



THE IMPACT OF TECHNOLOGY ON FAMILIES

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Abstract

This study asked four families to engage in interviews and to keep a log to document the use of technology in the home. The findings indicate that families are in conflict about the appropriate technology to use and amount of time spent using it at home. All families used a variety of electronic devices for various reasons and discussed the rules established for use in the home. Families are also in conflict about what role technology plays in their lives and whether the immediate access to information is worth the potential distraction. Finally, families also discussed the use of social media and its impact on their children. Although this study is limited in the number of participants, the findings indicate that families continue to be conflicted about the use of technology in the home.

Keywords: family, technology, social media, interactions, well-being

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Introduction

Technology is ever changing in areas such as, advancements in televisions, the internet, computers, cell phones, music devices; just to name a few. With changes to technology, impact is made on individuals and families (Lanigan, 2009). How the use of technology impacts families is not well documented in the literature (Subrahmanyam, Kraut, Greenfield, & Gross, 2000) and the consequences of this impact may follow children throughout their development.

One of the greatest advancements in technology during the last few decades has been in the rapidly advancing information and communication technologies (ICTs), which include cell phones and computers (Lanigan, 2009). The biggest changes have been made to single purposed devices such as cell phones now having internet access and becoming dual or multi-purpose tools. With advancements, easy access, and commonality of not only ICTs, but television, video games, music devices, how does the use of technology impact the family functioning and the family unit?

Literature review

The use of technology in the home fuels debate about whether computer use is appropriate for children and at what age, what technology and how often should it be used, and how can technology impact families? Technologies in the home are usually selected to make life easier, such as, the use of a microwave to make cooking faster and easier. Then, technologies were developed for entertainment purposes, such as the television and various gaming equipment. Finally, the use of internet at home helps families' access information and helps extended families stay in touch (Baille & Benyon, 2008). The use of technology and the internet at home has also allowed for flexibility with the workplace, allowing family members flexibility with work hours. Most studies identify the positive use of technology and few studies have been conducted that address the overall conflict families' encounter with the use of technology.

What and How Technology is Used

Technology use in the home seems to come into conflict when families are asked to chronicle the use of technology in the home. Typically, studies ask parents to identify how much technology is being used and how long children

are engaging with technology. Many parents are specific that the role the computer plays at home is to support academics and school work (Kerawalla & Crook, 2002), however, studies have shown the computers are actually used for playing games (Livingstone & Bovill, 1999). An inventory of software used at home, when compared to what is available at school, included more software that was entertainment-based than academic (Kerawalla & Crook, 2002).

Technology is heavily used for communication in most homes (Subrahmanyam & Greenfield, 2008). Adults and adolescents use computers (email) and cell phones to keep in touch with peers, romantic partners, and family members. Unfortunately, the use of technology, especially cell phones (Chesley, 2005), has extended the average workday beyond the usual 9 a.m. to 5 p.m. Corporate-issued laptops, cell phones, and other communication devices keep employees connected and working indefinitely. This extended workday can create stress by taking family time to continue the connection with work issues (Chesley, 2005). On the other hand, some working mothers noted that access to the internet helped them spend more time with family by allowing them to plan their work day better, figure out ways to minimize time away from family, and take care of business remotely rather than in person (Moore, 2006).

Additionally, the extended networks of friends available through social media, such as, Face Book, allow people to stay in touch across the country. Use of social media has caused concern in the past because it opened up young technology users to potential predators; however, this is not as much of a concern now as it used to be (Subrahmanyam & Greenfield, 2008). Access to the World Wide Web also connects users to information and cultures around the world.

Technology Use By Age

For children younger than school-age, the use of media typically includes the use of the television. Many programs identify themselves as educational and, whether broadcast live or through video means,

...the program content is intended (either implicitly or explicitly) to provide children with educational or informational programming in an entertaining presentational style that elicits the children's attention and demonstrates to the parents that their infants are learning (Wartella, Richert, & Robb, 2010, p. 117).

Technology use in the home is common and increasing. A recent study found On a typical day, 75% of children watched television and 32% watched videos/DVDs, for approximately 1 hour and 20 minutes, on average. New media are also making inroads with young children: 27% of 5- to 6-year-olds used a computer (for 50 minutes on average) on a typical day (Vandewater, Rideout, Wartella, Huang, Lee, & Shim, 2007, p. e1006).

