

**METRO-ATLANTA PARENTS' ROLES IN TECHNOLOGY
EDUCATION AND THEIR ADVANTAGES**

A Thesis
Presented to
The Academic Faculty

by

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ABSTRACT

In this study, 15 interviews with parents from low-income areas were evaluated to understand the roles these parents fulfilled in their child's technology education. Of the 15 parents initially interviewed, three parents were contacted and interviewed within a year after an education and computer workshop to understand if this intervention impacted their roles. From the initial interviews, the parents stated that they have not aided in the development of their child's technology education. However, parents did indicate they were involved in various other aspects of their children's education and they express interest in being more involved. Although the parents participation in the workshop did not drastically alter their roles in their children's education, the workshop is a starting point for how to further involve parents in the technology education of their children. Expanding the role of parents in low-income areas could prove pivotal in the field of computer science education to both increase interest in computing and to help prepare students better for future course work in computing.

CHAPTER 1

INTRODUCTION

Overview

This paper was prompted after completion of the *They Can't Find Us* study conducted by Dr. Betsy DiSalvo and myself. That study essentially showed that parents from non-technical or computer backgrounds, using a simple online search, are unlikely to find the educational resources, such as programming or robotics, to expose their children to computer science. However, parents from low-income areas who may not have the internet, a computer, or knowledge of how to use both need to be considered as well. Not only can access to and knowledge of computers be crucial in exposing children to computer science concepts, it is beneficial in finding learning and informal resources for any child's general education. What are their roles in their child's technology education, if any? To determine this, this paper will evaluate the interviews of 15 parents to understand what roles, if any, they may play in their child's education. The plausibility of an educational workshop for parents and its affect on parents' roles within a year will also be discussed by presenting three case studies with parents.

Motivation

In the past 2 decades, the interest and focus on computing has skyrocketed with computing becoming a central aspect of our daily lives, a necessity for work and a pleasure for personal lives. However, "U.S K-12 education has fallen woefully behind in preparing students with the fundamental computer science and skills they need for future success" (Wilson, Sudol, Stephenson, & Stehlik, 2010, p. 6). This lack in preparedness is important because of the

increase in science, technology, engineering and math related jobs that are projected to grow by 17% by 2018 (Langdon, McKittrick, Beede, Khan & Doms, 2011).

The National Assessment of Educational Progress conducted a high school transcript study that found the number of graduating students with Computer Science credits has decreased in the past 2 decades from 25% to 19%, showing clear instability in the interest towards computer science (2009, p. 49).

There has been the launch of campaigns and resources like Code.org or the National Scientific Foundation-backed CS10K program in the past few years. As a result, more researchers and educators seek to answer questions as to why more students are not flocking to growing technology fields and to suggest successful ways to spark students' interest in computer science before college. In an initial study, we evaluated what online computer science learning resources are available to parents and found that few low cost quality resources were likely accessible to those with little background in computing or education (DiSalvo, Reid, & Khanipour Roshan, 2014). Both the need to increase interest in computing among K-12 students and the lack of access to computing learning resources motivated this qualitative study involving parents in metro-Atlanta.

Initially, the interest in interviewing parents in low-income communities within metro-Atlanta, was to discover what resources parents utilize to find computer science opportunities for their children who may be interested in computers. These interviews, in conjunction with the *Parents as Learning Partners* study (Barron, Martin, Takeuchi, & Fithian, 2009) of the roles parents play as learning partners, exposed roles that technology savvy parents may fulfill for their children's technology education. Subsequently, this lead us to focus on the roles of less

technically savvy parents in their children's education and how they can potentially impact their children's interest in technology and more specifically computer science.

Background

An initial study shed light on the difficulties that may ensue for parents in finding extracurricular, or informal learning, opportunities for their children interested in computer science. This study looked at online searches for informal computer science education and suggest that typical parents using terms such as “kids” and “computer education” in online searches will not be able to find the numerous resources available for students interested in computer science (i.e. free downloads of Eclipse for Java programming, Scratch drag and drop programing, or Code Academy). Instead they find unrelated links, camps or events in unreachable locations and at high prices.

This preliminary study used Google search engine to conduct 48 searches for common terms used to find computer science informal learning opportunities. Through this search, we anticipated finding out-of-school or informal such as games, camps, and other resources. During this search, over 800 search results were evaluated, yet fewer than 50 results were related to children and computer science learning and most of these were high cost camps. This study illuminated the need for us to design better access tools for parents, particularly parents with little computing education to provide informal learning resources for their children.

