A GROUNDED THEORY STUDY EXPLORING THE TECHNOLOGY DECISIONS MOTHERS MAKE FOR THEIR PRESCHOOL AGE CHILDREN IN THE HOME ENVIRONMENT

by

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Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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ABSTRACT

The purpose of this systematic grounded theory study was to explore the technology decision process mothers use when making technology decisions for their preschool age (3-5 years) children in the home environment. I used snowball and maximum variation sampling procedures to purposefully select 18 mothers of preschool age children living in urban, suburban, and rural areas located in and around a college town in central Virginia. Data gathered from questionnaires, participant interviews, and focus groups were analyzed and findings revealed mothers' technology decisions are a multi-dimensional process whereby they situationally reflect to form technology preferences which promote intentionality and individuality in the technology decisions they make for themselves and their children. The results of this study addressed the research gap regarding mothers' technology decisions for their children by connecting and broadening theoretical understanding of the Unified Theory of Acceptance and Use of Technology (UTAUT) model (Venkatesh, Morris, Davis, & Davis, 2003) and the Process-Person-Context-Time (PPCT) model (Bronfenbrenner & Morris, 1998) through three new constructs: reflecting situationally, promoting intentionality, and valuing individuality.

Keywords: mothers, preschool children, technology, technology decisions

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CHAPTER ONE: INTRODUCTION

Overview

The technology decisions parents make influence their child's well-being (Wonsun, Jisu, & Faber, 2012; Swindle, Ward, Whiteside-Mansell, Bokony, & Pettit, 2014) and development (Plowman, Stevenson, McPake, Stephen, & Adey, 2011; Tu, Chou, & Lee, 2013). Parents promote their child's digital well-being by mediating their child's technology use and online experiences (Wonsun et al., 2012). Parents also use online experiences to maintain their parental well-being through social support and to stay informed on the best ways to care for their child (Swindle et al., 2014). As their child develops, parents use technology to support their child's learning (Plowman et al., 2011) and character development (Tu et al., 2013).

Many mothers have a unique role as the primary caregiver (Brown, McBride, Bost, & Shin, 2011; Song, Spier, & Tamis-Lemonda, 2014; Tottenham, Shapiro, Telzer, & Humphreys, 2012) and decision maker (Jang, Dworkin, & Hessel, 2015) for their children. As a caregiver, mothers have distinctive involvement patterns with their children (Brown et al., 2011) that can support their child's development (Song et al., 2014). Conducting this study exploring the technology decisions mothers make for their preschool age children was important to understand American mothers' technology decision-making process to inform their decision-making and ultimately promote the well-being and development of their children (Bronfenbrenner 1994, 1995b, 2000, 2001; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Evans, 2000; Bronfenbrenner & Morris, 1998, 2006).

In American culture, technology can be broadly defined as industrial (Landes, 1969), electronic innovation (Forbes, 1958; Susskind, 1975), or information communication technology (ICT). This study uses the term ICT to signify emergent or established (Halaweh, 2013) data,

voice, or video (Melody, 1986; Rideout, Foehr, & Roberts, 2010) ICT. The technology decisions mothers make for themselves and their children about ICT devices, services, or applications were explored in this study.

What a mother perceives and believes about ICT is influenced by social contexts where she receives social messages about her personal technology use as well as parenting messages (Carter, 2007; Daneback & Plantin, 2008; Williams & Page, 2011) about how she should guide her child's technology use (Ackers, 2012; Davies, 2011; Johanson, 2010; Lebens, Graff, & Mayer, 2009; Le Heuzey, 2012; Plowman, Stephen, & McPake, 2010; Shaikh, Shaikh, & Asar, 2012). The Process-Person-Context-Time (PPCT) model (Bronfenbrenner & Morris, 1998) of Bronfenbrenner's bioecological theory (Bronfenbrenner & Ceci, 1993, 1994) explores social context and explains how human development occurs through social interactions within environmental systems. The PPCT model has been applied to technology (Johnson, 2010; Johnson, & Puplampu, 2008), but it does not explain the process by which individuals accept and use technology.

There are behavioral theories and technology models that explain how individuals accept and use technology. The theory of reasoned action (TRA) (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) and the theory of planned behavior (TPB) (Ajzen 1985, 1991) suggest an individual's attitude and perception of subjective norms (what others think about the individual performing the behavior; Fishbein & Ajzen, 1975, p. 302) influence their intentionality and behavior (Ajzen, 1991, p. 181). The technology acceptance model (TAM) (Davis, 1986, 1989) connects elements of TRA to technology by explaining perceived usefulness and ease of use as primary factors that influence an individual's intention to use or how and when he or she uses technology (Davis, 1989). TAM is one of eight theories/models used to develop the Unified

Theory of Acceptance and Use of Technology (UTAUT) model (Venkatesh, Morris, Davis, & Davis, 2003). UTAUT explains the factors that determine and moderate an individual's technology intention and use and newer research (Jaafar, Darmawan, & Ariffin, 2014; Muthitcharoen, Palvia, & Grover, 2011) describes how individuals form technology preferences; but, like the UTAUT model, this research does not explain the process by which an individual uses personal technology preferences to inform and make technology decisions for another. The Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006) explains how teachers make technology decisions in the classroom for themselves and for students, but the classroom environment and pedagogical considerations of this framework do not provide insight into mothers' technology decisions for their preschool age child in the home environment.

The purpose of this systematic grounded theory study was to explore the technology decision process mothers use when making technology decisions for their preschool age children in the home environment. The UTAUT and PPCT models provided the best conceptual framework to explore mothers' technology decisions. Valuable connections between these models were unexplored before this study explained the process of mothers' technology decisions by identifying how mothers form personal technology preferences, how mothers' preferences inform their intention to use technology and make technology decisions for their children, and how mothers ascribe meaning to their children's technology use.

This chapter provides a brief overview of the research context, the research gap that necessitated the study, and the research purpose and questions that informed the research plan. Chapter Two explains the conceptual framework and related literature concerning the technology influences on mothers from social culture, school environments, and within the

family setting. Chapter Three describes the research design and study procedures. Chapter Four introduces the study participants and provides a data narrative of the study findings represented in the theoretical model. Chapter Five discusses study findings and concludes with study implications, limitations, and recommendations for future research.

Background

The conceptual framework that guided this study of a mother's technology-related thinking and behavior expressed in her technology decisions for her preschool age child is the Unified Theory of Acceptance and Use of Technology (UTAUT) model (Venkatesh et al., 2003) and the Process-Person-Context-Time (PPCT) model (Bronfenbrenner & Morris, 1998) of Bronfenbrenner's bioecological theory (Bronfenbrenner & Ceci, 1993, 1994). These models connect in their description of human and object interactions and environmental factors. This background section provides a brief overview of each model's origins, definitions, key concepts and relationships to mothers. In Chapter Two each model is explained in detail with related literature. Understanding how both of these models describe systems of influence that shape a mother's technology intention and decision-making for herself and for her child begins with a description of the origins and constructs of the UTAUT model.

The UTAUT Model: Origins in Technology Acceptance

Several factors guide how and why individuals use technology. The Unified Theory of Acceptance and Use of Technology (UTAUT) model (Venkatesh et al., 2003) explains the factors that determine and moderate an individual's technology intention and use by synthesizing eight previous theories/models—Theory of Reasoned Action (TRA; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), Technology Acceptance Model (TAM; Davis, 1986, 1989), Motivational Model (MM; Davis, Bagozzi, & Warshaw, 1992), Theory of Planned Behavior

(TPB; Ajzen 1985, 1991), Model Combining the Technology Acceptance Model and Theory of Planned Behavior (C-TAM-TPB; Taylor & Todd, 1995), Model of PC Utilization (MPCU; Thompson, Higgins, & Howell, 1991), Innovation Diffusion Theory (IDT; Rogers, 1983), and Social Cognitive Theory (SCT; Bandura, 1986)—that had been used to explain how individuals use information systems. Of these eight theories/models, the extension of TAM to the UTAUT model is the most relevant to this study.

TAM (Davis, 1986, 1989) theorizes that an individual's technology intention and use is determined by two beliefs: perceived usefulness and perceived ease of use. *Perceived usefulness* describes an individual's technology perception that "using a particular system would enhance his or her job performance" (Davis, 1989, p. 320). *Perceived ease of use* denotes an individual's perception that certain technology devices, services, or applications are easy to use. Perceived ease of use is a direct determinant of perceived usefulness (the stronger predictor of technology intention; Venkatesh & Davis, 2000).

TAM conceptualizes how perceived usefulness and perceived ease of use mediate the influence of external variables (e.g., how a technology system was designed, program training) that affect an individual's intention to use technology (Venkatesh & Davis, 2000, p.187). TAM "consistently explains a substantial proportion of the variance (typically about 40%) in usage intention and behavior" (Venkatesh & Davis, 2000, p.186) and has been used in a variety of research concerning technology acceptance and users' online community participation (Zhou, 2011), perception of online social networks (Li, 2011), acceptance of social shopping websites (Shen, 2012), consumers' emotional attachments (Read, Robertson, & McQuilken, 2011; Thomson, MacInnis, & Park, 2005), as well as marketing tech products based on consumer age and need (Bruner & Kumar, 2005). To further conceptualize technology intention and use, two

key studies modified (UTAUT model; Venkatesh et al., 2003) and extended (TAM2; Venkatesh & Davis, 2000) TAM.

The Technology Acceptance Model 2 (TAM2; Venkatesh & Davis, 2000) explains perceived usefulness and usage intentions through *cognitive instrumental processes* (job relevance, output quality, result demonstrability, and perceived ease of use) and *social influence processes* (subjective norm, image, and voluntariness). Subjective norm, which is a "person's perception that most people who are important to him think he should or should not perform the behavior in question" (Fishbein & Ajzen, 1975, p. 302)—can have a direct effect on technology intention in mandatory contexts. When the context is voluntary, subjective norm has an indirect influence on technology intention (Venkatesh & Davis, 2000).

Social influence processes and cognitive instrumental processes are significant in an individual's technology intention (Venkatesh & Davis, 2000). In the four longitudinal field studies connected to the development of TAM2 , measurements of social and cognitive processes accounted "for 40%–60% of the variance in usefulness perceptions and 34%–52% of the variance in usage intentions" (Venkatesh & Davis, 2000, p. 186). TAM2 has been used in current research concerning social influences on e-commerce (Belkhamza & Wafa, 2013; Guzzo, Ferri, & Grifoni, 2015), shopping with mobile devices (Ferri et al., 2014), and the role of feedback in online social interactions (Ehsaei & Che Hussin, 2012). Further research (Venkatesh et al., 2003) into technology intention and use prompted TAM and TAM 2 to be extended into the UTAUT model.