The use of social networking, more for adolescents and children in middle or high school, challenges parents to determine when to allow their children to have access and when to restrict access to the computer. Cyber-bullying has become a concern for families. This can be done through both cell phones and social networks, includes stalking and harassment that can turn deadly as seen in several cases of suicide by adolescents in recent years (Billiterri, 2008).

Although adults utilize technology for personal and work related communications and interactions, they also use technology to keep in touch with friends and extended family members. Even though advances in technology afforded families the opportunities to keep up with extended family by sharing life events and photos through email, social media and other forms of technology, adults and families still struggle with feelings of guilt for not communicating enough, apprehension with using technology with particular family members and respect for privacy (Lee, Bernheim Brush, & Inkpen, 2009).

Impact of Technology on Child Development

Researchers have studied the impact of technology on the cognitive development of young children by identifying technology as part of the environment in the home (Johnson, 2010). The use of technology, specifically home internet use, has a positive impact on cognitive development, in the area of communication skills. More importantly, in Johnson's study, the socio-economic status of the family had less impact on the cognitive development of children in the family if access to the internet was equal across economic status (2010). Attewell, Suazo-Garcia, and Battle (2003), found in their study that young children who use computers at home scored higher on cognitive and self-esteem measures than children who did not use computers at home.

However, they also found that young children who use computers more than eight hours a week were heavier (weight) and spent less time in active play than children who used computers for less time each week.

No discussion of technology in the home is complete without considering the impact of video games, whether delivered via television/cable or computer. Several studies indicate that the use of games has positive impact on children's cognitive skills.

...researchers found that electronic media, particularly video games, can enhance visual spatial skills, such as visual tracking, mental rotation, and target localization. Gaming may also improve problem-solving skills (Schmidt & Vandewater, 2008, p. 63).

Other findings caution that the quality of the content makes a difference on whether or not the impact of technology use is positive (Schmidt & Vandewater, 2008).

Moderate use of computers seems to have little impact on children, however extensive use of computers for social networking may lead to increased loneliness and depression especially for teen-aged girls (Subrahmanyam et al., 2000). The lack of "true connection" in relationships online are thought to be lacking for young girls who are developing their social persona (Parks & Roberts, 1998). Exposure to violent and aggressive computer games and websites has been linked to violent behavior and may lead to desensitizing children to the feelings of others (Irwin & Gross, 1995). Implications are apparent for family-moderated use of technology for all children in the family with specific rules and expectations for different age-groups of children.

Parenting and Technology

Although there is little research on the struggle parents feel about what is appropriate technology use in the home, one study by Shepherd, Arnold, and Gibbs (2006), studied three Australian families as they struggled to set guidelines and develop strategies for technology use in their homes. Of course, setting realistic rules that can be implemented consistently is important. Too much flexibility or inconsistent messages create conflict between parents and children over the use of technology. Because many parents today grew up in a home without the technology available today, they have not had any model for

establishing appropriate rules for this aspect of daily life within the home. Shepherd, Arnold, and Gibbs found that parents with clear expectations about moral behavior, bullying issues, feminism, violence, and their own authority as parents were more likely to establish limiting rules and negotiate less often for changes to the rules. This study also found that parents discussed feeling of exhaustion when dealing with all the issues surrounding the use of technology in the home.

Although there is limited research on how technology is used in the home, it is clear there are several issues that surface in the studies that have been reported. What technology is used and how it is used seems to be common across families and includes devices for communication, entertainment, and information access. As Lee, Bernheim Brush, and Inkpen (2009) point out in their study, family members feel “apprehension” in learning and utilizing new technology with various family members (p. 135). Areas of concern include limiting access to technology and monitoring the use of technology by children’s age. Concerns over the impact on cognitive and emotional development of children as a result of the use of technology are a tension that seems to continue regardless of parental supervision and expectations.

Method

Researchers at two universities questioned how the use of technology was impacting families and decided to engage a small number of families in a study to identify the technology being used and how it was used. A group of five families were identified by a convenience sample. Families were selected based on various attributes to encourage a diverse sample. One family was eliminated from the study for failure to complete the second interview and turn in specific research paperwork. The researcher met with each mother of the four families individually in the family home to have demographic information filled out and complete a questionnaire with each (see appendix A for complete list of questions) in an open-ended interview format. After the four interviews and demographics were collected, the families were instructed to complete a researcher-designed technology tracker (see Appendix B) on two, separate, 24-hour, time periods over the next few weeks. After the technology tracker was completed, the family would have a follow-up interview with the researcher.