Barron and colleagues (2009) study that looked at the role of parents in the development of technological fluency identified with seven roles that parents play in helping their children develop technological fluency. Theses roles include *learner*, *teacher*, *nontechnical consultant*, *employer*, *project collaborator*, *resource provider*, and *learning broker*. However this study does not look at two issues that are relevant to low-income and less technical savvy parents; the

demographic of parents interviewed, and the specificity of the roles. Of the eight pairs of parents involved in the study, at least the mother or father held occupations heavily involving computers or technology (i.e. software developer, engineer). The children of these parents' attended a school within a middle to upper class community where parents typically had at least a college degree. Furthermore, of the eight students whose parents were interviewed, four were of European descent, one of Chinese descent, one of South Asian/Indian descent, and one mixed-race African American and European descent.

We also found the narrow scope of the roles were difficult to apply to parents from all types of backgrounds and socioeconomic statuses. For instance, a parent who is a software developer and manager would fit more naturally into the teacher role of technology learning compared to a parent who has never used a computer before.

As a first step to better understand inequalities in access to technology learning resources we conducted interviews with low-income parents within Atlanta. Using the seven roles for parent partnership in technology learning (Barron et al., 2009), we analyzed these interviews. In addition we expanded these roles with the addition of new roles to better encompass how various types of parents may be involved in their child's technological education and interest in computer science.

CHAPTER 2 METHODOLOGY

Organization Partnership

In order to conduct interviews with the population in mind, we developed a relationship with an organization that conducts programs in local middle schools with a high population of students receiving free or reduced lunches. This organization, which we will refer to as FamilyTech¹, provides free computers and learning software to families for participation in a one day workshop. In exchange for interviewers assisting during workshops and an agreement that the research findings will be disclosed to the organization, interviewers were allowed to recruit parents before workshops began. The partnership with this organization was deemed relevant and necessary because of their focus on low-income communities who may not already have access to a computer or internet within their homes.

Initial Interviews

Approximately 45 minutes before workshops began at FamilyTech, researchers recruited parents as they arrived for the workshop. We explained that we were conducting interviews about their role in their children's education and at the completion of the interview they would receive \$15. We also gave them a recruitment flyer so they could have a moment to read about our study and think it over, (Appendix E). In most cases the first parents we approached were interested in participating and their backgrounds varied. Table 1 has the demographics of the 15 parents who participated in the study. Their names have been changed to protect their identities.

Each parent signed a consent form (Appendix C) and received \$15 in compensation for their time at the end of the interview. Each interviewer took notes on their own copy of interview questions while audio recording the interview session. After the interview, parents were asked to

¹ FamilyTech is a pseudonym for the actual organization we partnered with for their privacy and per our agreement.

complete a survey (Appendix G) to obtain more demographic information from the parents. Interviews lasted around 30 minutes and often included their children listening in on the interview or answering questions in place of their parents.

Post Interviews

Of the 15 parents who participated in the initial interviews, three parents responded to a request to be interviewed six months to a year after their FamilyTech workshop. These interviews sought to learning if parenting roles changes in regards to learning partners with their children and how the additional technology resources and training may have impacted that change. The parents were contacted via email (Appendix F) with the addresses given to us on the survey. The interviews took place at locations convenient to the parents. Participants were given an updated consent form (Appendix D) and asked questions that were slightly altered versions of the initial interview (Appendix B). All interviews were audio recorded and transcribed. The transcriptions were then coded for themes.

Coding

Coding is the process of attaching a code to data such as photographs, field notes, or in this case, interview transcriptions. The Coding Manual for Qualitative Researchers (REF) defines a code as a “word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language based or visual data.” Simply, assigning an overall idea to an element to assist in the organization and better understanding of the information. In this case, parental roles in the Parents as Learning Partners (Barron et al., 2009) included *learner, teacher, nontechnical consultant, employer, project collaborator, resource provider, and learning broker*.. See Table 2 for descriptions and examples of these roles. Both initial and follow up interviews were coded for comparison. Further explanation of roles and implications are discussed in the next section.

Limitations

Because this is a qualitative study, the characteristics and results seen with each parent can not be generalized to include all parents of this or any other demographic. In addition, the smaller number of participants who were interviewed after the workshop may have excluded any parents who may have altered their roles within that timespan. Furthermore, there are too many variables, like number of siblings or the type of relationship between parent and child, that are not measurable or reliable which makes truly understanding the change of the parents' dynamic with their children difficult. It is possible that the workshop was not efficient enough, that the schools lacked or provided many of the resources, or that the child's home situation may have changed. Controlling for the relationship between the child and adult participating in the workshop would have been preferable. The dynamic of a child with a family friend or grandparent may differ drastically from that of an actual parent. Another component of this study that should have been accounted for would be how parents react in the presence of the interviewer. Not only do many people being interviewed think of themselves in drastically more positive or negative light, they also tend to emphasize certain aspects for the benefit of the interviewer.