The UTAUT Model: Explaining Technology Intention and Use

The UTAUT model describes the factors that determine and moderate an individual's technology intention and use (Venkatesh et al., 2003). UTAUT conceptualizes seven constructs

(performance expectancy, effort expectancy, attitude toward using technology, social influence, facilitating conditions, self-efficacy, and anxiety) that explain an individual's intention to use and subsequent use of technology (hereafter referred to as intention and use). Of these seven constructs, four are direct determinants of technology intention and/or use and are the most relevant to this study of mothers' technology decisions.

Determinants of technology intention and use. UTAUT describes four direct determinants of technology intention and/or use: performance expectancy, effort expectancy, social influence, and facilitating conditions. Related to the perceived usefulness construct in TAM and TAM 2, UTAUT's (Venkatesh et al., 2003) construct *performance expectancy* is defined as an individual's perception that technology will improve his or her performance of a task (p. 447). Performance expectancy is the strongest predictor of user intention (Venkatesh et al., 2003).

Connecting to the perceived ease of use construct in TAM and TAM 2, UTAUT's construct e*ffort expectancy* describes "the degree of ease" (Venkatesh et al., 2003, p. 450) an individual associates with technology. Research indicates older individuals (Morris & Venkatesh 2000; Yu, 2012) and women (Bozionelos, 1996; Venkatesh & Morris, 2000; Venkatesh & Zhang 2010) are more influenced by effort expectancy in their technology intention. This study of mothers' technology decisions was important to understand how effort expectancy influenced the technology decisions of older and younger mothers.

Social influence is derived from descriptions of subjective norm in TRA (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) and TAM2 (Venkatesh & Davis, 2000) and addresses the importance placed in others' (who are important to the individual) beliefs about an individual's technology use (Venkatesh et al., 2003, p. 451). Research indicates women are more

aware of social perception than men when using new technology (Musleh, Marthandan, & Aziz, 2015; Venkatesh, Morris, & Ackerman, 2000) that can diminish with greater device or software experience (Venkatesh & Morris, 2000). The social influence determinant was especially useful in this study for understanding how a mother's technology decisions for herself and for her preschool child helped her maintain or reject others' beliefs about her technology use and that of her child.

Facilitating conditions examines user perception that support mechanisms will help and guide their technology use (Venkatesh et al., 2003, p. 453). Research of facilitating conditions indicates that technology convenience and accessibility improves an individual's technology experience and proficiency thereby increasing an individual's willingness to adopt technology (Joshua & Koshy, 2011). Parents function as a system of technology support that can improve their children's proficiency in online learning experiences (Eynon & Malmberg, 2011). This study of mothers' technology decisions explored mothers' perceptions of technology support regarding what devices she bought, how she used devices, and other technology decisions that affected her technology use and facilitation of her preschool age child's technology use.

Moderators of effect. The UTAUT model identifies variables such as *age*, *gender*, *experience*, and *voluntariness of use* (technology use in mandatory or voluntary contexts) that moderate the effect of determinant factors on an individual's intention and use of technology. The moderators affect the determinants of use although not all determinants are mediated by each moderator. As an example in the case of women, age and experience are significant moderators of effort expectancy and intention to use technology (Morris & Venkatesh 2000); however, age, experience, and voluntariness of use are significant moderators of social influence and intention to use technology (Venkatesh et al., 2003). This study of mothers' technology

decisions explored differences in age and technology experience that informed a mother's technology intention and use for herself and for her preschool age child.

UTAUT is a comprehensive, empirically validated technology acceptance model with a predictive validity for technology intention greater than 70% (Oye, A.Iahad, & A.b.Rahim, 2014, p. 256) and technology use around 50% (Venkatesh, Thong, & Xu, 2012, p. 157). The UTAUT model has been applied in many contexts (Im, Hong, & Kang, 2011; Williams, Rana, & Dwivedi, 2015): technology acceptance in education (Attuquayefio & Addo, 2014; Wong, Teo, & Russo, 2013), e-learning and management (Lin & Anol, 2008; Raman, Don, Khalid, & Rizuan, 2014), e-commerce (Esteva-Armida & Rubio-Sanchez, 2012) e-banking (Al-Qeisi, Dennis, Hegazy, & Abbad, 2015) and e-government (Williams et al., 2015). However, the UTAUT model had not been applied to understanding how a mother develops personal technology preferences that influence her intention to use technology and the technology decisions she makes for herself and for her preschool age child.

Recognizing the contribution of UTAUT and the wealth of research on technology intention and use, Venkatesh (2006) encouraged future research into the "how or why" (p. 508) of an individual's technology choice. To that end UTAUT has been expanded and applied to a consumer context (UTAUT2; Venkatesh et al., 2012) exploring three additional choice constructs: hedonic motivation, price value, and habit (p. 157). Limited validation of this new extension of UTAUT made it unsuitable as a conceptual foundation for this study of a mother's technology preferences and technology decision-making for herself and for her preschool age child.

Research has explored technology preference as an antecedent to technology intention and use (Jaafar et al., 2014; Muthitcharoen et al., 2011). Technology preference can be defined

as an individual's explicit or implicit comparison (Muthitcharoen et al., 2011) and choice "of one thing before or above another thing because of a notion of betterness" (Brown, 1984, p. 323). The Model of Technology Preference (MTP; Muthitcharoen et al., 2011) identified the effect of attribute-based preference on attitude-based preference. Pairing TAM and preferential decision knowledge related to product marketing, MTP describes *attribute-based preference* as an individual's detailed comparison of "specific attributes of alternatives" (Muthitcharoen et al., 2011, p. 209) to form a technology preference. *Attitude-based preference* describes how "individuals employ their general feelings to develop their preference" (Muthitcharoen et al., 2011, p. 209) about a specific form of technology. Scant research validating this new model made it unfit as a theoretical foundation for this study. However, the recognition that technology preferences is an under-researched component of technology intention (Jaafar et al., 2014; Muthitcharoen et al., 2011) and that variables related to an individual's technology choice is a needed expansion of UTAUT (Venkatesh, 2006) made this study of mothers' technology decisions important.

Recognizing UTAUT's assertion that an individual's technology intention and use will "evolve over time" (Venkatesh et al., 2003, p. 468), this study explored the factors that determine and moderate a mother's technology decisions for her child within the lifespan developmental processes identified in the Process-Person-Context-Time (PPCT) model (Bronfenbrenner & Morris, 1998) of bioecological theory (Bronfenbrenner & Ceci, 1993, 1994). Based on the relevance of using the UTAUT model and the PPCT model for this study, the next section provides description of the PPCT model and its origins in ecological theory (Bronfenbrenner, 1979).

The PPCT Model: Origins in Ecological Theory

The PPCT model represents the fullest and final expression of Urie Bronfenbrenners's (1917–2005) research on how an individual's development is influenced by different social contexts and interactions with others. The process, person, context, and time elements of the PPCT model (Bronfenbrenner & Morris, 1998, 2006) cannot be fully understood apart from Bronfenbrenner's (1979) development of ecological theory and transition to bioecological theory (Bronfenbrenner & Ceci, 1993, 1994). Bronfenbrenner (1989) engaged in continuous theory development and self-reflection, making it necessary to identify origins and changes to key concepts that affect authentic use (Tudge, Mokrova, Hatfield, & Karnik, 2009) of the PPCT model as a conceptual framework for this study of mothers' technology decisions for their preschool age children in the home environment.

Pursuing a theory of human development that could inform research-based public policies benefitting families and children (Bronfenbrenner 1973, 1974, 1975, 1979), Bronfenbrenner challenged previous research practices and chose to study the social interactions of individuals in natural and familiar environments (1973, 1977, 1979) rather than a lab environment (1973, 1974, 1975, 1976, 1977, 1979). The first phase (1973-1979; Rosa & Tudge, 2013) of this research culminated in Bronfenbrenner's (1979) ecological theory that described human development as *ecology* or the interrelated system of mutual "adjustment" (1975, p. 439) and "accommodation" (1979, p. 21) between the developing individual (1976, 1979) and changing environmental contexts (1975, 1979). To explain the influence of remote and intimate settings on the developing individual, Bronfenbrenner (1976, 1977, 1978, 1979) conceptualized four interconnected ecological system structures (macrosystem, exosystem, mesosystem, and microsystem). He did not visually display these ecological systems which allowed for non-

standard interpretation of his enclosed interconnected structures (Bronfenbrenner, 1976, 1977, 1978, 1979) and non-standard conceptualization of the model as a circle within other circles.

The *microsystem* is the innermost structural layer or circle of Bronfenbrenner's (1979) ecological model. It is the most intimate and proximate system (Bronfenbrenner, 1974, 1977, 1979) denoting direct personal interactions with a spouse, immediate family, or close friends (Bronfenbrenner, 1977). When a mother interacts in multiple associative microsystems or a "system of microsystems" (Bronfenbrenner, 1976, p. 163) the interrelatedness of these interactions across settings (Bronfenbrenner, 1979) form a mesosystem.

The *mesosystem* structural layer or circle of the ecological model (Bronfenbrenner, 1979) describes an immediate (but not an intimate) development setting situated between exosystem and microsystem influences. Mesosystem influences could be a church, community group, or distant extended family (Bronfenbrenner, 1977, 1979). When a mother attends a weekly Mother of Preschoolers (MOPS) meeting she is interacting in a mesosystem. Some of the ideas discussed at that meeting may reflect influences from an exosystem.

The *exosystem* structural layer or circle of Bronfenbrenner's (1979) ecological model describes a system of external development settings and influences such as the workplace or a neighborhood in which an individual indirectly interacts. When a mother considers moving to a neighborhood for the schooling and social opportunities it can provide her child, she is reacting to exosystem influences. Her choice may also reflect philosophical macrosystem influences.

The *macrosystem* can be conceptualized as the outermost structural layer or circle of Bronfenbrenner's (1979) ecological model. This broad system describes social or cultural ideologies and beliefs that affect an individual (Bronfenbrenner, 1979). When a mother thanks a

veteran for his or her military service she is recognizing and responding to macrosystem messages about patriotism.

The four interconnected ecological system structures of Bronfenbrenner's (1979) ecological model were refined and later transferred to bioecological theory (Bronfenbrenner & Ceci, 1993, 1994) and the context element of the PPCT model (Bronfenbrenner & Morris, 1998, 2006). As Bronfenbrenner (1988, 1989, 1999) continued to study the ecology of human development he revealed, "I have been pursuing a hidden agenda: that of re-assessing, revising, and extending—as well as regretting and even renouncing – some of the conceptions set forth in my 1979 monograph" (Bronfenbrenner, 1989, p. 187). One important extension included the addition of a *chronosystem* (from 1986 to 2006; Rosa & Tudge, 2013) to the four interconnected ecological system structures to account for the changes to an individual's development through various experiences over time (Bronfenbrenner, 1988. 1989). This addition and continuous revision to ecological theory led Bronfenbrenner (1988, 1989, 1999) to reimagine the "engines" (Bronfenbrenner & Morris, 1998, p. 118) of human development represented in bioecological theory (Bronfenbrenner & Ceci, 1993, 1994) and the PPCT model.