The second interview questions (2) were a result of the answers to the questions answered in the first interview. The transcripts from the first interview were analyzed by the researchers to develop the questions for the second interview. Interview two was viewed as a follow-up to the technology tracker and to seek clarification on anything mentioned in interview one (see Appendix A for complete list of questions). All interviews were recorded, transcribed, and data was cleaned to remove any identifiable information of minors mentioned in the interviews.

The Participants

The four families used in this study were all unique in their own way. All four families live in a large, metropolitan Area. Three of the families live in the suburbs and one family lives within the urban center of the area. The first family, the Anderson family, consists of dad, Albert (age 36), mother Barbara (age 31) and three-year-old twin boys, Charlie and David. Both parents hold masters degrees and work outside of the home full-time. The second family, the Barnes family, consists of Amy, a 43 year old widow, her seventy-year –old mother, Bonnie whom is also widowed, and Amy’s three children Carol (age 16), Donna (age 12) and Eric (age 9). Amy has completed some college and Bonnie has a college degree. Amy works full-time out of the home. The third family, the Campbell family, consists of the father Andrew (age 35), mother Bethany (age 34), and two children Candice (age 3.5) and Doug (age 1.5). Andrew holds a Bachelors degree and Bethany has a doctoral degree. Both parents work full-time outside of the home. The fourth family, the Davis family, consists of the father Adam (age 44), mother Beth (age 43), and three children Connor (age 14), Danielle (age 12), and Ernie (age 9). Both parents hold college degrees and the father works full-time outside of the home and the mother works on average about 5 hours a week outside of the home. The income level of each family varied. One family noted between \$50,001-80,000, one between \$80,001-110,000, one between \$140,001-170,000 and one above\$ 170,000.

Findings/Discussion

Transcriptions were read and coded for emerging themes independently by each of three researchers. After codes were identified, the researchers triangulated the data to identify one over-arching theme and two sub-categories

of the main theme. The main theme of constant conflict was found. The two sub-categories discovered were convenience vs. stress and connection with the world vs. connection with family time.

Constant Conflict

Although participants expressed an appreciation for the convenience of technology and its ability to connect them to the world, family, and information needed for living their lives, they also found themselves in a constant struggling with the potential negatives. This could be best described as a love-hate quandary. As the Anderson family shared,

While technology has so many great opportunities, it also can take away from the simple things of life; not only the expense, because you have to keep up with every new thing in technology, but also just time away from family.

The Campbell family discussed a new piece of technology they bought for their children and justifying the purchase by stating,

So, I think that Andrew likes technology a lot and he likes to get the kids the newest things, so it's not like he's obsessed with it, so it's not like as soon as it comes out he's not in line to get it.we waited until it was only \$100 bucks, because it started at like \$300. So, I think we do a pretty good job at balancing... you know?

Additionally, participants would justify their children's use of Face Book with comments such as, "the Face Book thing did not happen for my older daughter until she was in high school, so you know that was the beginning of her freshman year in high school". While another participant seemed to be justifying her son's use of television and video games, "His favorite channel on T.V. is the MLB network which is, you know, he's not watching like Sponge Bob or something...he's watching baseball. Video games have helped him just absorb all this knowledge about sports".

Overall, participants were battling to resolve various personal and social conflicts with technology. The discussion of the sub-categories illustrates the participants' constant conflict with convenience vs. stress and connection with the world vs. connection with family time.