CHAPTER 3 FINDINGS

Initial Interviews

In an attempt to effectively present the results, each role listed in Table 2 will be evaluated in terms of the initial interviews. Following, there will be a comparison of the interviews for the three participants who did a follow up interview with us. This will evaluate if their roles may have changed after their involvement with the FamilyTech workshops

Parents and Their Roles

Soon after coding began for the first initial interviews, it became evident that the parents fulfilled few, if any, of the technology focused parental roles as defined by the parental roles study. For instance, none of the parents mentioned teaching their children topics related to technology or computers. As a result, the definitions for all of the roles were broadened to include any educational activities. None of the parents, however, fulfilled the role of *employer* by employing their child for services for any household

Nontechnical Consultant

The most popular role, *nontechnical consultant*, was broadened to include any act of advice or encouragement toward their child's general education. Of the 15 interviewed, 12 fit this role. Most notably, with this broadened definition, the role of *nontechnical consultant* included mainly motivation, discipline, and protection. For instance, all parents, when asked about their child's goals, were passionate about seeing their child accomplish goals and were motivating their children towards them. Helen in particular wants her children to finish high school and go to college because she thinks "it's going to take going to school and getting their high school diploma, and going to college, and getting a degree in order to have a reliable income coming in to take care of their self". Parents serve as an authority for their child's

education by ensuring assignments are completed, limiting their child's time on the computer, or using technology access as a reward or lack thereof as punishment. Stephanie uses a website called ClassDojo to keep track of her child's progress in order to take further action in their education. As much as parents stressed the importance of access to resources and various opportunities, they are also actively protecting their children and their technology from predators and viruses respectively. Sandra stated that "[children] don't recognize the dangers that are out there as far as predators and things".

Learner

The next popular role amongst the parents was that of a *learner*. The role of *learner* entails that the parent is learning something from their child. Nine parents of the 15 expressed learning something from their child. Four parents, Katie, Francis, Nina, and Christina, all said that their child has taught them how to use a computer, how to use Microsoft Excel program, or how to use a particular website. The other parents were taught how to play Guitar Hero, about how electoral votes work, or where to place forks for a formal dinner setting.

Teacher

The next role, *teacher*, is defined in this study as an instance of the parent teaching their child anything. There were five of the 15 parents who explicitly stated teaching their children something. Any responses about teaching respect, manners or teaching someone other than their children were excluded. Katie in particular mentioned teaching her child the times tables while Thomas taught his child fractions. Not all instances of being identified in the role of *teacher* were explicitly school related. Parents often cited teaching their child how to cook as the last thing that they taught their children. Only one parent, Helen, mentioned teaching her child something technology related which was how to send an email.

Project Collaborator

The role of *project collaborator*, involves both parents and students collaborating on projects, not including daily homework or assignments where one or both involved may or may not have the expert knowledge. This was the third most common role found in the initial interviews. Of all parents asked when they last worked on educational-related material with their child, eight parents provided examples of the last time that they worked together on a project, ranging from Science Fair projects to a research project on Sickle Cell Anemia. Elizabeth, stated “He had several projects. But this one in particular, we stayed up until 6 in the morning. He had a project to do on the biomes of Africa.” The level of involvement ranged from assisting by cutting materials to researching information with their student. Some parents naturally associated being an active *project collaborator* with the role of *resource provider*.

Resource Provider

The *resource provider* role, defined as a parent providing supportive resources beyond their home computer, was another common role that many parents fit. Every parent provided access to the library, a computer, cell phone and/or the internet for school work and often not restricting time of use if related to school work. However, there were parents, such as Barbara, who considers her role in her grandchildren’s education as “financier” stating that for a science project with her grandchild she “came in with supplies making sure [her grandchild] had what [her grandchild] needed.” Other parents, such as Louise, provided more technology and music related items, “stuff he can hook up into like a guitar and keyboard.”

Learning Broker

In addition to providing resource items, parents could be *learning brokers* who actively seek learning opportunities for their children that may include organizations, camps, events or planning trips for their children. This role was the least common role with only two parents fulfilling the role. Nina found a computer technology class for her child through flyers within their school and is actively searching for other activities. Abigail is seeking tutoring opportunities for her child via online searches. Other parents, when asked how they found the

activities in which their students are involved, often cited their child's school, afterschool program, teacher, or field trips for providing those opportunities. Parents who were not actively seeking such resources would express that they would like to but may not have the time.

Post Interviews

Three parents were contacted via email six to twelve months after their initial interview at the FamilyTech workshop. These parents were Izzy, Katie, and Louise. There were not dramatic changes in the parents' roles after the completion of the workshop. Various dynamics in the home were changed around having a computer or another computer in the household. One marked change was that they all had greater autonomy in their use of technology. All three parents disclosed that they want to be more involved with their child's education after the workshop and are using the computer more themselves. The changes in each parent's experiences will be discussed in the following sections. Although these results cannot be applied generally to other parents, they are indicative of the potential effectiveness of the FamilyTech workshop to bring about change in the household dynamic between a parent and their children.