The PPCT Model: Proximal Processes in Bioecological Theory

Continuous study of developmental interactions matured Bronfenbrenner's (1979) ecological theory to bioecological theory (Bronfenbrenner & Ceci, 1993, 1994), which redirected the study of human development from examining environment and human response to a study of *proximal processes* or "enduring forms" of reciprocal human interaction in an "immediate environment" (Bronfenbrenner & Morris, 1998, p. 996). Bronfenbrenner and Ceci (1994) explained how "human development takes place through processes of progressively more complex reciprocal interaction between an active, evolving biopsychological human organism

and the persons, objects, and symbols in its immediate environment" (p. 572). Thus, bioecological theory (Bronfenbrenner & Ceci, 1993, 1994) explores the proximal processes that drive "human development over time" (Bronfenbrenner & Morris, 2006, p. 793) by investigating the simultaneous influences of process, person, context, and time elements represented in the PPCT model (Bronfenbrenner & Morris, 1998, 2006). This study used elements of the PPCT model to explore how a mother's technology decisions reflect her increasingly complex lifelong interactions with others and technology in a variety of contexts, but specifically the home environment. It investigated the proximal processes that helped a mother understand herself and her technology, her world and its technology use, and the developmental influences of her technology decisions for herself and for her child in the home environment.

Process and person characteristics. Proximal processes are foundational to bioecological theory (Bronfenbrenner, 1999; Bronfenbrenner & Evans, 2000; Bronfenbrenner & Morris, 1998, 2006); thus, the first element of the PPCT model (Bronfenbrenner & Morris, 1998, 2006), *process*, identifies proximal processes as the primary mechanism of human development (Bronfenbrenner & Evans, 2000, p. 118). Bronfenbrenner and Ceci (1993) explained proximal processes through two central propositions; the first argues that an individual exerts power over his or her own development over the course of their lifetime by choosing to interact with others with regularity and increasing complexity in a variety of social contexts. Thus, this study explored how mothers exercised power over their own development and that of their children through their social interactions and technology decisions in the home.

The second proposition (Bronfenbrenner & Ceci, 1993) contends that proximal processes influence human development positively or negatively based on the frequency of interactions over an extended length of time, the developing person characteristics of each individual, and the

contexts of the interactions. These considerations inform the second element of the PPCT model, *person*, which explores the uniqueness of an individual by identifying force, demand, and resource characteristics that enhance or limit an individual's engagement in proximal processes (Bronfenbrenner & Morris, 1998, 2006). A mother's engagement in proximal process interactions with her developing preschool age child made the person and process elements of the PPCT model of particular relevance to this study because the model contextualized her person characteristics with that of her developing child while describing the reciprocal interactions of relationship that influenced both her development and that of her child's through the technology decisions she makes for herself and for her child.

Context characteristics. The third element of the PPCT model (Bronfenbrenner & Morris, 1998, 2006) is *context* which uses the four interconnected system structures (macrosystem, exosystem, mesosystem, and microsystem) first described in Bronfenbrenner's (1976, 1977, 1978, 1979) ecological theory to explain the influences of distal and proximate environments on the proximal processes of an individual. Describing bioecological theory (Bronfenbrenner & Ceci, 1993, 1994) through the context element of the PPCT model, Bronfenbrenner and Morris (1998, 2006) placed increased emphasis on proximal processes in the microsystem. The influence of other system structures was secondary (Bronfenbrenner & Morris, 1998, 2006) to the influence of proximal processes in the microsystem. Interestingly, the macrosystem that received considerable research description (Bronfenbrenner, 1979, 1989, 1993) during the transition from ecological to bioecological theory received only limited attention (Bronfenbrenner, 1994) thereafter.

Macrosystem influences. Had Bronfenbrenner (1917–2005) lived to see the extent of the global technology revolution he might have added more emphasis to the macrosystem part of the

ecological system in the context element of the PPCT model (Bronfenbrenner & Morris, 1998). Bronfenbrenner and Morris (2006) did note requisites for proximal interactions to occur between humans and objects: “the objects and symbols in the immediate environment must be of a kind that invites attention, exploration, manipulation, elaboration, and imagination” (p. 798). Technology fits this proximal process requisite, allowing it to be part of the macrosystem messages transmitted to individuals. Exploring how mothers perceive macrosystem messages about their technology use and the technology decisions they make for their preschool age child contributes to what is known about the success or failure of some national macrosystems to promote technology and beliefs that would maintain various cultural statuses.

Nations use technology to preserve national identity (Johanson, 2010) and strengthen national economic interests (Brynjolfsson & Saunders, 2010; Dimelis & Papaioannou, 2011; Lebens et al., 2009; Leviäkangas, Schneitz, & Aapaoja, 2015). European nations such as Finland recognize,

> there is a growing demand for digital learning services and applications. Due to this underlying societal and technological change education must be regarded as an ecosystem, where the different interacting organizations and individuals co-create applications and services . . . to support students’ growth and learning according to their needs—as well as according to identified societal future needs. (Leviäkangas et al., 2015, p. 508)

In support of these goals, education in the home is of growing interest to national governments that encourage parents to assist children’s assimilation of national identity using technology (Johanson, 2010). These social pressures placed on parents to align with cultural technology norms (Lebens et al., 2009; Plowman et al., 2010) make parents assume a dual role as provider

and regulator of technology (Davies, 2011; Shaikh et al., 2012). Exploring how mothers perceive these macrosystem messages to provide and regulate technology is important in understanding how a mother's response to cultural technology norms influences her child's development. Cultural technology norms extend beyond the macrosystem to the exosystem.

Exosystem influences. Mothers indirectly interact with technology-related exosystem influences from education systems (Korat, 2010; Li, Pow, Wong, & Fung, 2010; Moody, Justice, & Cabell, 2010). While some interpretations of Bronfenbrenner's (1977, 1979) description of the exosystem place all aspects of school in the mesosystem, this study (which was limited to mothers with an oldest child who did not attend a formal preschool) recognized modern interpretations of Bronfenbrenner's intent that the influence of this system is indirect (Rosa & Tudge, 2013, p. 247), making national schooling trends and national teacher practices part of the exosystem. National schooling trends promote technology use in three respects: to promote learning (Li et al., 2010); to promote device use such as tablet computers (Couse & Chen, 2010; Li et al., 2010) and laptops (Schnellert & Keengwe, 2012), as well as app use, such as e-books (Jones & Brown, 2011; Ko, Chiang, Lin, & Chen, 2011; Korat, 2010; Wright, Fugett, & Caputa, 2013); and to improve reading behavior (Siegenthaler, Wurtz, Bergamin, & Groner, 2011) and engagement (Moody et al., 2010). Teachers use technology in the classroom to increase student motivation (Gialamas & Nikolopoulou, 2010) and differentiate and facilitate student learning (Li et al., 2010). This study explored mothers' perceptions of the current technology use in American schools and how this exosystem influence informed their technology decisions for their preschool age children.

Further, mothers receive exosystem messages from the media (Ruggerio, 2012) about mothering and motherhood (Collett, 2005). One example of exosystem influence is media

portrayal of a consumer culture of preparation (Afflerback, Carter, Anthony, & Grauerholz, 2013) that encourages expectant women to transition from the role of woman to mother through the *consumption rituals* of "nesting" (preparing a physical place for the baby) and "gifting" (seeking and receiving gifts for the baby; Afflerback, Carter, Anthony, & Grauerholz, 2014, p. 2). These purchasing and receiving rituals "perpetuate the gender system, both through gendering the child and reinforcing the culture of motherhood" (Afflerback et al., 2014, p. 1) through the mother's choices (e.g., via a gift registry) about the items the child will have and use. Realizing that mothers may receive messages similar or counter to these, this study investigated what consumption messages mothers perceived and acted upon that affected their technology decisions of what to purchase for themselves and their children.

Mothers receive exosystem messages through different types of media. Some mothers find mothering support through social media such as Facebook (Bartholomew, Schoppe-Sullivan, Glassman, Kamp Dush, & Sullivan, 2012), Twitter (Thornton, 2013; Webster, 2010), Pinterest (McCann & McCulloch, 2012), and blogging (Friedman, 2013). In her book, *Mommyblogs and the Changing Face of Motherhood* May Friedman (2013) discussed the draw of blogging:

> Isolated and house-bound with my infant, I craved companionship. I turned on my computer, looking for a representation of my experience, for writing that somehow resonated with my frustrations and ambivalence . . . I leapt hungrily from blog to blog, following links and references, thrilled to confirm that I was not the only new mother feeling as I did. In turning to the mamasphere for wisdom, I found women who were keepers of real-life experiences that soothed me, calmed my fears, and presented their own contradictions and ambiguities. (p. 4)

The indirect influence of the exosystem of social media where mothers post their experiences and beliefs for strangers to read and critique has the potential to influence mothers through technology-mediated interactions. This study explored mothers' perceptions of social media use and how these perceptions influenced their personal technology decisions to engage in or limit their social media use for their own benefit and that of their children.

Television is another type of media exosystem influence. Ninety-six percent of U.S. homes have a TV, one-third of these homes have four or more TVs, and adults watch TV more than 4 hours a day (Nielsen, 2014). A sociological study of television use and the family argued that television is "a member of the family in a metaphorical sense but also in a literal sense insofar as it is integrated into the daily pattern of domestic social relations, and insofar as it is the focus of emotional or cognitive energy, releasing or containing tension for example, or providing comfort or a sense of security" (Silverstone, 1994, p. 39). When television fills this role in a family it can transfer exosystem messages about family life such as "the dynamics of a family's interaction, the dynamics of gender- or age-based identities and relations, or the dynamics of its [the family's] changing position in the world" (Silverstone, 1994, p. 40).

Television can also present exosystem messages to mothers (Afflerback et al., 2013; Bradshaw, 2013; Freehling-Burton, 2012). When mothers watch live television they see commercials promoting *mother-oriented consumerism* (qualities and characteristics mothers identify with and seek for themselves through consumer behavior; Afflerback et al., 2013, p. 387). Mothers may dislike TV commercials and resist these consumerism messages but "today it requires a substantial amount of effort to avoid the products of the culture industry" (Highmore, 2011, p. 115). Beyond the messages in commercials, mothers receive messages from the TV shows they enjoy that portray various stereotypes, some presenting mothers in traditional

mothering roles (Freehling-Burton, 2012) and some presenting anti-heroine mother protagonists (Bradshaw, 2013). Using television as a medium to present specific messages is not a new phenomenon: “If the viewer perceives television content as representative of reality, one way to change society is to change what we see on television"(Meehan, 1983, p. 9). Thus, it is important to explore the exosystem messages mothers perceive about media and whether they ignore or act upon these messages in their technology decisions for themselves and for their children.

