word processing tasks, develop mathematical and scientific skills with the use of technology.

Chapter 4 – Results and Findings

The objective of the research study is to identify and validate if the data collected through primary and secondary sources can affirm that after-school programs in impoverished areas of the Sacramento metro can be benefitted with the donation of computer and technology related equipment. The donation of computers and technology are used to help with education, literacy and important skills that students in after-school programs can use to learn. This developed literacy and skill set will help students from under-funded impoverished areas be at no dis-advantage when compared to students from well to do schools and after-school programs.

The results from the survey, the interview answers and the workflow documentation lends itself to ask questions to staff and employees of Sutter Health if there is value in donating gently used computer equipment and technology to after-school programs, like 4th R after-school program in Sacramento. The staff and employees of Sutter Health who participated in the survey came from different departments within the organization. The survey questions were directed at employees of Sutter Health to determine the following:

1. Are employees of Sutter Health open to the idea of donating used computer and technology related equipment after the device has finished its useful life within the organization?
2. Is there a need to provide children in underfunded after-school programs the opportunity to be educated with technology and computers?

3. Does Sutter Health have a socio-economic responsibility to help and partner with underfunded schools and after-school programs to provide assistance by donating used technology equipment?

Two additional unstructured 30 minute interview sessions where directed at the leadership of the organization. The interviews were face to face with the intent to address questions specific within the research study. The interview sessions helped the researcher and leaders within the organization to review and determine initial survey responses. It also gave the researcher the opportunity to determine if such community benefit programs do indeed benefit the organization. Additionally, it opened discussions on a framework for future partnerships and programs between other departments like pharmacy, surgery, food services, etc. with organizations that could benefit within the local community.

The quantitative data review of the technology partnership program between Sutter Health and the 4th R after-school program is to determine if there is value to students in schools and after-school programs (kindergarten through 6th grade) from being exposed to computers and technology. The review also included an examination if Sutter Health should be socially responsible in partnering with underfunded after-school programs in providing gently used computers.

Candidates who participated in the survey questionnaire were employees of Sutter Health Information Technology, Sutter Health support services and managers and leadership within the Sutter Health Sacramento Sierra Region. The reason for selecting this sample set and size was to help with the premise and understanding that Sutter Health is a non-profit organization with a large number of community benefit

programs that it addresses annually. In 2014, the network of physician organizations, hospitals and other health care providers made a community benefit investment of $767 million in healthcare programs, services and benefits for the broader community. This investment included an average of more than $1.8 million in charity care per week (care for those who could not afford to pay). The Sutter Health 2013 Annual Community benefit report is located here (http://www.sutterhealth.org/annualreport/community-benefit.php).

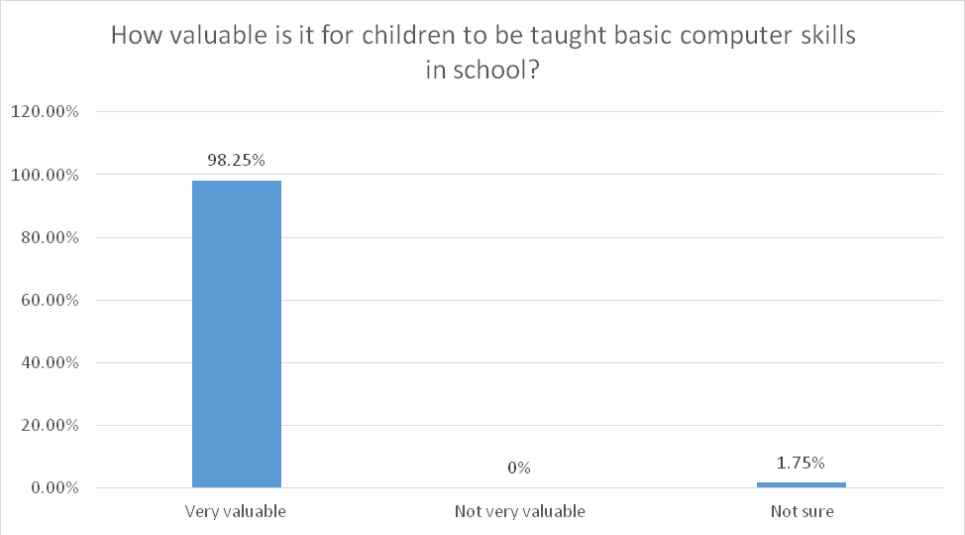
Interview Data results and findings

The structured survey was conducted over a period of 12 days. The survey was sent out to 110 individuals with a response from 57 of them, a 51% response rate. As part of the shared response agreement, the surveyed individuals will remain anonymous:

A review of the raw data and analysis is provided below:

Question 1: How valuable is it for children to be taught basic computer skills in school?