Louise

Louise has two middle school aged sons and a younger daughter in elementary school without a partner according to our questionnaire information. However, she did mention assisting her boyfriend with technology. Before the workshop, they did not have a computer and relied on access at the library or the school. They now use two different computers within the household located in the living room and the mother's bedroom. Louise, who fulfilled the *resource provider*, *project collaborator*, *nontechnical consultant*, and *learner roles* previously, expressed learning more about technology and the possibilities with the computer from her children in the past year. Because of her children's improved grades, she has allowed both sons to participate on a football team. They were not involved in any activities outside of the classroom when we last interviewed her.

Katie

Katie's roles of *project collaborator*, *nontechnical consultant* and *teacher* are most distinctive. She mentions an interest in learning more about computers; however, she is receiving help from her child's school rather than from her child, which excludes her from fulfilling the *learner* role. Like Louise, Katie mentions seeing a change in her son's academic performance and is pleased with his progress. A year later, her driving force that was mentioned repeatedly was keeping her son out of the streets and to not get in trouble. In both interviews, she sees her son at least finishing high school.

Izzy

Izzy is also a single mother with a daughter who has Attention Deficit Hyperactivity Disorder (ADHD) and asthma. Izzy mentioned both conditions as a reason for the lack of her daughter being active outside of the classroom. Before attending the workshop, Izzy and her daughter would rely on a local library for access to the computer. After the workshop, Izzy is seeing a marked change in her child's academic performance and wants to continue being invested in her child's education. Izzy maintained the roles of *nontechnical consultant*, *resource provider* and *project coordinator*. In her initial interview, Izzy mentioned relying on her sister for help with the computer or the technology since she is in college. A year later after the workshop, Izzy sees academic improvement in her daughter and is actually helping her sister when she needs help. It is unclear if it is the same sister mentioned in both interviews; however, it does suggest the parent is able to teach or help others even if she does not do the same for her own child.

CHAPTER 4 DISCUSSION

Initially the purpose of the interviews was to evaluate what roles parents' play in their child's exposure to computer science as a subject. However, in this demographic, the parents did not have a sufficient background in the technology field which resulted in less of an emphasis on technology in their interaction with their children compared to their counterparts in the *Parents as Learning Partners* study involving college educated parents in high technical fields (Barron, et al., 2009). The children, who attended one of the two schools we partnered with for FamilyTech, may or may have access to technology courses. As a result, there was not a high involvement in computer science within the families so the focus of the study necessarily shifted to evaluate parents' roles in their children's general education.

Although the parents did not fit the original definitions of the roles listed in Table 2 from the *Parents as Learning Partners* study, these interviews provided an insight nonetheless. From these interviews, it is clear that this group of parents, and likely a larger demographic of parents, typically fit into the *nontechnical consultant*, *resource provider*, *learner* and *project collaborator* for education more generally, if not for technical education. These first two roles, *resource provider* and *nontechnical consultant*, seem to be the roles most associated with raising a child more generally, because they are fundamentally about providing some kind of resource or advice. Many parents seem fulfill the roles of *learner* or *project collaborator* because of their low level of education (or insecurity about their education) did not enable them to take on a teaching role. Some parents may not have finished school or cannot recall much of the information they learned, thus allowing for their children give them an opportunity to expand their knowledge on various topics.

With these things in mind, there is potential in using the natural roles found, in any demographic of parents, to encourage more students to take an interest in the field of computer science. Incorporating projects or assignments that involve parents would reinforce the child's understanding, interest and adoption of computer science. It is common knowledge that a student's ability to explain a concept to someone is an effective way to show how much the student knows and for him or her to even learn more. Involving parents in such assignments could encourage this behavior. As *project collaborators*, parents who interact with their children on projects both provide information, benefit from it, and this encourages their children's curiosity outside of the classroom.

The roles of *nontechnical consultant* and *resource provider* are also instrumental in students' interest in new topics. Nontechnical consultants often want to ensure the child's safety and enSome computer scientists credit their interest in the field due to their free time with a computer and developing a hobby, however, as seen with these groups of parents, access to the computer may be restricted for discipline reasons or because multiple household members use one computer. The role of *resource provider* is critical for allowing this opportunity in that students cannot tinker with a computer or access open source coding programs like Scratch or Java if computers and the internet is not provided to them by their parents.

The second phase of interviews let us know that the three to five hour workshop and the provision of a computer can affect the education of the child in general. This is evident by the improved academic performance of the participants' children. However, this FamilyTech workshop does not definitively alter how parents interact with their children. The affect of the workshop is limited to the length, the skills taught, and the interaction between parents and

children during the workshop. With changes, the workshop has the potential to teach parents about how to be technology-learning partners with their children.