Convenience vs. Stress

Not surprisingly, participants found technology to be convenient and provided them with resources to stay connected with their spouses, their children, work and the information world. As Subrahmanyam and Greenfield noted, there has been an increased use of technology for communication in most homes (2008). When parents in the study reflected on how their own childhood or upbringing might be different than their children, many participants expressed the use and convenience of cell phones, to remain in contact with family members, as well as, computers and the internet, which now allows them to stay connected to the world and work at anytime. The Campbell family described technology as "...pretty essential" and as "entertainment" and a "convenience" for their family, but also struggle with the potential excess with their children stating " I worry a little bit whether it [technology] might have some health causing problems...that we don't think about. So..." This mother goes on to discuss a concern with regards to her son's attachment to technology,

I guess I worry a little bit with Doug lately. Sometimes I worry about whether I'm creating more of an attachment to the TV for him because I know he really likes it and sometimes when I pick him up from school he'll say 'Touie', which means he wants to watch *Ratatouille* and 'nuggle', which means he wants to snuggle. So it's like, we are getting to the point where as soon as we get home, he is climbing up on the couch saying 'Toui, Nuggle. Toui, Nuggle'. He wants to snuggle and watch *Ratatouille* and I think sometimes it's really sweet, but sometimes I worry and wonder is this creating some kind of attachment to the TV for him that I should not be doing, you know? But...

While all participants valued the convenience that technology brought to their families, the conveniences were not without stresses. As one participant noted, "it [technology] is convenient when it comes to work and being able to do things from remote locations and it also means a lot of headaches". Later in the interview this participant goes on to add, "I like what technology has done in terms of letting us get instant replies. So, I think it is definitely, useful at work, but at home, I just think we are a little too plugged in." It becomes apparent that like many of the other participants, she is torn between the convenience of technology and the stress that it also adds to her life. As

Chesley (2005) noted, technology makes working away from the office possible and convenient, however, it can also extend the work day indefinitely.

Stresses also stemmed from the continuous advancements in technology and parents, in particular, views of their ability to “keep up”. Barbara Anderson described fears of her boys going to school:

It is going to be a whole different world, with Smart Boards. I mean we grew up with overhead projectors and ditto machines. I almost have this fear - am I going to be able to keep up with the homework? Am I going to know what is going on, or know what we are expected to do as parents?

Do societal pressures guide families to engage in technology to “keep up” and are families to have particular habits with technology? When Barbara Anderson discussed how she was not allowed to watch television as a child and as a result she felt left out when other children would engage in conversations about various television characters she goes on to say “Oh, I don’t want to shelter my boys that much, but I want to screen and be careful of what they watch...”

Parents do have concerns and stresses about technology from a variety of angles. Safety was a stressor that came up as a side theme throughout the interviews. Safety from the literal use of technology was mentioned when the Barnes family discusses the use of ear buds, “They have little things plugged in their ears... that concerns me too. What’s going to happen with their hearing with the ear buds and stuff”. To manage this she discusses various strategies that she has attempted, “When they’re home, they’re supposed to play their music through the system... we plug their iPods into the car instead of having them wear their ear buds, so...we try not to have them wear their ear buds that much”. The Campbell family states,

I have a concern if maybe our kids use too much of it [technology]...I always wonder if it’s too much TV for them, and different people say different things so there is no real hard facts answered, but I guess the main thing that I worry about is two things, the proliferation of technology will mean for our kids when they are older...like the other day...I Googled something like ‘beautiful woman’ or ‘attraction man’ or something like that and it showed a picture of a full on naked person and I just worry how you would ever be able...with all the stuff you see

on MTV and I just don't know how, when our kids are older how we'll be able to protect them to the extent we need to. I worry a little bit about whether it might have some health causing problems that we maybe don't know about with all those rays and stuff going through peoples' bodies...

Along with safety concerns and stresses related to the literal use of technology, the study also revealed that participants were worried about safety issues that come along with the convenience of keeping in touch with friends and family and connecting to the World Wide Web. Similarly with Billiterri's study (2008), numerous participants in this study were concerned with safety and well-being issues associated with "cyber-bullying", "text messaging", "Face Book" and "on-line predators". As one participant discussed the challenges of parenting in 2011, "With the Face Book and texting drama that is involved with girls...they can type it [messages] in and they don't feel the repercussions". Another participant further adds, "Because of technology, you have to worry about friends and online predators. Those people were there, 40 years ago, but...it wasn't as easy to get to kids as it is now". The use of email as well as social media sites, like Face Book, are seen as a convenience and resource to keep in touch with each other and as a social outlet, but participants expressed concerns. Participants expressed concern about the "exposure" their children receive on Face Book and the stress associated with "the idea that somebody that I don't know could find information out". This participant also goes onto add "I can't live my life in fear, you know, all I can do is have conversations with my daughter". Another participant described a situation in which her son received "pornographic" or was "solicited sex" through his Face Book page.