The response for the question suggested that there is a very high value in educating children to have basic computer skills in a school environment. The response also suggest that being exposed to technology in a school environment is important



N = 57 (Total number of respondents to the survey)

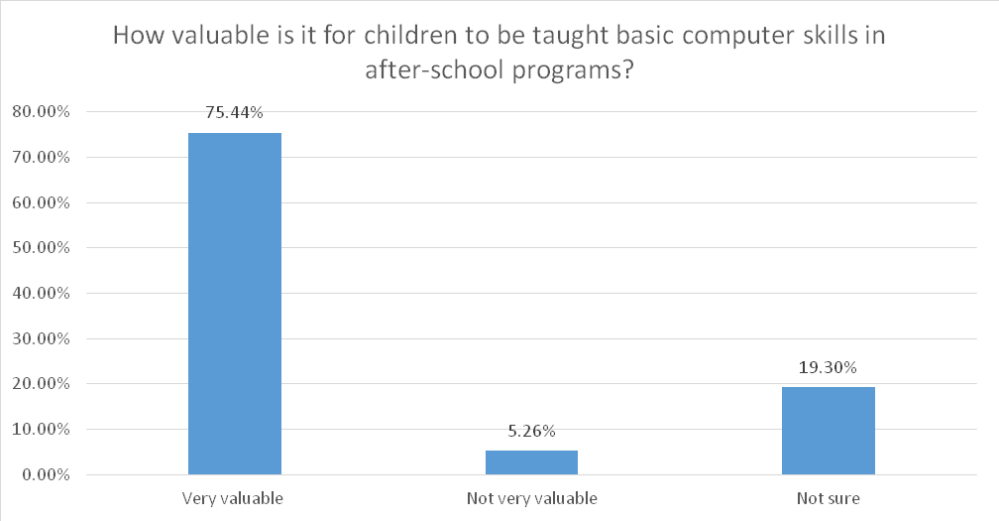
Question 2: How valuable is it for children to be taught basic computer skills in after-school programs?

The previous response suggested that it is important for children to be taught basic computer skills in a school environment and in school affiliated programs. However, when asked the question if it was important to have computer education or skills be addressed in an after-school program, the response dropped from 98% to 75%. Although the response indicates that children need to be taught basic computer skills, the data indicates that the survey respondents do not think it is as important for a student within an after-school program to be exposed to and have basic computer skills. There may be multiple reasons for the data and collective response. The respondents could be

- not aware of the impact that after-school programs provides to students

- not all students within a school attend after-school programs. Students in a school come from varies socio-economic backgrounds. Some of the students may need after-school engagement and some may not need them. Hence not all students and families participate and are aware of after-school programs
- the demographics of the Sutter Health staff that participated in the survey could be different from the demographics of parents whose children attend after-school programs.

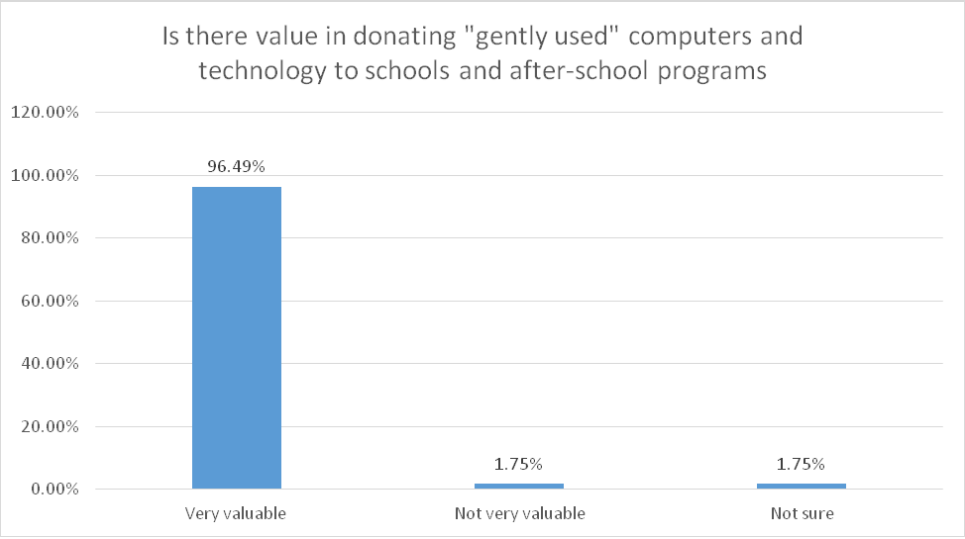
The responses indicate that there is a need to address the skills and education of students that attend after-school programs with the aid of technology and computers.