CHAPTER 5 CONCLUSION

The parents are invested in their children's education; however, the parents' education generally did not include technology, programming or computer classes. Because of this parents' roles are generally limited to those of *nontechnical consultant*, *resource provider*, *learner* or *project collaborator*. Parents fulfill the roles of technical partners even less. The changing landscape of computer science education has forgotten to incorporate parents in education or as a resource for encouraging students to pursue computer science. Currently, the programs available focus on providing better and easier software for children or educating tech-savvy teachers. The efforts should not end there. There is potential in improving the resources available to allow parents to take on the roles of *teacher*, *employer* and *learning broker* to further assist their children's education. Recognizing that parents, who play a crucial role in a child's education, are less equipped than others in certain demographics is the first step in changing the access problem faced by low-income communities.

Future Work

The fifteen pre-workshop interviews discussed in this paper begin to show how parents' in low-income communities use technology, if at all, and how involved in their child's education they maybe. From the results indicate that students in this particular demographic have more knowledge about computers and technology than their parents, and as such they become the teachers and purveyors of the technology in their household. It also demonstrates that there maybe a lack of sufficient support and involvement from the parents in the adoption of technology interests by the children. This phenomenon may limit the children's access to outside opportunities beyond limited access to devices and the internet.

With this knowledge, a next step would be to provide extensive and recurring workshops for parents in low-income demographics with elementary or middle school aged students. The workshops will be implemented in the hopes that parents will become learning partners for their children and increase the proficiency in computer use and technology for both parents and children. This project will take place at a local community center accessible daily by parents and children. Workshops will take place at this location on a weekly basis covering topics such as how to parentally block certain websites, how to safely download materials online, how to search for learning resources, job, and references for projects, and most importantly how to facilitate learning together. At the end of the workshops, parents will be compensated for their time by being allowed to take home a computer for the household to use. Ideally, parents and children will be required to work on computer science projects together throughout the week. These workshops will allow us to evaluate how children thrive in situations where they can be teachers to their parents and if parents fulfilling all seven roles have any impact. Potentially, at the end of the workshop, parents will be more involved in more ways, have a better understanding of the field of computer science and its opportunities, and serve as a better learning partner with their children.

I also encourage all computer science education researchers to consider discovering other ways to further involve parents in the computer science education movement. Currently, websites and resources are focused on schools, teachers, and students; however, parents have significant roles in their children's education and are essentially guardians to the computers as seen in this study. Parents often dictate when children may have access to the computer and for how long and parents are key in ensuring that children have the resources they need at home in order to excel in school. If there is a need to expand computer science education and make it

more accessible to all, parents should be included in this discussion and involved in those efforts.

APPENDIX A: PRE-WORKSHOP INTERVIEW QUESTIONS

EDUCATIONAL INVOLVEMENT

1. School Involvement
 - a. Do you help your kid(s) in his/her schoolwork or homework?
 - i. What are they studying?
 - ii. What topics do they ask for your help with?
 - iii. How much time do you spend with your child on their homework?
 - iv. How do you help your kids with their work? / What kind of ways do you help them with homework?
 - v. Do you want to be more involved with their school work? In what ways?/ Why?
 - vi. Do you want to be less involved with your kids' school work? Why?
 - vii. Do you use any technology to help when doing homework with your child? – I.e. computers, phones, ipads, etc.
 - b. How do you learn about your child's grades?
 - c. Do you talk to your child's teachers? When? In a conference or just everyday interaction?
2. Informal Learning
 - a. Do your kids do other activities outside of school?
 - i. What kind of things?
 - ii. Any activities that are more academic (museum visits, math club, art clubs, camps, etc.)
 - b. What kinds of things do you and your child do to keep them interested in learning? For example, books about history, television shows about sharks, museum visits, workbooks, online activities, etc.
 - c. What does your child do on the (computer, smart phone, ipad, etc)
 - i. Do they use any online learning tools or games? Which ones?
 - ii. How did you or they find those?
 - iii. Do you ever play those games or do those activities with your child?
 - d. Do you ever use the internet to answer your kids questions? How? For example, do you look things up on the computer at home or do you use a phone when out?
 - e. How did you find those resources?
 - f. Have you spoken to your child's teacher about their performance?

CHILD EXPECTATION QUESTIONS

1. Goals
 - a. What are you and your child hoping to get out of CFY?
 - b. What do you hope your child will do this semester in school?
 - c. What long term goals do you have for your child?
 - i. How do you know when they are on track for these goals?
 - ii. What makes these goals important to you?
 - d. Are you aware of your child's own goals? What are those?

- e. Do reward your child when they reach goals? How?
- f. Imagine your child at 25 and successful. What does that look like to you?