The increased use of technology in the home, studied by Vandewater, Rideout, Wartella, Huang, Lee, & Shim (2007), includes the use of television and entertainment devices. It also includes the use of computers as home computers are on the increase. Young children are encouraged to participate in the use of home technology for educational purposes and for entertainment. Balancing the amount of time spent with technology, and making sure it is spent interacting in a positive way with technology creates conflict for families. Another conflict is how much time is spent with technology and how much time is spent interacting with each other.

Connection with World vs. Connection with Family Time

As previously discussed in the subsequent section, participants valued the instant connection they had with each other, their children, and the world through cell phones, internet, social media, and email, but they struggled with the notion that this connection to the world has the potential to stifle the connection to the family and family time. In this case, connected to the world implies being linked to friends, work, school and various forms of information through the World Wide Web. Participants noted positives to connecting with the world, such as, being about to “play your own doctor” by utilizing internet resources such as “WebMD”, researching for school projects and papers and staying connected with family and friends that live far away. But, most of the dissention centered about the use of technology, more specifically, cell phones, smart phones, social media sites, video games and television or movies, which got in the way of the interactions and connections with family and family time together. As one participant describes her husband’s smart phone use,

He’s got his iPhone with him all the time and when he first got it, it wasn’t that bad, but it’s gotten worse. I will look over when I am giving the kids a snack and he’s checking in on something and it’s irritating to be because I view that as disrespectful and its dividing attention. We both work so there is not a ton of time at night with the kids, so I kind of feel like we should be able to focus a little more on our family, but he feels like he can do that and still check on that [iPhone] and it’s no big deal.

This participant’s statement illustrates the isolation that can occur with the use of technology during stages of life or in this case what Watt and White (1999) coined as a “computer widow” (p. 4).

Participants in this study were asked to track their technology use over a 48 hour time period and to state whether the use was family related and was family physically present. The four mothers in the study combined noted 110 different interactions with technology. Of the 110 interactions, they noted that 57 of them were family related. Examples of family related technology interactions were, phone calls, texts, email between family members, or checking the internet for grades or weather conditions in how to dress children for the day. And out of the 110 reported interactions with technology, 55 of them were done with family in some capacity present. More interesting is to

examine the amounts of time that families spent engaged in technology. The category that most time was spent on was television watching. The four families combined over a 48 hour time period watched 2100 minutes of television, accounting for about 64% of the overall technology use. Out of the 2100 minutes, 1570 minutes were spent together as a family in some capacity (television watching was done with one or more member of the family). Seventy-five percent (75%) of the time families watched television it was done together as a unit in some fashion. One of the families only reported 165 minutes of television watching over the 48 hour time span. In interviews this mother did report that she was not thorough in her reporting of what her children watched or did in their bedrooms in regards to technology use.

As noted on the technology trackers, several families utilized the television viewing during the early morning hours and during prep time for dinner. One mother stated, "I think we rely on the TV sometimes to entertain them [children] because we need to do things, cause we don't have a lot of time to do that, you know on our own". Another mother stated

...I am dependent on it [television] when...it sort of resets them [twin 3 year old boys]...like in the mornings, we watch a few minutes before we leave the house and that sort of resets them when they're eating breakfast and whatever...

The second time period that television viewing was heavily utilized was following the traditional dinner hour between 7:00-9:00PM. Most of this television viewing as noted by families was for entertainment purposes with most of the family present. The question becomes, does television watching account for family time and helping a family to feel connected?

With the use of technology many families commented as one of the biggest strengths is the empowerment of feeling connected to the world with knowledge at one's fingertips for looking up information for skating times at a local skating rink, movie times, grades of a child in middle school, and chatting with family and friends far away. However, the families also commented on how the over-use of technology takes away from the daily conversations within the immediate family unit. As one mother states

I wonder sometimes if technology...it feels like we're so socially connected, but then sometimes it feels like we're so socially isolated too because you have like very few actual conversation with people. Like

the fact that you can Facebook and text, and touch base with logistic things, and small talk means that sometimes you don't spend as much real time together, talking about meaningful stuff...