N = 57 (Total number of respondents to the survey)

Question 3: Do you think there is value is donating “gently used” computers and information technology equipment to under-resourced after-school programs like the 4th R program?

The primary reasons for the purchase of newer equipment is to provide critical and important patient care at all times. That being said, employees of Sutter Health do enjoy the faster, newer and better computers for use every day. A large majority of the survey respondents that participated in the survey did find value in donating gently used equipment to schools and after-school programs. A very small percentage did not agree that such programs were beneficial and a similar percentage was not sure. The researcher is an employee of the Sutter Health organization. The researcher was surprised to see the number of computers and devices that go through the computer refresh cycle every 3 to 5 years. New computer devices are deployed at both Sutter Health ambulatory and acute sites within the organization annually. The devices are refreshed, department by department, and office by office. It is a large undertaking and a tedious task to coordinate, support and remove computers that a staff uses daily and replace that device with a new one in a timely manner.

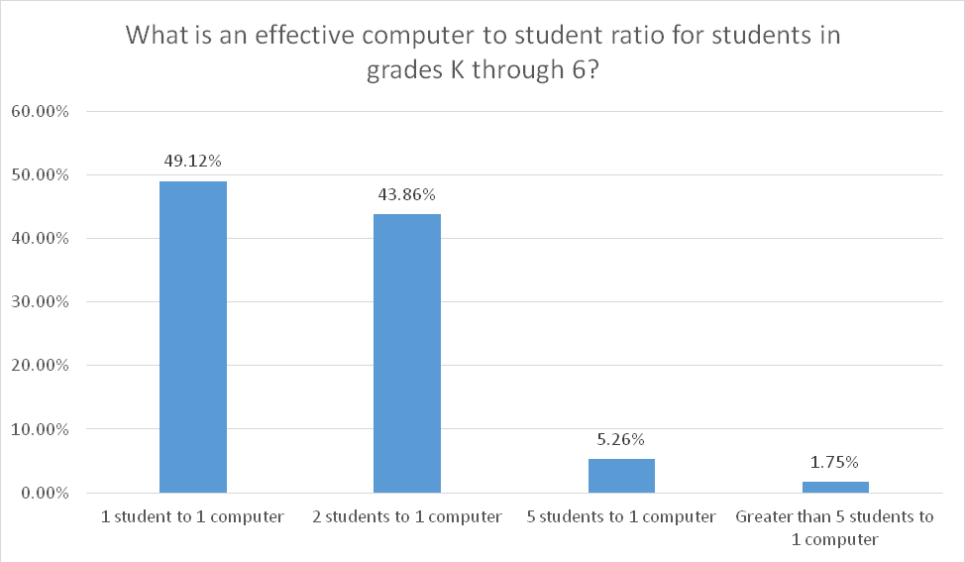


N = 57 (Total number of respondents to the survey)

Question 4: What is an effective computer to student ratio for students in grades K through 6?

Almost 50% of the survey respondents answered that an effective computer to student ratio of 1: 1. Another 45% responded that a computer to student ratio of 2 to 1 is an effective ratio. The results also show that a small number or answers suggest a ratio of 5 computers to 1 student would be sufficient and ideal. In my opinion, there will be no benefit to the student if 5 students have to share 1 computer. Absolutely no learning will be addressed when 5 students get together to share equipment. The researcher's personal experience through college led me to dislike some computer software classes when he had to share a computer with classmates. The primary reason for the dislike was because the researcher did have to share my homework, design and creative logic in the software program with someone else.