TECHNOLOGY USE

1. Technical Means / Access
 - a. Do you have a computer at home? How many? Where are they located/laptop/desktop?
 - b. Do you have internet access for the computer?
 - c. Do you have internet access with other devices – phone/game system?
 - d. Who uses the computer?
2. Autonomy
 - a. Are you able to use the computer when and how you want to? (Are there limits because you are using it in a public location or a public space in your home? Do others limit what you can and can not do online?)
 - b. How much freedom do you allow the kids with the computer?
 - i. Do you limit the online sites they visit?
 - ii. Do you limit the time they spend online?
3. Skill
 - a. What types of task can you do on the computer?
 - b. What types of task do you have problems with?
4. Support
 - a. When you have a problem who/where do you go to for technical help? (Friends, family, community organization, online resources, etc)
 - i. What types of things do they help with?
 - b. How do you help others with technical issues?
 - c. Where do you learn about new technology?
5. Purpose (specifically ask about language, cultural help with immigrant mothers)
 - a. What do you use the computer for?
 - b. How much time do you spend on the computer?
 - c. How much time do you spend online?
 - d. What types of thing do you do online with...
 - i. Social networks?
 - ii. Information seeking?
 - iii. Gaming?
 - iv. Wiki?
 - v. Bulletin board
 - e. How do you access the internet?
 - i. Do you use the internet on your computer/phone/tablet etc.

APPENDIX B: DEMOGRAPHIC QUESTIONNAIRE

1. What is your name?
2. Are you male or female?
3. Which of the following categories best describes your employment status?
 - a. Stay at home mother
 - b. Employed, working 40 or more hours per week
 - c. Employed, working 1-39 hours per week
 - d. Retired
 - e. Disabled, not able to work
4. If employed, do you typically work from home or outside of them home?
 - a. Work from home
 - b. Work outside of home
5. Are you now married, widowed, divorced, separated, or never married?
 - a. Married
 - b. Widowed
 - c. Divorced
 - d. Separated
 - e. Never married
6. Is there a parenting partner living in the home?
 - a. Yes
 - b. No
7. Does your parenting partner work from home or outside of the home?
 - a. Works from home
 - b. Work outside of home
8. Do you use any online social networks? Which ones? (examples: facebook, twitter)
9. Do you read or use any online message boards or forums? Which ones?
10. Do you play games online? Which ones?
11. Do you use any wiki, such as Wikipedia?
12. Do you use technology for any other entertainment purposes? (Examples: streaming videos, online shopping)
13. How many children are you the parent/guardian for?
14. Please fill out the following information about your child/children:
 - a. Age
 - b. Gender
 - c. Relationship to you

APPENDIX C: CONSENT DOCUMENT FOR ENROLLING ADULT PARTICIPANTS IN A RESEARCH STUDY

Georgia Institute of Technology

Project Title: Cross Cultural Understanding of Parents' Use of Online Resources

Investigators: *Dr. Betsy DiSalvo, Maia Jacobs, Wonhee Cho, Cecili A'Kilah Reid, Jung Hyun Hong*

Protocol and Consent Title: Cross Cultural Understanding of Parents' Use of Online Resources
You are being asked to be a volunteer in a research study.

Purpose:

The purpose of this study is to evaluate how parents use technology in their daily lives as well as the expectations and roles they have in regards to their children's education. We are interested in looking at different communities use of technology to help us design educational resources for parents and children. We expect to enroll 100 people in this study.

Exclusion/Inclusion Criteria:

Participants in this study must be 18 or older and have at least one child between the ages of 0-13.

Procedures:

If you decide to be in this study, your part will include an interview in person or on the phone. In the interview you will be asked about your use of technology and your child's education. The interview will be audio recorded. The interview will take approximately 30 min to 1 hour. Remember, you may stop at any time and you are not required to answer any questions.

Risks or Discomforts:

The risks involved are no greater than those involved in daily activities such as talking with an acquaintance or your child's teacher.

Benefits:

You are not likely to benefit in any way from joining this study. We hope that your interview will help in designing new online resource for parents.

Compensation to You:

You will receive \$15 cash or a gift certificate of equal value upon completion of the interview.

Confidentiality:

The following procedures will be followed to keep your personal information confidential in this study: The data collected about you will be kept private to the extent allowed by law. Your records will be kept in locked files and only study staff will be allowed to look at them. Data, including audio recordings and transcriptions of those recordings, will be stored only on behind a firewall and password protected. Only study staff will

have access to these records. After audio recordings are transcribed they will be destroyed. Your name and any other fact that might point to you will not appear when results of this study are presented or published. Your privacy will be protected to the extent allowed by law. To make sure that this research is being carried out in the proper way, the Georgia Institute of Technology IRB may review study records. The Office of Human Research Protections and/or the Food and Drug Administration may also look over study records during required reviews.