Mesosystem and microsystem influences. Mothers are influenced by proximate interactions that are both immediate (mesosystem) and intimate (microsystem). For example, when a mother is pursuing an advanced degree, the college she attends is a mesosystem of multiple (e.g., family, peers, professors) associative microsystems (Bronfenbrenner, 1976). Life events such as continuing education can be studied through the PPCT model because it is a lifespan model (Bronfenbrenner, 1995, 1999; Bronfenbrenner & Morris, 2006); thus, it is important to investigate how a mother’s current reflections on past experiences in the mesosystem of a specific college, secondary, or elementary school inform her current technology intention and use for herself and her child.

Mothers who have attended or are currently attending college interact as a student in a school specific mesosystem with a developing personal microsystem of technology use. Research of college students’ technology use behaviors suggests that, because students believe Internet use can assist them academically, they use the Internet for web-based learning and seeking academic help (Cheng & Tsai, 2011). Further examination of the mesosystems that influence a mother’s personal technology decision development can extend before college to when she was a secondary and elementary student. Research of both secondary and elementary mesosystems indicate students value the usability of technology (Mao, 2014; Yu, Lin, Han, &

Hsu, 2012). High school students' technology microsystem is characterized by a wide range of technology use for significant periods of time (Rideout et al., 2010). Elementary and middle school students can identify with and use technology so much that technology addictions can form (Ko et al., 2005; Li, Zhang, Lu, Zhang, & Wang, 2014). Mothers whose current technology preferences include web-based learning and a wide range of technology use for extended periods of time may hearken back to their developing personal microsystem of technology preferences and usage behaviors as students in a college, secondary, or elementary school.

Beyond the classroom, a mother who is employed is influenced by mesosystem and microsystem interactions related to her work. More than half of mothers with young children in the United States are working mothers (U.S. Department of Labor, 2013). Research of working mothers and parenting quality indicate positive effects on child well-being (Yetis-Bayraktar, Budig, & Tomaskovic-Devey, 2013) when the working mother has higher educational attainment and uses these social resources to manage home and work responsibilities (Augustine & Crosnoe, 2010). In contrast, parenting quality is lower with negative effects on child well-being if a mother has lower educational attainment and is unemployed (Augustine, 2014). Mothers who are employed have mesosystem and microsystem interactions that provide "psychosocial resources such as social networks, a system of norms, and organizational skills that facilitate more active and orchestrated parenting" (Augustine, 2014, p. 240). As working mothers actively parent, they perceive a greater role set density (RSD), or how many roles they perceive and perform (Kulik, & Liberman, 2013), as they manage home and work responsibilities.

Working mothers use technology in the home microsystem to manage work and home connections. Social messages encourage mothers to bring their leadership and workplace skills into home interactions (Cook, 2013). Cook (2013) described the social pressures and technology

decisions of working mothers: “they also are increasingly held morally and socially responsible for virtually every aspect of the lives of their children. As such, many have become actively engaged in influencing the kinds of products available for their children by making use of Web 2.0 technologies and social media” (p. 77). Given the emphasis on technology and management of home and work responsibilities in the literature, this study explored how mothers perceive technology influenced their role as a working or stay-at-home or mother.

Both working and stay-at-home-mothers’ role perceptions are informed by two different beliefs about being a good mother (Christopher, 2012). Some mothers identify with *intensive* parenting believing, “good childrearing requires the day-to-day labor of nurturing the child, listening to the child, attempting to decipher the child’s needs and desires, struggling to meet the child’s wishes, and placing the child’s well-being ahead of their own convenience” (Hayes, 1996, p. 115). Other mothers, particularly working mothers, may identify with *extensive* parenting believing motherhood is leveraged leadership, delegated authority to caregivers, and attention to maternal needs while managing career and/or home roles (Christopher, 2012 p. 91). These contrasting perceptions of the mothering role involve actions occurring within and without the microsystem of the home and proximal process interactions that change over time.

Time characteristics. The last of the four elements (process, person, context, and time; Bronfenbrenner & Morris, 1998, 2006) of the PPCT model is *time*. Bronfenbrenner and Morris (1998, 2006) studied proximal processes and time at three levels: macrotime, mesotime, and microtime. The bioecological representation (Bronfenbrenner & Morris, 1998, 2006) of the chronosystem (Bronfenbrenner 1988) from ecological theory (Bronfenbrenner, 1979) is *macrotime* which describes “the changing expectations and events in the larger society, both within and across generations’’ (Bronfenbrenner & Morris, 2006, p. 796). A working or stay-at-

home mother's current role perceptions may be a reaction to her generational reflections on her mother's role perception. *Mesotime* denotes consistent interactions or routine activities that occur over days and weeks (Bronfenbrenner & Morris, 1998, 2006). A mother who reads to her child every night before bedtime is engaged in an ongoing proximal process of mesotime. *Microtime* occurs during a specific interaction or action (Bronfenbrenner & Morris 1998, 2006; Tudge et al., 2009). A mother who answers her cell phone while the family is eating dinner is acting in microtime during a specific interaction (dinner with the family). As it relates to this study, a mother's technology decisions are influenced by the macrotime of evolving social expectations (macrotime), routine (mesotime), and spur of the moment (microtime) technology choices. Studying a mother's technology decisions contextualized by time is important to understand how her long term and short term technology decisions affect her development and that of her child in the home environment.

Formalized at the beginning stages of the Information Age, the PPCT model (Bronfenbrenner & Morris, 1998, 2006) explored complex, bidirectional human interactions more than interactions between humans and objects (Rosa & Tudge, 2013, p. 253). While this complex interaction process had not been studied with mothers and their technology decisions for themselves and for their preschool age children, the PPCT model situated current literature's limited understandings of human interactions in a lifespan development model that could be merged with the UTAUT model's explanation of technology intention and use.

The UTAUT model and the PPCT model describe human and object interactions and environmental factors. Research has connected the PPCT model to technology (Johnson, 2010; Johnson & Puplampu, 2008), and examined the influence of proximal processes (Bronfenbrenner & Ceci, 1993; Bronfenbrenner & Evans, 2000), person characteristics (Bronfenbrenner &

Morris, 1998, 2006), and technology-related context systems both immediate (Hollingworth et al., 2011; Plowman et al., 2011; van Steensel et al., 2011) and remote (Brynjolfsson & Saunders, 2010; Schnellert & Keengwe, 2012; Wright et al., 2013) on an individual. Yet, the PPCT model does not explain how an individual accepts and uses technology. The UTAUT model describes the determinants and moderators of an individual's technology intention and use, but it does not explain how an individual forms technology preferences. Research describes how individuals form technology preferences (Jaafar et al., 2014; Muthitcharoen et al., 2011), but shares a common limitation with the UTAUT model by not explaining how an individual forms and uses technology preferences to make technology decisions for another. The TPACK framework (Mishra & Koehler, 2006) explains how classroom teachers make curricular technology decisions for themselves and for students, but these pedagogically-linked technology decisions do not provide understanding about mothers' technology decision process for their preschool age child in the home environment.

Unexplored research connections between the PPCT and UTAUT models were examined by this study's exploration of a mother's technology decision-making for herself and for her child. These research connections provided greater understanding of the proximal processes of human and object interactions and the environmental factors that influence human perception. These understandings support women in their role as mothers by informing their technology decision-making and ultimately promoting the development and well-being of their children (Bronfenbrenner 1994, 1995b, 2000, 2001; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Evans, 2000; Bronfenbrenner & Morris, 1998, 2006).

Situation to Self

I came to this study from the perspective of a *digital visitor* conceptualizing technology as a tool for situational use (White, & Le Cornu, 2011). In keeping with this study's use of the term technology to describe emergent or established ICT, my first experience with computers was in a high school typing class using computer lab desktops to complete typing exercises. Through trial and error, I picked up the skills I needed to complete many digital tasks required by my teaching career. When I was a general education teacher, I learned how to use grade keeping software, PowerPoint, and a Smartboard. As a university instructor, I learned new skills such as editing technology-mediated residential and online coursework. Every school year brings new software, devices, and opportunities to keep up with tech savvy college students.

I acknowledge my researcher bias in this study. Philosophically and pedagogically, I think of myself as a technology rebel. I advocate strongly for technology use and paperless teaching, but I advocate just as strongly for thoughtful technology boundaries. In a technology lecture to college faculty, I described my personal philosophy of technology as Control Comfort Access (CCA) (Wicks, 2010). This philosophy helps me choose technology that supports my life and work tasks without added distraction. My technology preferences and use seem contradictory—I teach online college classes, I prefer researching using online sources, and I teach residential college classes with a Smartboard, but I do not own a cell phone. For me these elements are not contradictory because they are situated in my personal philosophy of technology (CCA) and prompt personal reflective questions such as: (a) Can I control this technology effectively? (b) Do I feel comfortable with the effort and time expended using this technology? and (c) Does this technology afford me adequate levels of personal privacy? How I answer these questions guides my consideration of devices, software, and Internet use.

My researcher lens was the viewpoint of an experienced educator who has no children of her own. As I reflected on my teaching experiences in a variety of learning settings (daycare, general education, adult basic education, and undergraduate and graduate teacher preparation), my post-positivist paradigm (human knowledge is always changing based on further investigation; knowledge is in a continual state of change; Phillips & Barbules, 2000) led me to believe that each of these different learning settings have a common element—the continuing influence of the home on the learner. Recent studies on the influence of the home on vocabulary and language (Asgari & Mustapha, 2011), literacy skills (Martini & Senechal, 2012), appreciation and involvement in school art programs (Melnick, Witmer, & Strickland, 2011), and technology use (Davies, 2011) show the influence of the home on student learning success, making a study of children's preschool age experiences of additional importance.

Assuming the axiological position that the family is the first and most valuable relationship, I pursued this gap in the literature concerning the value-laden technology decisions mothers make for their children. I believe examination of mothers' technology decisions will help family and education stakeholders understand and support mothers in their efforts to nurture and train their children for the technological and contemporary realities of culture.

Problem Statement

Research examines key elements of the proximal processes defined in Bronfenbrenner's bioecological theory (Bronfenbrenner & Ceci, 1993, 1994), organized within the PPCT model (Bronfenbrenner & Morris, 1998, 2006), and evidenced in technology decisions related to national interest (Brynjolfsson & Saunders, 2010; Dimelis & Papaioannou, 2011; Johanson, 2010; Jones & Brown, 2011; Lebens et al., 2009), national schooling goals (Ko, Chiang, Lin, & Chen, 2011; Couse & Chen, 2010; Korat, 2010; Moody et al., 2010; Schnellert & Keengwe,

2012; Siegenthaler et al., 2011; Wright et al., 2013) and national teacher practices (Gialamas & Nikolopoulou, 2010; Li et al., 2010), as well as media messages about motherhood (Afflerback et al., 2013; Bradshaw, 2013; Collett, 2005; Freehling-Burton, 2012; Friedman, 2013; Ruggerio, 2012) and a mother's past experiences as a student in school specific mesosystems (Acosta, 2014; Cheng & Tsai, 2011; Mao, 2014; Rideout et al., 2010; Yu et al., 2012) and home microsystems (Grant, 2011; Herold, 2011; Hollingworth et al., 2011; Korat, & Or, 2010; Mawson, 2010; Plowman et al., 2010; Plowman et al., 2011; van Steensel et al., 2011). Research examines the factors that determine and moderate an individual's technology intention and use through the UTAUT model (Venkatesh et al., 2003) and investigates how individuals form technology preferences (Jaafar et al., 2014; Muthitcharoen et al., 2011), but research does not explain how an individual forms and uses technology preferences to make technology decisions for another. The TPACK framework (Mishra & Koehler, 2006) describes the pedagogical considerations that inform teachers' technology decisions for themselves and for students in the classroom environment but does not provide insight into mothers' technology decisions for their preschool age children in the home environment. Thus, the literature afforded a limited understanding about the proximal process of technology decision-making an individual makes for themselves and for another, and specifically how mothers make technology decisions for their preschool age children in the home environment.