If 5 students were to share a computer, more time and energy spent on deciding what needs to be done versus what actually needed to be done. In the researcher's opinion, it may be better to allow a child to decide what needed to be done and simultaneously allow the child to do the necessary work.

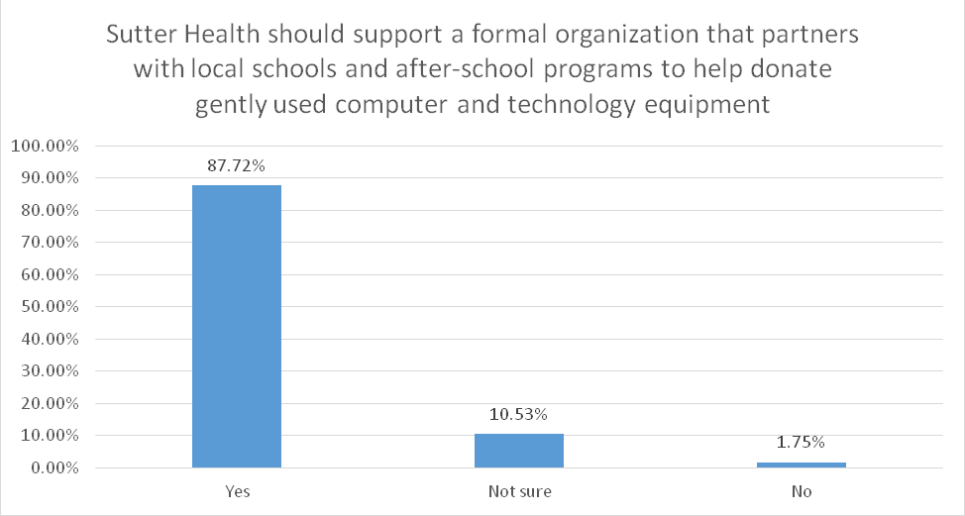


N = 57 (Total number of respondents to the survey)

Question 5: Sutter Health should develop and support a formal organizational program that partners with local schools and afterschool programs within the Sacramento region to donate gently used computers and technology equipment.

Sutter Health invests millions of dollars annually to care for patients who could not afford to pay. Sutter Health has a community benefits program that partners with a large number of charitable organizations and vital community programs. The list of organizations includes local food banks, Loaves and Fishes and also national and international organizations like the American Red Cross and the Salvation Army. It takes a thoughtful, coordinated approach to how it partners with other organizations. It collects data to help identify areas that have the greatest need and then works closely with people and organizations that share the same values so that Sutter Health can have the biggest impact in improving the well-being of others that are in need. A large

number of interviewees agreed that Sutter Health should partner with local schools and after-school programs to help the students with gently used computers and technology equipment. Such programs and partnership not only help Sutter Health with promoting a community benefit and outreach program, but it also helps students, schools and after-school programs within the community.



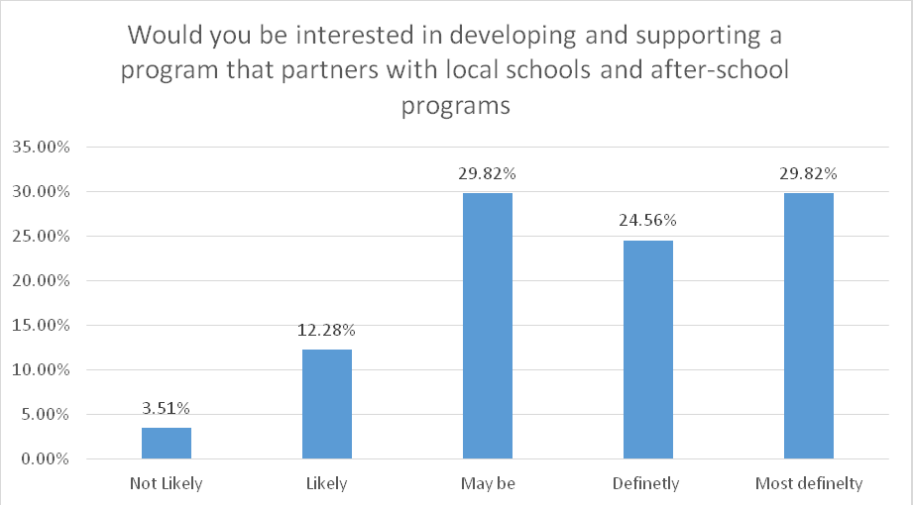
N = 57 (Total number of respondents to the survey)

Question 6: Would you be interested in developing and supporting a formal program that partners with local schools and after-schools programs within the Sacramento region to help donate gently used computer and technology equipment?