Costs to You:

There are no costs to you, other than your time, for being in this study.

In Case of Injury/Harm:

If you are injured as a result of being in this study, please contact Principal Investigator, Betsy DiSalvo, Ph.D., at telephone (404)385-0184. Neither the Principal Investigator nor Georgia Institute of Technology has made provision for payment of costs associated with any injury resulting from participation in this study.

Participant Rights:

- Your participation in this study is voluntary. You do not have to be in this study if you don't want to be.
- You have the right to change your mind and leave the study at any time without giving any reason and without penalty.
- Any new information that may make you change your mind about being in this study will be given to you.
- You will be given a copy of this consent form to keep.
- You do not waive any of your legal rights by signing this consent form.

Questions about the Study:

If you have any questions about the study, you may contact Dr. Betsy DiSalvo at telephone (404)385-0184 or bdisalvo@cc.gatech.edu.

Questions about Your Rights as a Research Participant:

If you have any questions about your rights as a research participant, you may contact:
Ms. Melanie Clark, Georgia Institute of Technology
Office of Research Compliance, at (404) 894-6942.

Ms. Kelly Winn, Georgia Institute of Technology
Office of Research Compliance, at (404) 385- 2175.

If you sign below, it means that you have read (or have had read to you) the information given in this consent form, and you would like to be a volunteer in this study.

Participant Name (printed)

Participant Signature

Date

Signature of Person Obtaining Consent

Date

By completing this form, you indicate your consent to be in the study.

APPENDIX D: RECRUITMENT FLYER

Adult Research Volunteers Needed

We are looking for parents with children between the ages of 0-13 to participate in research interview. We are examining how parents use technology in their daily lives and the role technology plays in children's education. Participants will receive \$15 in cash or a gift certificate of equal value.

Who: Seeking parents with a child between the age 0-13 and US immigrants with a child between the age of 5-13

What: Participants will complete a 10 minute online survey and participate in an in person or phone interview lasting 30 minutes or more.

Contact: Betsy Disalvo, bdisalvo@cc.gatech.edu

APPENDIX H: POST-WORKSHOP INTERVIEW QUESTIONS

1. School Involvement

- a. Do you help your kid(s) with his/her schoolwork or homework?
 - i. What are they studying now?
 - ii. What topics do they ask for your help with now?
 - iii. How much time do you spend with your child on their homework?
 1. Do you help with your child's homework more or less than last year?
 - iv. How do you help your kids with their work? / What kind of ways do you help them with homework?
 - v. How has the ways you help your kids with their work changed?
 - vi. Do you want to be more involved with their school work? In what ways? / Why?
 - vii. Has your level of involvement changed over the last year? If so, how?
 - viii. Do you want to be less involved with your kids school work? Why?
 - ix. Do you use any technology to help when doing homework with your child? – I.e. computers, phones, ipads, etc.
- b. Do you reward your kids for doing well in school? How?
- c. Do you punish your kids for doing bad in school? How?
- d. How do you learn about your child's grades?
- e. Do you talk to your child's teachers? When? In a conference or just everyday interaction.

2. Informal Learning

- a. Do your kids still do other activities outside of school?
 - i. Have they begun new activities?
 - ii. What kind of things?
 - iii. Any activities that are academic (museum visits, math club, art clubs, camps, etc.)
- b. What kinds of things do you and your child do to keep them interested in learning? For example, books about history, television shows about sharks, museum visits, workbooks, online activities, etc.
 - i. Have these activities changed over the past year?
 - ii. Did you begin doing such activities since then participating in the workshop?
- c. What does your child do on the (computer, smart phone, ipad, etc)
 - i. Do they use any online learning tools or games? Which ones?
 - ii. How did you or they find those?
 - iii. Do you ever play those games or do those activities with your child?
 - iv. Have the uses changed in anyway over the past year?
- d. Do you ever use the internet to answer your kids questions? How? For example, do you look things up on the computer at home or do you use a phone when out?
- e. How did you find those resources?
- f. Have you spoken to your child's teacher about their performance?

3. Child Expectations/Goals
 - g. Did you receive what you wanted from CFY?
 - h. Has your child's performance in school changed over the last year?
 - i. What long term goals do you have for your child?
 - i. Are you on track for these goals?
 - ii. How do you know?
 - iii. What makes these goals important to you?
 - j. Are you aware of your child's own goals? What are those? Have these changed?
 - k. Do reward your child when they reach goals? How?
 - l. Has your image of your child in the future changed?

6. Technical Means / Access
 - a. Do you have a computer at home? How many? Where are they located/laptop/desktop?
 - i. Did you recently obtain one?
 - ii. Did you get rid of one?
 - iii. Why?
 - b. Do you have internet access for the computer?
 - i. Has this changed in anyway?
 - c. Do you have internet access with other devices – phone/game system?
 - i. Has this changed since we last spoke?
 - d. Who uses the computer?
 - i. Is there a member that uses it more? less?