Purpose Statement

The purpose of this systematic grounded theory study was to explore the technology decision process mothers use when making technology decisions for their preschool age children in the home environment. The focus of this study was to identify the influences that shape a mother's technology preference, use, and decision-making for herself and for her child thereby

producing a theoretical model that expands and connects elements of the PPCT model of Bronfenbrenner's bioecological theory (Bronfenbrenner & Ceci, 1993, 1994) and the UTAUT model of technology intention and use. In this study, the term *preschool age child* identified children ages 3 to 5 years old who do not attend a school, certified preschool, or educative child day center (Virginia Department of Social Services, 2013). The term *technology* signified emergent or established (Halaweh, 2013) data, voice, or video (Melody, 1986; Rideout et al., 2010) information communication technology (ICT). *Technology decisions* were defined as the reactive or purposeful choices an individual makes to own, use, or control another individual's use of technology (Ajzen 1985, 1989, 1991).

Significance of the Study

The theoretical significance of this study is gaining a better understanding of the proximal processes and technology-related determinants and moderators that influence a mother's personal technology intention and the technology decisions she makes for her preschool age child. The PPCT model (Bronfenbrenner & Morris, 1998, 2006) of Bronfenbrenner's bioecological theory (Bronfenbrenner & Ceci, 1993, 1994) identifies how process, person, context, and time characteristics affect human development through increasingly complex reciprocal interactions between individuals (Bronfenbrenner & Ceci, 1994) who exercise will and control over their personal environment and development, and that of others (Bronfenbrenner & Ceci, 1993). The UTAUT model connects to the PPCT model by explaining the factors that determine and moderate an individual's will and control over their technology intention and use. Neither theoretical model explains the factors that influence how mothers make technology decisions for their children. Studying a mother's technology decision process and the proximal interactions whereby she exerts will and control over her personal technology

environment and development and that of her preschool age child addressed this gap in the theoretical literature.

This study answered calls for empirical research to explore additional determinant and moderating factors (Alharbi, 2014; Oh & Yoon, 2014) related to the UTAUT model by exploring how mothers form personal technology preferences, how their technology intention and use affects their technology decisions for their children, and how mothers ascribe meaning to their children's use of technology. This study addressed the call for additional research into informal ICT learning in the home (Lahtinen, 2012) from a mother's perspective. This study furthered existing research evidence about how adults introduce children to technology and facilitate device and software use (Hollingworth et al., 2011; Mawson, 2010; Plowman et al., 2010). This study provided a mother's perspective regarding children's performance of specific tasks using technology selected by adults (Couse & Chen, 2010; Isomursu, Ervasti, Kinnula, & Isomursu, 2011; Lebens et al., 2009; Ntuli & Kyei-Blankson, 2012).

The practical significance of the model this study generated is to provide greater understanding of how mothers make technology decisions for themselves and for their preschool age child. Mothers receive social messages about technology and parenting designed to "reassure them and help them to realize that the digital immersion is a good thing for their kids" (Tapscott, 2008, p. 8). This research model identified the technology decisions mothers make for themselves and their children thereby informing American women in their motherhood roles as caregivers (Brown, et al., 2011; Song, et al., 2014; Tottenham et al., 2012) and decision makers (Jang et al., 2015) so they can use technology to support their own development while promoting their children's development and ultimate well-being (Bronfenbrenner 1994, 1995b, 2000, 2001; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Evans, 2000; Bronfenbrenner & Morris, 1998,

2006). To that end, this study may also inform early educators who have a primary caregiver relationship with children and want to support the home environment in preschools.

Research Questions

Three research questions guided this systematic grounded theory study of the technology decision process mothers use when making technology decisions for their preschool age children in the home environment.

Research Question 1. What factors influence how a mother of a preschool age child forms personal technology preferences?

Research described the factors that determine and moderate an individual's technology intention and use (Venkatesh et al., 2003) and how individuals form personal technology preferences (Jaafar et al., 2014; Muthitcharoen et al., 2011) but research did not explain the process by which an individual uses personal technology preferences to inform and make technology decisions for another. Research (Mishra & Koehler, 2006) of how classroom teachers make technology decisions for themselves and for students offered limited insight into mothers' technology decisions for their preschool age children in the home environment. Research indicated mothers use technology in the home microsystem to manage work and home connections (Cook, 2013), give (Lin 2001) and glean information (Harpham, Grant, & Thomas, 2002; Putnam, 2000), and connect to friends and family (Bartholomew et al., 2012). Yet, research did not indicate what factors influence a mother's formation of personal technology preferences that influence her technology decision-making for herself and for her child. Working mothers or stay-at-home mothers may perceive different social messages and feel different pressures of responsibility in the technology decisions they make for themselves and their children. Further, it was unknown how older mothers of preschool age children differed in their

technology preferences and decision processes from younger mothers based on the types of technology they grew up with, when they first used a computer, and what they think about technology now.

Research Question 2. How does a mother's personal technology preferences and technology use affect her technology decisions for her preschool age child?

The process, person, context, and time characteristics of the PPCT model (Bronfenbrenner & Morris, 1998, 2006) of Bronfenbrenner's bioecological theory (Bronfenbrenner & Ceci, 1993, 1994) explored how an individual controls their personal development and environment and that of others through frequent and complex interactions (Bronfenbrenner & Ceci, 1993). Research identified how perception of gender role influences an individual's use of power and control (De Coster, 2012). Women in the role of mothers exercise will and control as they use technology for self-instruction (Fleming, Vandermause, & Shaw, 2014), information giving (Sinclair, 2013) and experience sharing (Friedman, 2013; Madge & O'Connor, 2006). Research (Venkatesh et al., 2003) of technology intention and use indicated age and experience are significant moderators in how a woman uses technology. Yet, it was unknown how a mother's technology experiences affect her technology decision process for her preschool age child. When a mother uses technology to accomplish certain tasks, she may expect her child to do the same (Weisskirch, 2011). It was unknown if a mother's technology preference and use guides or controls her young child's technology use.

Research Question 3. What factors influence how a mother ascribes meaning to her preschool age child's use of technology?

The UTAUT model explains the effect of social influence on an individual's intention to use technology (Venkatesh et al., 2003). This socially-derived tech image and its importance is

moderated by gender, age, and experience (Venkatesh et al., 2003, p. 447). What parents think about their older children's technology use is related to social scenarios involving how much time the child spends with technology and what websites he or she visits which may prompt parents to act and respond in accordance with their perceived role and responsibilities in the changing parent/child relationship (Hertlein, 2012). Research of parental technology mediation of older children shows control of older children's online experiences (Fletcher & Blair, 2014b; Vaterlaus, Beckert, Tulane, & Bird, 2014). Yet research did not describe how a mother attributes meaning to her preschool age child's technology use which may influence how she facilitates or oversees their use. A mother may perceive her child's technology use to change over time in a manner similar to changes in her own technology use. How a mother controlled her changing technology use and that of her developing child was unknown.

Research Plan

Qualitative inquiry facilitated the exploration of the technology decision process mothers use for their preschool age children in the home environment. Qualitative research "consists of a set of interpretive, material practices that make the world visible" (Denzin & Lincoln, 2000, p. 3). This study's explanation of the technology decision process mothers use when making technology decisions for their preschool age children in the home environment benefitted from a qualitative, visible depiction of the proximal processes. Qualitative practices, such as interviews and focus groups, and qualitative researcher craft, such as memoing and thick description, made the world of mothers' technology preferences and decision-making visible and describable.

This systematic grounded theory study involved a snowball and maximum variation sampling of 18 mothers of preschool age children living in urban, suburban, and rural areas located in or around a college town in central Virginia. Upon receipt of signed consent, each

mother filled out a demographics questionnaire about herself and her child. I reflectively analyzed this data and added clarifying questions to those already a part of the semi-structured interview. I conducted video/audio recorded semi-structured interviews. After individual interviews were completed, I held focus groups with participating mothers to confirm category saturation and provide the opportunity for member checking. All data were analyzed using open coding and memoing, axial coding, and theoretical coding to form a theoretical paradigm process model (Corbin & Strauss, 2008) of mothers' technology decisions for their children.

Delimitations

I delimited this study to mothers who have an oldest child of preschool age but without the child attending a formal preschool. This delimitation allowed me to study mothers' reasoning processes with limited influence from teachers or formal school settings.

I did not analyze fathers' technology preferences, use, or technology decisions for their children because research suggests a father's role may be discretionary and less well-defined in families with traditional gender roles (Brown et al., 2011; Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000). Gender roles involve power and control (De Coster, 2012, p. 587) over environments or individuals. Traditionally, men's "gender role is associated with being dominant and assertive" (Fischer & Anderson, 2012, p. 17) as they provide for the financial needs of the family. Women in traditional gender roles are "expected to be the caregiver of children, a gender role associated with being nurturing and affectionate" (Fischer & Anderson, 2012, p. 17). While this study included both working and stay-at-home mothers, it excluded fathers because the father role in the family in regard to gender-typed characteristics and gender role attitudes is less defined and researched (Fischer & Anderson, 2012, p. 18).

I made two assumptions in this study. Acknowledging the theory of planned behavior (Ajzen 1985, 1989, 1991), I defined technology decisions in its broadest sense as the reactive or purposeful choices an individual makes to own, use, or control another individual's use of technology. Second, I assumed that the technology decision process of mothers living in a southern locale with a traditional "Bible belt" culture in urban, suburban, and rural areas located in or around a college town in central Virginia is transferable to mothers in urban, suburban, or rural areas in other traditional "Bible belt" cultural regions or college towns of the United States.

Summary

This chapter began with a brief overview of the research context and the research gap that necessitated the study. I described the origins and key constructs of the UTAUT model and the limitations of the model concerning an individual's technology preferences and technology choices for another. I described the origins of the PPCT model by identifying key conceptual transitions from ecological to bioecological theory. I noted the limitations of this model in terms of explaining the process by which an individual accepts and uses technology. I described the research problem and the purpose of this research followed by the research questions that informed this study. The chapter concluded with an explanation of the research plan and study delimitations.