Sutter Health Community Benefit programs are administered by volunteer employees and staff who have a calling to help others in need. These volunteers and employees go above and beyond what is necessary to help anyone in need. The interviewees in question 5 whole heartily did consider supporting programs and

partnerships with underfunded after-school programs by donating computers and technology related equipment. They were however reluctant with participation in the partnership and program.

Such programs and partnerships are always successful with some sacrifice. Success in any endeavor does not happen by accident. Such initiatives need the support of the organization and individuals within the organization that can go above and beyond to bring programs and partnerships to a success. Less than a third of the respondents did approve or were willing to participate in programs to help local schools and after –school programs with gently used donated computers. A third of the responses similarly answered with a "maybe". It may be necessary to draw an assumption that the interviewees may not be completely aware and convinced that there is a need within after-school programs for technology related equipment to support education and curriculum. After-school programs are more than just a place holder for students to be at before and after school. They have become organizations for structuring children's daily activities outside of schools. For parents of young children between K to 6th grade, it is important to be involved and participate in the curriculum, as this is the age where children are in pre-school, elementary and middle school. Children at this age are young, need direction to develop character, individual skills, and be social creatures. They learn to decipher right from wrong and build relationships.



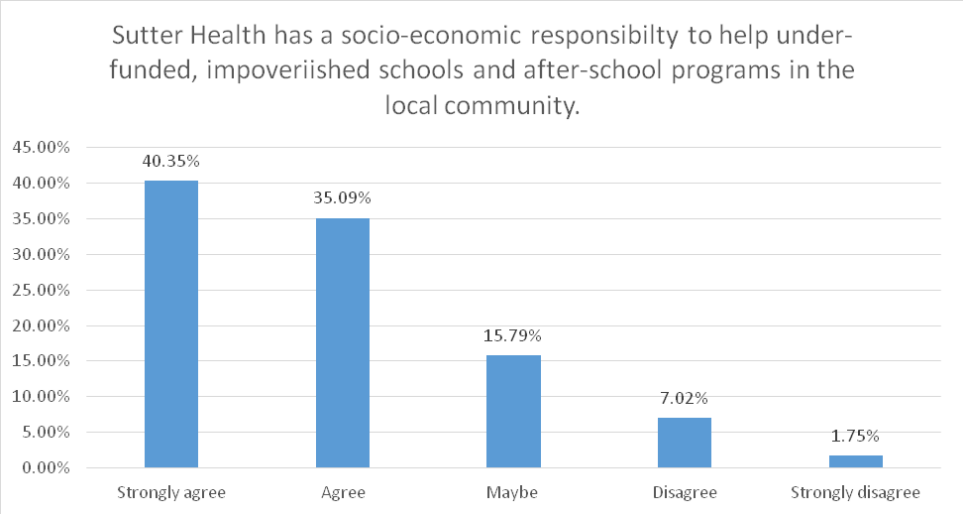
N = 57 (Total number of respondents to the survey)

Question 7: Would you agree that, Sutter Health has a socio-economic responsibility to help underfunded and impoverished schools and after-school programs in its community with resources so that schools and after-school programs can be a better learning place for children that attend them.

Sutter Health as a non-profit organization, believes in being a great neighbor by giving back to communities. In 2013, Sutter Health invested $901 million across Northern California, compared to $795 million in 2012. In addition to providing care for people with little or no insurance, Sutter Health additionally helped support children's health centers, food banks, youth education and job-training programs, and public health services, such as Commodity clinics and prenatal care for low-income parents.

Giving back to the community includes providing free or discounted care to people who cannot afford to pay. In 2013, Sutter Health's commitment to charity care

increased, reaching an all-time high of $166 million dollars, compared to $153 million in 2012.



N = 57 (Total number of respondents to the survey)

The answers to the above questions over-whelming indicate that the Sutter Health staff and leadership do recognize the need to have computers in schools and after-school programs. A very small percentage felt that after-school program did not need to have computers for the students that participated in the program. Approximately 16% felt that they were not sure. They are undecided and may need help with convincing arguments and results to help with a decision. The response by all 100 percent of the interviewees agreed that there is better value in putting the computer to use within the after-school program rather than sending it to the electronic e-waste program.