It becomes apparent that there needs to be a balance between connecting to the world and connection with the family. As Shepherd, Arnold, & Gibbs (2006) found, parents need to set realistic rules for technology use and be consistent in enforcing the rules. One family in the study has set standards and guidelines for technology use and family time to help create boundaries. As one of the wives states about her husband, "He does not check his cell phone once he's home and he is hardly ever on our PC unless he's helping one of the boys with homework or something". The children in this particular family also have guidelines for cell phone, computer and social media use. As she describes, "cell phones have to be in a certain place at a certain time of night. I look at them and they can't take them to their rooms at night" She further adds that "the computer is in the kitchen...because that is where we live"; therefore she can keep an eye on what is happening on the computer. To also ensure a connection to family time, this particular family also restricts cell phones when on family vacations, holidays or dinners.

This research did ask families what their lives would be like without technology in regards to communication and entertainment. All four families commented on how their children would learn to adapt and as one mother states

I think our kids would probably be a little bit harder in terms of, like we would spend time outside when the weather's not that great than we do now, and our kids would probably do more constructive things, you know like, just arts and crafts and probably a little more playing on their own...they'll play in the living room and I can still see them, but they don't do that a lot. Like they'll kind of get bored of doing that and they'll want to watch a movie or something, so I think if we didn't have movies they would probably do that kind of thing [play] more.

According to the American Academy of Pediatrics (AAP) children learn best through play and all domains of development such as the social emotional, cognitive and physical domains are enhanced (Ginsburg, 2006). As mentioned by the mother above, maybe the increase in play would be a positive

rather than a negative change for children with fewer interactions with technology.

Conclusions

The purpose of this study was to examine the impacts of technology usage on various families. A main, over-arching theme of constant conflict emerged as well as two sub-themes, convenience vs. stress and connection to the world vs. connection with family time. The continuous evolvement and changes with technology will play a role in the conflicts individuals and families face for years to come. Dealing with the constant struggles and conflicts of what is developmentally appropriate technology for children, safety concerns regarding internet and social media use and balancing work-family time will continue to play important roles in the well-being of individuals and families.

Further research should examine in greater detail the conflicting roles technology plays in the well-being of families as well as the degree of internal conflicts families and/or parents might have between what they do with technology and what is socially acceptable. Future research should also explore other family roles and perspectives (i.e. children, grandparents, fathers), this may lead to the discussion of how technology impacts the well-being of the family. This research was limited in that the research only interviewed the mothers and did not interview other family members. And lastly, future research should explore the engagement of families during television viewing to see how television viewing impacts the communication between families.

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Appendix A

Interview 1 Questions

1. [Tell me about] [Describe your family](immediate in or out of the home)
2. In your own words, what is technology? Or (What does technology mean to you?)
3. What forms of technology do you use as a family?
4. How important is technology to your family?
5. Do you have any concerns with technology?
6. How does technology influence your family?
7. If you were able to predict how much time your family spends in hours (minutes) with technology daily-what would you predict?

Interview 2 Questions

1. How did the technology tracker go for you? (how difficult was it?)
2. Were you surprised by anything on your tracker?
3. In comparison of what you estimated in interview one-how comparable was your tracker finding to your prediction? (number given to each family)
4. What would your family be like with no technology?
5. With no technology-how would your family communicate, entertain themselves, have relationships?
6. How different is your child(s)'s upbringing in relationship to yours, as a result of technology?
7. What is it like to be a parent in 2011?
8. How important is technology to your parenting?
9. How important is technology to your family well-being?
10. Is there anything that we did not ask that you would like to share?

Appendix B

Technology Tracker

Directions: Please track your *technology* use for a 24 hour time period using this form. If you are not sure whether or not you should include the technology- please do so.

Date: _____

Example: (possible things to track- *television; computer use (internet); fax; phone (cell and land-line; video games; music devices (Ipod); Kindle (electronic books); etc)*)

Technology Used	Estimated Start Time	Estimated End Time	Family Related	With Family
<i>Television- watching morning news</i>	<i>8:05AM</i>	<i>8:35</i>	<i>NO</i>	<i>YES- son present</i>
<i>Computer- Internet- checking weather</i>	<i>8:40AM</i>	<i>8:45</i>	<i>Yes- to check weather for dressing son</i>	<i>No- no one was present</i>
Technology	Estimated Start Time	Estimated End Time	Family Related	With Family