CHAPTER TWO: LITERATURE REVIEW

Overview

Research in developmental psychology describes the social and learning interactions between mother and child (Beebe, 1982; Bruner, 1976, 1983; Kaye, 1982; Schaffer, 1977; Trevarthen, 1998). Yet, there was limited theoretical understanding of how mothers facilitate children's technology use at home through their technology decision-making for their child before they enter school or start homeschooling. Theoretical literature identified the role of technology preference (Jaafar et al., 2014; Muthitcharoen et al., 2011) and the factors that determine and moderate an individual's selection and use of technology (Venkatesh et al., 2003), but literature did not describe how an individual forms technology preferences that inform the technology decisions they make for another. Pedagogical research (Mishra & Koehler, 2006) described classroom environments where teachers make technology decisions for themselves and for their students which provided limited insight into non-curricular technology decisions outside the classroom. Thus, research literature afforded a limited understanding about the proximal process of technology decision-making an individual makes for themselves and for another, and specifically how mothers form personal technology preferences, how their technology preferences affect their technology decisions for their children, and how mothers ascribe meaning to their children's use of technology in the home environment. Thus, the purpose of this systematic grounded theory study was to explain the technology decision process mothers use to make technology decisions for their preschool age children in the home. Such a study was necessary to better understand the process mothers use when making technology decisions for their preschool age children which furthers current understandings about the interactions shared by mother and child and informs mothers about how their technology decision-making promotes

their children's development and well-being (Bronfenbrenner, 1994, 1995b, 2000, 2001; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Evans, 2000; Bronfenbrenner & Morris, 1998, 2006).

In this chapter, I examine the theoretical and empirical literature on the interactions affecting mothers' technology decisions through the conceptual framework of the Unified Theory of Acceptance and Use of Technology (UTAUT) model (Venkatesh et al., 2003) and the Process-Person-Context-Time (PPCT) model (Bronfenbrenner & Morris, 1998). The chapter includes related literature concerning the individual, social, and environmental factors related to technology decisions within and without the home. The chapter concludes with the research gap that necessitated this study.

Conceptual Framework

Understanding the individual, social, and environmental factors affecting the technology decisions of mothers required a conceptual framework. A conceptual framework provides a "map" (Miles & Huberman, 1994) for investigating "grand theories" (Glaser & Strauss, 1967) or what is known about topics related to those examined in this study. The connections in this framework formed the basis for developing new connections that extended known theories and generated substantive theory (Glaser & Strauss, 1967, p. 113) about the technology decisions mothers make for their preschool age children. The UTAUT model and PPCT model were a good theoretical fit for describing the proximal system of individual, social, and environmental factors that affect the technology decision process mothers make for their preschool age children in the home environment.

Individual Factors of Behavior and Technology Use: Origins of the UTAUT Model.

The UTAUT model (Venkatesh et al., 2003) was developed by synthesizing the constructs of eight previous theories/models that explain information systems usage: Theory of Reasoned Action (TRA; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), Technology Acceptance Model (TAM; Davis, 1986, 1989), Motivational Model (MM; Davis, Bagozzi,,& Warshaw, 1992), Theory of Planned Behavior (TPB; Ajzen 1985, 1991), Model Combining the Technology Acceptance Model and Theory of Planned Behavior (C-TAM-TPB; Taylor & Todd, 1995), Model of PC Utilization (MPCU; Thompson, Higgins, & Howell, 1991), Innovation Diffusion Theory (IDT; Rogers, 1983), and Social Cognitive Theory (SCT; Bandura, 1986). The UTAUT model integrated 32 factors from these eight theories/models (Yu, 2012) to describe the factors that determine and moderate an individual's technology intention and use. Multiple theories/models can be linked to the formation of each UTAUT (Venkatesh et al., 2003) construct, but the theoretical origins of the UTAUT model that relate most to this study are the conceptualization of attitude, intention, and use beginning with the development of TAM (Davis, 1986, 1989) and TAM2 (Venkatesh & Davis, 2000) from elements of TRA.

The behavioral theory TRA describes the determinants of consciously intended behaviors (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) whereby an individual's positive or negative attitude about a behavior and perceptions of subjective norm (what others think about the individual performing the behavior; Fishbein & Ajzen, 1975, p. 302) inform an individual's intention to perform a specific behavior. TRA posits that an individual's belief and evaluation of the consequences of a behavior determine an individual's attitude (Fishbein & Ajzen, 1975, p. 29). In like manner, subjective norm is influenced by an individual's perceptions about the beliefs and expectations of a group and the individual's motivation to comply with group beliefs

(Fishbein & Ajzen, 1975, p. 302). TRA does not explain the influence of belief, attitude, and intention on the decisions an individual makes for another, and specifically, the beliefs and attitudes that guide a mother's technology decisions for her preschool age child.

Conceptualizing technology use as a behavior, TAM (Davis, 1986, 1989) adapted elements of the behavior theory TRA to technology. TAM explains that an individual's technology intention and use behaviors are determined by two beliefs: perceived usefulness and perceived ease of use. Perceived usefulness is a key determinant of technology intention and use (Venkatesh & Davis, 1996). Perceived ease of use is a direct determinant of perceived usefulness (Venkatesh & Davis, 2000) and a determinant of technology intention and use (Venkatesh & Davis, 1996).

Developing research understandings (Davis, 1986, 1989, 1993; Davis, Bagozzi, &Warshaw, 1989; Venkatesh & Davis, 1996) changed the conceptualization of attitude and intention in TAM. Originally, TAM posited that perceived usefulness and perceived ease of use determined an individual's attitude toward using technology (Davis, 1986, p. 24). Continuing research (Davis, 1989; Davis et al., 1989) found that "attitudes do not fully mediate the effect of perceived usefulness and perceived ease of use on behavior" (Davis, 1989, p. 335) and that intention is a better predictor of technology use. Thus, TAM was revised to include intention as a direct determinant of technology use to provide "a basis for tracing the impact of external factors on internal beliefs, attitudes, and intentions" (Davis et al., 1989, p. 985). In the final version of TAM, the attitude construct was removed (Venkatesh & Davis, 1996 p. 453) "because of partial mediation of the impact of beliefs on intention by attitude, a weak direct link between perceived usefulness and attitude, and a strong direct link between perceived usefulness and intention" (Venkatesh, 2000, p. 344). While research has replicated (Adams, Nelson, & Todd, 1992) and

validated (Hendrickson, Massey, & Cronan, 1993) and widely applied (Chen, Li, S.; & Li, C., 2011; Elkaseh, Wong, & Fung, 2015) TAM, its generalizability is a strength and limitation (Venkatesh, 2000). TAM can be applied to a study of a mother's technology decisions with regard to her perception of technology usefulness and ease of use, but the model does not describe what beliefs determined her perceptions.

The TAM model is limited in its ability to identify the antecedents that influence an individual's perceptions of perceived usefulness and perceived ease of use (Venkatesh & Davis 1996 p. 473). To address this limitation TAM was theoretically expanded in TAM2 (Venkatesh & Davis, 2000) to explain perceived usefulness and usage intentions through *social influence processes* (subjective norm, image, and voluntariness) and *cognitive instrumental processes* (job relevance, output quality, result demonstrability, and perceived ease of use). Perceived ease of use, perceived usefulness, and subjective norm directly affect intention to use and ultimately usage behavior. Answering calls for additional research into "the conditions and mechanisms" (Davis et al., 1989, p. 999) of social influence, TAM2 identified subjective norm as a direct effect on technology intention and use in mandatory contexts (Venkatesh & Davis, 2000). The combined effect of social influences and cognitive instrumental processes explained 60% of the variance in technology intention and use (Venkatesh & Davis, 2000, p. 198). This confirmed the relevance of additional research (Agarwal & Prasad, 1997; Karahanna, Straub, & Chervany, 1999; Sussman, & Siegal, 2003) into the antecedent influences on perceived usefulness and perceived ease of use and made UTAUT a necessary model to consolidate the key components of the eight primary theories/models used in information system research.

Individual Factors of Technology Intention and Use: The UTAUT Model.

Integrating 32 key factors from eight theories/models (Yu, 2012), the UTAUT model provides a holistic description of four main effects and four moderating effects (Oye, A. Iahad, & Nor Zairah, 2012) on an individual's intention to use and subsequent use behaviors (hereafter referred to as intention and use). UTAUT conceptualized four direct determinants of technology intention and/or use (performance expectancy, effort expectancy, social influence, facilitating conditions; Venkatesh et al., 2003). The theory identifies how gender, age, experience, and voluntariness of use moderate the influence of the four determinant constructs on technology intention and use.

Derived from the TAM/TAM2 construct of perceived usefulness, the UTAUT construct *performance expectancy* identifies how individuals perceive using a form of technology will improve their task performance (Venkatesh et al., 2003). This construct is the strongest predictor of an individual's technology intention (Davis, 1989; Venkatesh and Davis, 2000; Venkatesh et al., 2003). Research indicates the strength of this relationship is moderated by age (Morris, Venkatesh, & Ackerman, 2005) and gender (Venkatesh et al., 2003; Venkatesh & Zhang 2010), making the relationship significant in younger workers and men (Venkatesh et al., 2003). Some studies note age is not a moderating effect on an individual's perception of performance expectancy and use in e-learning (Oye, A. Iahad, & Nor Zairah, 2011) or e-commerce (Yu, 2012) and that performance expectancy is not a significant effect on continuance intention and use of e-learning in a higher education context (Azlina, Razak, & Abdulla, 2013). Responding to calls for more research of age-related variables in UTAUT (Parameswaran, Kishore, & Li, 2015), this study of younger and older mothers' technology decisions was needed to better understand the

moderating influence of age on mothers' perceptions of performance expectancy on her own technology decisions and those made for her child in the home context.

Related to the TAM/TAM 2 construct perceived ease of use, UTAUT's construct *effort expectancy* describes an individual's perception about "the degree of ease" associated with using a form of technology (Venkatesh et al., 2003, p. 450). The effect of effort expectancy on technology intention is moderated by age (Morris & Venkatesh 2000; Yu, 2012), gender (Bozionelos, 1996), and experience (Venkatesh et al., 2003) making this effect strongest for older women who have little experience using a particular form of technology (Venkatesh & Morris, 2000; Venkatesh & Zhang 2010). Literature supports effort expectancy as a significant influence on individual's use of mobile technologies (Lu, Yu, & Liu, 2009; Park, Yang, & Lehto, 2007), technology services such as Internet banking (Al-Qeisi et al., 2015), and online shopping (Musleh et al., 2015). Literature suggests age is a moderating factor of effort expectancy and tablet use (Magsamen-Conrad, Upadhyaya, Joa, & Dowd, 2015). This study of mothers' technology decisions was important to understand how effort expectancy influenced perceptions of ease among older and younger mothers when they used new technology and made technology decisions for themselves and their preschool age children.