Interview results and findings

The interview with leadership in the organization was scheduled for 30 minutes. It was very constructive and informal meeting that opened up possibilities on improving on already developed programs.

1. Do you think a partnership program between Sutter Health and the 4th R program can be emulated in other departments within the organization, for example: Surgical services, Food services, Imaging Services and Bio-Medical services

   If yes- how can it be emulated?

   If no – why do you think that it cannot be emulated?

   After discussing the premise and the intent of the research and expected outcomes, the following are some of the highlights and responses.

- "This should be a standard and should not be restricted to Sutter Health Sac Sierra Region. Such programs benefit the Sutter Health enterprise and should be copied where ever possible."
- "If the benefit reaches even a small minority, such programs and partnerships will already be a success".
- "There will always be many underfunded schools and after-school programs in Northern California that would benefit from such programs. Finding the ones that did actually benefit from such a program over a period of time will be wonderful to attest to."

2. Sutter Health as an organization includes 5 regions, Sutter Health Sac Sierra region, Sutter Health East Bay Region, Sutter Health West Bay region, Sutter

Health Central Valley region and Sutter Health Peninsula Coast Region. Do you think such programs can benefit communities that Sutter Health is a part of?

If yes – how can it be emulated?

If no- why?

3. "Sure, I think it should be done, especially it was previously destined for a landfill."
4. "It is not that no one has thought about such a program, it is the amount of work that needs to be done to identify the recipient, develop a partnership and memorandum of understanding on the transfer of liability.

Unanimously the leaders of the organization queried are in favor of the idea of establishing a partnership and program that would benefit local schools in the area. The general consensus is that the identification, donation and delivery of the equipment will benefit both the 4th R after-school program and the Sutter Health organization. It will win-win situation for both organizations.

Qualitative Data: Workflow documentation.

- Part 1 Identifying workstations and devices with inventory management to identify computer devices that need to be replaced.

As an employee joins the organization, a new desktop or laptop device is provided to the employee through the hiring department's budget. The device goes through an inventory process management system. It is imaged, configured and tested according to Sutter Health standards. The make, model and serial number of the asset is recorded and assigned to the new employee. Every 4 to 5 years from the initial date of distribution and as models, technology and devices change, a new device is made

ready for replacement. The new device is once again asset tagged and made ready for deployment following Sutter Health standards. The cost of purchase of the new device after the initial purchase falls within the Sutter Health Information Systems and refresh recycle budget.

- Part 2. The process of replacing the device and tagging it for e-waste.

Once the computer device has been tagged for refresh cycle or process, the desktop technician coordinates with the individual staff within the department, manager on the best time for replacing the computer. He/she identifies all the necessary applications and programs that need to be installed on the new device. Once the testing is complete and approval has been received from the department to replace the old computer device, an appropriate time is arranged for the exchange. The device once removed is transferred to the warehouse. All the Sutter Health bar code tags are removed from the devices. The hard drives are removed from the computers, laptops and servers and destroyed separately. The rest of the device is shrink wrapped and stored separately to be addressed by the 3rd party vendors. There are 2 third party vendors that come to the warehouse and pick up pallets of devices that need to be re-cycled through the e-waste program. One of the vendor removes components that it can salvage and destroys the rest of the computer. The other company re-cycles the device and is able to extract useful minerals like copper and silver from the devices. Sutter Health pays the organization $ 2 to record the hard drive serial numbers. The organization credits Sutter Health $1 per drive for the minerals that is secured through the re-cycling process. The process of destruction and recycling is video-taped for any future reference.

Significant findings:

The research data supports the hypothesis and provides valuable information that requires attention and action around a partnership and program that can make use of computer and technology equipment. There is valuable information within the literature review and data that suggests children will benefit from the donated equipment. One may not completely comprehend the full extent of the benefit that such programs will result in till years down the line. What is important today is, there is a direction and a formal program that has been developed. The program can be used to help underfunded schools develop programs that benefit children in impoverished neighborhoods. The donation of computer devices will bear no cost to Sutter Health.

From a legal and liability perspective, the 4th R program after-school program as an organization will address a memorandum of understanding (MOU) and also address any liability related questions for the legal transfer of the equipment from Sutter Health to the 4Th R program.