7. Autonomy
 - a. Are you able to use the computer when and how you want to? (Are the limits because you are using it in a public location or a public space in your home? Do others limit what you can and can not do online?)
 - i. Has this changed in the past year?
 - ii. Why?
 - iii. How?
 - b. How much freedom do you allow the kids with the computer?
 - i. Do you limit the online sites they visit?
 - ii. Do you limit the time they spend online?
 - iii. Has this increased/decreased in the past year? How? Why?

8. Skill
 - a. What types of task can you do on the computer?
 - i. Have this changed in the past year?
 - b. What types of task do you have problems with?
 - i. How did you attempt to solve these problems?

9. Support
 - a. When you have a problem who/where do you go to for technical help? (Friends, family, community organization, online resources, etc)
 - i. What types of things do they help with?
 - b. How do you help others with technical issues?
 - c. Where do you learn about new technology

- d. Did you contact CFY for support?
10. Purpose
- a. What do you use the computer for? Has this changed since we last spoke?
 - b. How much time do you spend on the computer? Has this changed since we last spoke?
 - c. How much time do you spend online? Has this changed since we last spoke?
 - d. What types of thing do you do online with...
 - i. Social networks?
 - ii. Information seeking?
 - iii. Gaming?
11. CFY specific questions
- a. Have you used the computer supplied by CFY?
 - i. Who in the family uses the computer?
 - 1. What do they use it for?
 - ii. Why/why not?
 - b. Do you help your child with schoolwork with this computer?
 - c. What software do you use the most with the computer?
 - d. Do you utilize this computer for personal/work reasons?
 - e. Who in the household uses the computer more?

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TABLES AND FIGURES

<i>Table 1</i>							
Participant Demographics							
Name	Employment Status	Gender	Children #	Relationship Status	Typical work day	Partner?	Partner Employment
Abigail	Employed: 40+ hrs a wk	Female	1	Never Married	Outside of home	No	
Barbara	Disable: not able to work	Female	3	Never Married		No	
Sandra	Stay at home	Female	4	Never Married		Yes	From home
Diana	Employed: <40 hrs a wk	Female	2	Never Married	Outside of home	No	
Tia	Stay at home	Female	6	Divorced		No	
Christina	Employed: 40+ hrs a wk	Female	4	Married	Outside of home	Yes	Outside of home
Helen	Employed: 40+ hrs a wk	Female	5	Divorced	Outside of home	Yes	From home
Tierra	Employed: 40+ hrs a wk	Female	4	Widowed	Outside of home	Yes	Outside of home
Marcus	Employed: 40+ hrs a wk	Male	2	Married	Outside of home	Yes	Outside of home
Stephanie	Employed: <40 hrs a wk	Female	3	Never Married	Outside of home	Yes	From home
Thomas	Employed: 40+ hrs a wk	Male	5	Never Married	Outside of home	Yes	From home
Elizabeth	Stay at home	Female	1	Married	Outside of home	Yes	Outside of home
Louise	Stay at home	Female	3	Never Married	Outside of home	No	From home
Francis	No Answer	Female	6	Widowed		No	
Nina	Stay at home	Female	3	Married		Yes	Outside of home
Izzy	Stay at home	Female	1	Never Married	From home	No	
Katie	Stay at home	Female	2	Separated	From home	No	From home

Table 2	
<i>Definitions of basic parental roles</i>	
Parental Role	Description
Teacher	Parent teaches child how to do something on the computer over a period of time (i.e. word processing to programming). Parent has knowledge about subject than does child.
Project Coordinator	Parent collaborates with child on project. Parent may or may not know more about the subject than child and project is a shared learning experience.
Learning Broker	Parent seeks learning opportunities for child by searching the internet, networking, talking to other parents or other sources of information. Signs child up and provides necessary support for endeavor.
Resource Provider	Parent provides resources to child beyond family computer (e.g., books, software, online accounts) in support of child's technology learning. Resources can be owned by parent and used by child or purchased for child.
Nontechnical Consultant	Parents provide info and advice to child on nontechnical issues such as business or artistic design. This covers times when parent provides encouragement or advice on topics like project management in order to encourage child to continue his/her learning.
Employer	Parent employs child for technical services rendered. Role can include a formal paid position or more informal activities such as technical support for a home computer.
Learner	Parent learns technical skills/content from child.
<i>Note. Adapted from Parents as Learning Partners in the Development of Technological Fluency, p. 64 by B. Barron, C.K. Martin, L. Takeuchi, and R. Fithian, 2009, International Journal of Learning and Media, Vol. 1 Num. 2</i>	