Taken from descriptions of subjective norm in TRA and TAM2, the UTAUT construct, *social influence* identifies the importance an individual places in others' beliefs about his or her technology intention and use (Venkatesh et al., 2003). This construct addresses some of the thinking and belief limitations (Pijpers, 2001) of the TAM model by describing the cognitive and social processes (Oye et al., 2014) that encourage or limit an individual's technology intention and use. The relationship between social influence and an individual's technology intention and use is moderated by all UTAUT moderators (age, gender, experience, and voluntariness of use)

making the effect most significant for older women who must use a form of technology that they have only begun to use (Venkatesh & Morris, 2000). When women use new technology, they will be more aware of social influences than men (Musleh et al., 2015; Venkatesh et al., 2000) which can lessen with experience (Venkatesh & Morris, 2000). Empirical literature finds social influence is a significant determinant of intention and use in e-commerce (Bozorgkhou, 2015; Jaradat & Al Rababaa, 2013) and younger individuals using online banking services (Yu, 2012). This study of a mother's technology decisions explored whether a mother's age and inexperience with new technology influenced her technology decisions for herself and for her child.

One UTAUT construct that directly determines technology use is *facilitating conditions* which describe an individual's perception that help mechanisms support his or her technology use (Venkatesh et al., 2003, p. 453). The effect of facilitating conditions on use behavior is moderated by age and experience (Venkatesh et al., 2003, p. 447). Facilitating conditions will improve an individual's technology experience and proficiency as they use technology (Joshua & Koshy, 2011). Older women value facilitating conditions based on how experienced they are using technology (Venkatesh et al. 2012). Research notes facilitating conditions are significant in predicting an individual's use of e-commerce (Bozorgkhou, 2015) and e-learning (Attuquayefio & Addo, 2014; Azlina, Razak, & Abdulla, 2013) particularly for older students (Khechine, Lakhal, Pascot & Bytha, 2014). Some e-learning research finds no significance between facilitating conditions and technology use (Thomas et al., 2014). Each e-learning study (Attuquayefio & Addo, 2014; Azlina et al., 2013; Khechine et al., 2014; Thomas et al., 2014) emphasized the role of context on their facilitating conditions findings. In the home context, parents are a system of technology support that can improve their children's proficiency in online learning experiences (Eynon & Malmberg, 2011). To better understand how facilitating

conditions determine technology use in the home environment, this study of mothers' technology decisions explored a mother's perceptions of technology support regarding what devices she bought, how she used devices, and other technology decisions that affected her technology use and facilitation of her preschool age child's technology use.

The UTAUT model provides understanding of technology intention and use in organizational (Maillet et al., 2015; Venkatesh et al., 2003) and non-organizational settings (Venkatesh et al., 2012), different cultures (Al-Qeisi et al., 2015; Belkhamza & Wafa, 2013; Musleh et al., 2015; Nistor et al., 2013; Thomas et al., 2014) and populations (Bozorgkhou, 2015; Kaba & Touré, 2014; Khechine, et al., 2014; Magsamen-Conrad et al., 2015; Raman et al., 2014). UTAUT has a broad theoretical acceptance (Im et al., 2011) that is often applied to e-learning use and management (Marchewka, Liu, & Kostiwa, 2007; Oh & Yoon, 2014), technology acceptance in education (Nistor, Göüs, & Lerche, 2013; Raman et al., 2014), and contexts such as e-commerce (Al-Qeisi & Al-Abdallah, 2014; Yu, 2012), e-government (Nasri, 2014), and health information technology (Maillet, Mathieu, & Sicotte, 2015; Vinko, Brecelj, Erzen, & Dinevski, 2013). However, the UTAUT model (Venkatesh et al., 2003) had not been extended to a bioecological understanding of proximal characteristics describing the process of how a mother's personal technology intention and use mediates the technology decisions she makes for her preschool age child in the home context. Such an understanding would conceptualize the determinant and moderator factors of a mother's technology intention for herself and for her child situated in the proximal processes of the home environment.

Individual, Social, and Environmental Factors in the PPCT Model

The PPCT model represents the fullest development of Bronfenbrenner's research (Tudge et al., 2009) into the interrelatedness of an individual and the social environment (Tudge, Gray,

& Hogan, 1997). In the first phase of his research (Rosa & Tudge, 2013), Bronfenbrenner's (1979) ecological theory argued that, "the scientific understanding of the basic intrapsychic and interpersonal processes of human development requires their investigation in actual environment, both immediate and remote, in which the human beings live" (p. 12). Bronfenbrenner's (1975, 1979) use of the term *ecology* represented the "adjustment" (1975, p. 439) and "accommodation" (1979, p. 21) that occur between humans and environments. A woman becoming a mother is an example of an adjustment and accommodation occurring between a social environment and a person. One author suggests, "A woman entering motherhood can experience changes in her bodily experience and functions, her emotions and psychology, her sleep and work schedules, the tasks she performs, her social circle, her sense of self, her sexuality, and the roles she plays" (Nelson, 2009, p. 12). Thus, ecological theory conceptualizes the reciprocal accommodation effects that occur between an individual and the environment (Bronfenbrenner 1976, 1978) and the term *ecological* refers to the social interaction system of a person and context (Bronfenbrenner, 1976; Rosa & Tudge, 2013).

Bronfenbrenner (1974, 1976, 1978) also studied a variety of complex interactions he termed *second order effects* (a third person of influence within a system), and *higher order effects* (several people influencing relationship interactions within a system). Welcoming a child into the husband and wife relationship is an example of a second order effect within the home microsystem. When the grandparents come to visit the new baby and the parents, this is a higher order effect on the relational interactions in the microsystem. As Bronfenbrenner (1988, 1989, 1999) continued to research the complexities of human interactions in social environments his continuous revision of ecological theory redirected his study of human development from examining environment and human response to a study of proximal processes conceptualized

through bioecological theory (Bronfenbrenner & Ceci, 1993, 1994) and represented in the PPCT model.

Bioecological *Process* Characteristics and Technology Decisions. Bronfenbrenner's bioecological theory (Bronfenbrenner & Ceci, 1993, 1994) of human development provides insight into how human genetic potential can vary in actualization by the strength of proximal processes and the characteristics of living environments (Bronfenbrenner & Ceci, 1994, p. 570). Bronfenbrenner and Ceci (1994) described proximal processes as "reciprocal interaction" (p. 572) whereby an individual is influenced by an immediate environment while exerting influence on that environment. Bioecological theory (Bronfenbrenner & Ceci, 1993, 1994) has two key propositions. First, over the course of a lifetime, an individual's development is influenced by the regularity and complexity of their reciprocal interactions (proximal processes) with people and objects (Bronfenbrenner & Ceci, 1994). Second, the "form, power, content, and direction of the proximal processes that affect development vary systematically as a joint function of the characteristics of the developing person and the environment (both immediate and remote)" (Bronfenbrenner & Ceci, 1994, p. 317). A mother's development has been influenced by her past proximal interactions (Van Parys, Smith, & Rober, 2014) with people and objects, and continues to be influenced. As a primary caregiver, a mother's social interactions with people and objects for herself also influences the development of her child (Bandura, Caprara, Barbaranelli, Regalia, & Scabini, 2011).

Bronfenbrenner posited that proximal processes support positive individual development and lessen negative effects of dysfunction (Bronfenbrenner & Ceci, 1993, 1994; Bronfenbrenner & Morris, 2006). Bronfenbrenner and Evans (2000) described *dysfunction* as an individual's failure "in maintaining control and integration of behavior across situations and different

domains of development" (p. 118). The opposite of dysfunction is *competence* which Bronfenbrenner and Evans (2000) described as demonstration of continuing "development of knowledge, skill, or ability to conduct and direct one's own behavior across situations and developmental domains'' (p. 188). For example, socioeconomic factors can influence proximal processes in supporting or undermining an individual's development and functional competence (Bronfenbrenner & Ceci, 1994, p. 578). Bronfenbrenner's continuing study led him to describe how these positive or negative environmental interactions can affect human genetic potential (Bronfenbrenner & Ceci, 1994, p. 572). While these heritability suppositions are outside the scope of this study, what is relevant to this study is the assertion that proximal interactions and environmental factors can exert tremendous influence on individuals and between individuals. In the PPCT model, proximal processes are the "primary mechanisms producing human development" (Bronfenbrenner & Morris, 1998, p. 994). Thus, this study of a mother's technology decisions was necessary to understand how proximal interactions and environmental factors exert positive or negative influence on a mother's technology decisions for herself and for her preschool child. These factors could influence what technology she lets her child use and how she oversees her child's technology use.

Bioecological *Person* Characteristics and Technology Decisions. As Bronfenbrenner and Morris (1998, 2006) studied proximal processes they recognized three distinctive person characteristics (force, demand, and resource characteristics) that influence human interaction and developmental outcomes. As a mother matures, the proximal processes that affect her development may be influenced by *force* characteristics that can generate or disrupt proximal processes between individuals (Bronfenbrenner & Morris 1998, 2006). *Generative* force characteristics are "such active orientations as curiosity, tendency to initiate and engage in

activity alone or with others, responsiveness to initiatives by others, and readiness to defer immediate gratification to pursue long-term goals'' (Bronfenbrenner & Morris, 2006, p. 810). As Bronfenbrenner and Morris (1998, 2006) explored generative force person characteristics, they noticed *disruptive* force characteristics in individuals such as "impulsiveness, explosiveness, distractibility, inability to defer gratification, or, in a more extreme form . . . aggression and violence'' (Bronfenbrenner & Morris, 1998, p. 1009; 2006, p. 810). Disruptive force characteristics block and limit proximal processes between individuals (Bronfenbrenner & Morris, 1998, 2006). Limitations in proximal processes not only affect the development of the individual but the development of individuals with whom he or she has interaction—limiting both developmental influences and developmental outcomes (Bronfenbrenner, 1995; Bronfenbrenner & Morris, 1998, 2006). This study of mothers' technology decisions was needed to understand if a mother's technology decisions reflect generative or disruptive force characteristics in her own development and in development interactions with her preschool child.

Bronfenbrenner and Morris (1998, 2006) described a second key person characteristic that affects proximal processes: *demand* characteristics involve the social engagement of an individual. Demand characteristics can involve personal attractiveness and personality (Bronfenbrenner & Morris, 2006). Reminiscent of the stages of personality development described in psychoanalytic theory and critiqued by Bronfenbrenner (1951), bioecological theory (Bronfenbrenner & Ceci, 1993, 1994) recognizes Freud's (1900, 1912, 1923, 1933) description of a system of *the unconscious* that influences thinking, motivation, and behavior. Current Freudian interpretations describe an active interplay "between conscious and unconscious locales of the mind" (Tauber, 2013, p. 231) that connect to bioecological understandings of demand characteristics in regard to an individual's conscious and unconscious self-appraisal based on

perceived social appraisal. A mother may consciously or unconsciously engage in self-appraisal as she uses social networking sites to connect with others and find support and "appraisal assistance" (Valtchanov, Parry, Glover, & Mulcahy, 2014, p. 187) in her role as mother. This study of a mother's technology decisions was necessary to explore whether social appraisal affected a mother's engagement and sense of belonging in technology-influenced social environments.