The data provided through this research project overwhelmingly supports the hypothesis that there is ample benefit is the donation of technology related equipment after the device has finished its useful life cycle at Sutter Health. The researcher was able to get a substantial number of responses during the initial 7 days of the survey being open. The survey data was gathered over a period of 12 days.

The data confirms the interest of the staff in developing a partnership program with local schools and after-school programs. The results simultaneously also validates the hypothesis that there is a very critical and real need to support underfunded after-

schools who do not have the means to purchase new technology related equipment. The differences between the support for schools using technology to educate students versus after-schools using computers to educate students could be attributed to the lack of knowledge that after-school programs offer. The data strongly suggests a partnership between Sutter Health and the 4th R after-school program. The suggesting will be made to explore, define and create an avenue for the 4th R after-school program to benefit from used technology equipment that would have gone to a landfill to rather be at the desks of the 4th R after-school program.

The data also indicates that it may also be necessary to educate the employees of the organization that there are a large number of substantial technology related equipment and items that can be donated to schools and after-school programs. The donation of the equipment to the 4th R after-school program would be of zero cost to the Sutter Health organization. There may actually be a reduction in the cost of e-waste that Sutter Health has to pay to the third party vendors by a marginally amount. Additionally there will be less equipment that goes into landfills.

Chapter 5 – Conclusion and Recommendations

Conclusions

Like Dewey, Berube and Zilversmit, I believe that learning is not, and should not, be confined to just the school and classroom (Berube 1995, Dewey 2001, Zilversmit, 1993). After-school programs, like summer youth camps, are attempting to use digital media and technology to reach, extend, and encourage learning where and when possible. Such after-school programs address education, civic, cultural, and social organizations are making important contributions to the development of students and their character in the younger generation.

The concept of "learning ecologies" initially emerged from ecological theories of child development, which emphasizes the importance of a child's interactions at different levels and at different ages (Bronfenbrenner 1979). The concept of learning ecologies has evolved, since the 1980's and today extends beyond its roots in child development. It considers connections, contexts, and resources for learning. It addresses digital media and technology as resources for education and child development. One of the early child development pioneers, Brigid Barron, defines learning ecologies as "the accessed set of contexts, comprised of configurations of activities, material resources and relationships that are found in co-located physical and virtual access that provide opportunities for learning."

Similarly, reform leaders such as John Goodlad have addressed the importance of an ecological approach to education. Goodlad says," the school is not and cannot be the exclusive provider in a community's educational system (Goodlad 1984). The

school may be the only institution charged exclusively with the educational function, but the ability and responsibility of others to educate should be recognized and cultivated by others." There is no one agency, but an ecology of institutions educating- school, home, places of worship, television, press, museums libraries, businesses, factories, and more.

Those who think that schools are the only primary places of education and learning are wrong. Children and students learn from an ecology of institutions. After-school programs are one such institution of learning. Providing and creating an environment where learning, education, and a social structure can be developed is one of the many goals within an after-school program. Creating an environment when the state and local grounds cannot provide now becomes the responsibility of others within the community.

The data and results from the survey and interviews reveal that

- It is important for children in schools and after-school programs to have the opportunity to learn basic computer skills
- There is value in donating "gently used" computer and technology related equipment to schools and after-school programs that do not have the funds to purchase one.
- The use of computer equipment to student ratio needs to be liberal and that as an organization, Sutter Health should implement and participate in community benefit programs that can help under-funded after-school programs.

Recommendations

With the conclusion of this phase of the project, next steps will be:

- Recommendation 1: The researcher will develop a memorandum of understanding (MOU) between the 4th R program and Sutter Health by June 15, 2015.
- Recommendation 2: The researcher will promote, develop, and partner with the 4th R program to help address the liability concerns of Sutter Health with the transfer of used computer equipment from Sutter Health to the 4th R program. The Sutter Health legal department will help develop the business agreement.
- Recommendation 3: Implement a pilot project that uses the Plan, Do, Study, and Act (PDSA) model. Plan a pilot with the 4th R program as the recipient and identify all work that is associated with the project once a device is categorized for replacement. Document all teams, conditions, processes and workflows that are involved in the rollout and implementation. Identify the number of hours spent on average to do this work effort. Study the processes involved and identify the path of least resistance and most gain.
- Recommendation 4; Complete a pilot 3 month program that determines the necessary workflows. Identify steps involved in gathering equipment that can be donated to after-school programs.
- Recommendation 5: Work with local information technology resources to address workflows and process involved in the identification of desktop devices and the necessary accessories (computer, monitors, keyboard, mouse, power cables) annually or semi-annually for transfer to the 4th- R program.

- Recommendation 6: Monitor resources and teams involved within Sutter Health and the 4th R after-school program that can help with pick-up and delivery of the devices on an annual or semi-annual basis from the Sutter Health warehouse in Sacramento.
- Recommendation 7: From the pilot program, identify gaps and make necessary changes within Sutter Health for a smooth transition of computer equipment.
- Recommendation 8: Identify a project plan with milestones to help achieve a target timeline with a service level agreement (SLA).
- Recommendation 9: On a successful rollout within the Sutter Health Sac Sierra Region, consider an enterprise implementation for Sutter Health.
- Recommendation 10: Identify organizations within each of the 5 regions that will benefit from donation of computer equipment.

Bibliography

Banchero, S. (2011, August 1). *New York Teams Up With IBM to Reboot a High School*. Retrieved from http://www.wsj.com/articles/SB10001424053111903635604576476200369585750

Corporations get deduction for donating computers to schools. (1997). *CPA Client Bulletin*, 3. Retrieved from http://search.proquest.com/docview/194881193?accountid=25283

Cohen, D., Farley, T., Taylor, S., Martin, D., & Schuster, M. (2002). *When and where do youths have sex? The potential role of adult supervision*. Pediatrics, 110(6), 1–6

Horton, D., Meier, E., & Mineo, C. (2008). A WINNING AFTER-SCHOOL PROGRAM. *T.H.E.Journal, 35*(7), 14. Retrieved from http://search.proquest.com/docview/214823269?accountid=25283

Making a Difference. (n.d.). Retrieved December 13, 2014, from http://www.microsoft.com/refurbishedpcs/Difference.aspx#

Newman, S. A., Fox, J. A., Flynn, E. A., & Christeson, W. (2000). *America's afterschool choice: The prime time for juvenile crime or youth achievement and enrichment. Washington, DC: Fight Crime: Invest in Kids*. Available at http://www.fightcrime.org/reports/as2000.pdf

Otto Bremer Foundation Supports PCs for Kids Program Expansion. (n.d.). Retrieved from http://www.pcsforpeople.com/about-us/news-and-media/91-otto-bremer-foundation-supports-pcs-for-kids-program-expansion

President Obama Unveils ConnectED Initiative to Bring America's Students into Digital Age. (n.d.). Retrieved March 23, 2015, from https://www.whitehouse.gov/the-press-office/2013/06/06/president-obama-unveils-connected-initiative-bring-america-s-students-di

Sahn, M. (2004, Sep 25). U.S. education head urges New Jersey companies to help public schools. *Knight Ridder Tribune Business News* Retrieved from http://search.proquest.com/docview/461891379?accountid=25283

Thompson, J. (2015, Jan 12). *How One School is Fighting Poverty. (n.d.)*. Retrieved March 24, 2015, from http://teaching.monster.com/benefits/articles/3049-how-one-school-is-fighting-poverty

Veron, I. (2011, February 4). *Education Week: Used or Donated Computers Help Schools Save Money*. Retrieved from http://www.edweek.org/dd/articles/2011/02/09/02computers.h04.html?intc=es

Wyatt, E. (2013, August 18). *Most of U.S. Is Wired, but Millions Aren't Plugged In - NYTimes.com*. Retrieved from http://www.nytimes.com/2013/08/19/technology/a-push-to-connect-millions-who-live-offline-to-the-internet.html?pagewanted=all&_r=0

Why It's So Hard to Close the Digital Divide in High-Poverty Schools. (n.d.). Retrieved March 23, 2015, from http://www.nbcnews.com/feature/in-plain-sight/why-its-so-hard-close-digital-divide-high-poverty-schools-n129726

What Does Corporate Social Responsibility Mean for the Technology Sector? (SSIR). (n.d.). Retrieved March 23, 2015, from http://www.ssireview.org/blog/entry/what_does_corporate_social_responsibility_mean_for_the_technology_sector

2015 *Poverty Guidelines.* (n.d.). Retrieved March 24, 2015, from http://aspe.hhs.gov/poverty/15poverty.cfm