The last person characteristics that affect proximal processes are *resource* characteristics (Bronfenbrenner & Morris, 1998, 2006). Resource characteristics can enhance an individual's ability to participate in proximal processes through "ability, knowledge, skill, and experience" (Bronfenbrenner & Morris, 2006, p. 812) or limit an individual's ability to engage in proximal processes due to socioeconomic factors or physical impairments.

A mother may have grown up with economic and technology limitations that affected her resource characteristics, but she may have been like youth today from various racial and socioeconomic backgrounds who find ways to access the Internet (Watkins, 2010). A study of African American youth noted a preference to access the Internet through Smartphones (Tynes & Mitchell, 2014). African American children and youth engage in extensive media and technology use, more than white children and youth (Rideout et al., 2010; Rideout, Lauricella, & Wartella, 2011). Research of white and Latino children ages 4-11 found that "recreational computer use for Latino children was at or above that of white children, except when comparing children that had parents with at least a college education" (van Meijgaard, Shi, & Simon, 2013, p. 440). Correlation between higher parental education attainment and constraints on children's excessive computer use led study researchers to warn of excessive recreational computer use among Latino children and youth because of lower parental education attainment (van Meijgaard et al., 2013).

These findings underscore the importance of this study to explain the technology decision process of mothers from differing socioeconomic, race, and education backgrounds thereby broadening understandings of how a mother's growing up experiences with technology may perpetuate or constrain her child's computer use and resource characteristics in proximal processes.

Bioecological *Context* Characteristics and Technology Decisions. Bronfenbrenner's interconnected ecological systems (1974, 1976, 1978) situate the influences of human experience in various environments. These four systems transfer to Bronfenbrenner's bioecological theory (Bronfenbrenner & Ceci, 1993, 1994) to explain *context* in the Process-Person-Context-Time (PPCT) model (Bronfenbrenner & Morris, 1998). The conceptual framework for this study investigating the technology decision process mothers use when making technology decisions for their preschool age children in the home environment relates to the context systems of the PPCT model regarding proximal processes and technology decisions.

Technology macrosystems of national interest. Each nation-specific cultural system is a macrosystem defined by its ideology and policy making (Bronfenbrenner, 1979). These national ideologies may affect the technology decisions a mother makes for her child. As a macrosystem, nations maintain a distinctive cultural status by using technology to preserve national identity beginning with parents and children. Denmark, Norway, and Finland are at the forefront of this trend. Nordic nations fear children's unconstrained access to social networking sites will encourage children to "form a global culture exclusive of their parents" (Johanson, 2010, p. 389). These countries support cultural programs that encourage parents to control their children's technology use of websites and communication forums within Nordic nations (Johanson, 2010).

An American mother may receive cultural messages that nations maintain global status by using technology to strengthen national economic interests (Brynjolfsson & Saunders, 2010). The productivity of the US economy can be attributed in part to ICT producers and businesses with high ICT use (Dimelis & Papaioannou, 2011). Germany is another example of a robust economy built on technological advance and education. German schools encourage students to overcome limitations of socioeconomic status through successful interactions with technology (Lebens et al., 2009). The German government prompts teachers to countermand negative peer and family influences and help students increase their economic prospects through technology use (Lebens et al., 2009, p. 265). International attention on children's use of technology at home (Johanson, 2010) and at school (Lebens et al., 2009) demonstrates the limited understandings of parents' perceived role in preserving national identity through technology modeling and interaction with their children at home. Shaikh et al. (2012) noted,

> Governments, parents and teachers need to act as facilitators and mediators in the process of adoption and shaping of media culture rather than either acting as passive onlookers or active controllers. And for doing so they need to be aware of the importance of their role, alert to technological developments and very sensitive to the needs and situations of young people. (p. 5)

This study of a mother's technology decisions was needed to understand how a mother may perceive her role in increasing her child's economic prospects in a global economy macrosystem through maternal technology influence in the home. Additional influence exists through increased technology use in the exosystem of schools.

Technology exosystems of education influence. One exosystem of technology influence is increased use of technology in schools to promote learning. Mothers may have been indirectly

influenced by this exosystem as a student and now as a parent to use technology to aid learning. Schools offer students in-class use of technology such as tablet computers to support their knowledge building and social learning in the classroom (Li et al., 2010). Using the Internet, teacher and student learning collaborations go beyond information transfer to a real-time online concept collaboration in subjects like math (Cicconi, 2014). Tablet computers (Couse & Chen, 2010; Li et al., 2010), laptops (Schnellert & Keengwe, 2012), and e-books (Ko et al., 2011; Jones & Brown, 2011; Korat, 2010; Wright et al., 2013) are popular technology options schools and teachers use to accomplish educational objectives in the classroom.

Within the broad proximal exosystem of schools promoting learning with technology, reading behavior and engagement are a core objective in school curriculum. As a student, a mother may have learned to read or may have improved her reading skills using technology. Teachers encourage learning through reading engagement and use technology such as Digital Story Telling (DST) to support children's reading and entertainment through visual and audio cues, direct user page manipulation, and immediate feedback (Abdul Mutalib, Aziz, & Amilah Shaffiei, 2011, p. 24). Studies of children's reading behaviors with e-readers suggest greater eye fixation (Siegenthaler et al., 2011), reading engagement (Moody et al., 2010), and word learning (Korat, 2010). However, a critical review of research on CD-ROM storybooks offered mixed results due to the functionality of interactive story books, the reader's prior knowledge, and the individualized experience of each reader with the interactive elements of the book (Ertem, 2011, p. 36). Whether it is use of the Internet, CD-ROM, DST, or tablet computers, teachers try to enhance the reading and learning process. Because "educational technology is an engine for development" (Gebremeskel, Kebede, & Chai, 2015, p. 301), it was important for this study of mothers' technology decisions to determine if mothers of preschool age children may proximally

receive social messages from schools through media or friends and try to mimic teachers' use of technology to help their children learn.

Mesosystem and microsystem. Even though this study explored the decision process mothers use when making technology decisions for their preschool age children in the home microsystem, school mesosystems and the associative microsystem interactions of students' technology decisions provide important context for understanding associative environments that may influence the technology decision process mothers make for their preschool age children in the home microsystem. School specific mesosystems such as higher education, secondary, elementary, and preschool education provide the proximal contexts for understanding how a mother was influenced as a student by school technology use to develop a personal microsystem of technology use.

Higher education student's associative technology microsystem. If a mother has attended or currently attends college, she may have been influenced by the technology mesosystems of higher education in something as basic as what online resources the library offered. In the higher education mesosystem, academic libraries attempt to provide increased digital resources that meet users' needs for ease of online access and subject coverage (Vasileiou, Hartley, & Rowley, 2012). Yet, a literature review of current research on college academic reading revealed that students can shy away from online academic reading for many reasons including text organization and cognitive overload (Sandberg, 2011, p. 96). Students report that they use e-books for leisure reading while preferring traditional text for academic reading (Foasberg, 2011). This personal microsystem of technology use and self-regulation reflects what college students believe about the purposes of technology and Internet use (Chiu, Liang, & Tsai, 2013). Believing that Internet use can assist them academically, college students use the Internet for web-based

learning (Khidzir, Daud, & Ibrahim, 2015) and academic help seeking (Cheng & Tsai, 2011). This research connects college students' perceptions of self-efficacy in Internet academic help seeking to a pattern of increased online experience, confidence, and preference (Cheng & Tsai, 2011, p. 154). This personal microsystem of online experience and purpose-driven Internet use goes beyond academic technology use to social interactions.

Within the mesosystem of higher education, social media may have been (depending on her age) part of a mother's microsystem of college student online interactions and experiences. Eighty-two percent of college students check Facebook several times a day (Quan-Haase & Young, 2010). Researchers note that purpose and use are important elements in determining whether college students' participation in social media promotes well-being (Mastrodicasa & Metellus, 2013). Some students use social media to help them in the adjustment to college life (DeAndrea, Ellison, LaRose, Steinfield, & Fiore, 2012). Others use social media to bolster their self-esteem through selective personal disclosures consistent with their online identity (Jiang, Bazarova, & Hancock, 2011). Social media such as Twitter give college students a "digital citizenship" actively "crafting a positive public persona that allows them to gain social capital and bridge networks with others through online conversation" (Acosta, 2014, p. 16). It was unclear whether this purposeful identity building in college could be linked to the technology decision process of college educated mothers of preschool age children. Students enter the college mesosystem with a personal microsystem of technology use built from significant and purposeful technology use as secondary and elementary students.

Secondary and elementary students' associative technology microsystems. When a mother was in high school she may have had many types of technology and used it for extended periods of time. Within the secondary mesosystem, high school students' technology

microsystem is characterized by a wide range of technology use for significant periods of time, beyond 53 hours a week (Rideout et al., 2010). Research of high school students' extensive social media use highlights differences in student learning perspectives from that of schools:

> Students depend on social media in their personal lives, both in and out of school. Leisure and social connection are the top reasons for using social media. Educational uses by teachers for classroom teaching and learning are sporadic, while uses by students on their own for learning purposes seem to be abundant but also incidental and informal. (Mao, 2014, p. 221)

In contrast to the formal technology-mediated learning of schools, high school students value informal, technology-mediated social learning over extended periods of time (Mao, 2014). High school students' technology preference for informal, social learning may reflect early experiences in the home and the process of technology decision-making of their mothers. It is known that high school students' microsystem preference for extended and informal technology use reflects technology experiences associated with the mesosystems of middle and elementary school.

As an elementary or middle school student, a mother may have learned to adapt to new technology and value its usability. Research shows students adapt quickly and begin using new software to complete assigned tasks when faced with unfamiliar technology in school (Webber, 2012). To better understand how students accept and use technology, one study used a modified version of TAM to examine junior high school students' perceptions of technology, noting the importance of user identification with technology (Yu, K. et al., 2012). Elementary and middle school students can identify with and use technology so much that technology addictions can form—middle school students more so than elementary students (Ko et al., 2005; Li et al., 2014).

While research of elementary students indicated grade level, gender, social problems, and depression can be predictors of Internet overuse and addiction (Lan, & Lee, 2013), the issue of technology use for adolescents is more complex. A study of both adolescents' and their parents' online behavior indicated both knowingly engage in risky online behaviors including communication with strangers and online harassment (Dowdell, 2013). A mother's overuse of technology or personal decisions to engage in risky online behaviors may influence her technology decisions for others. Mothers may perceive social messages from media, friends, or faith communities that positively or negatively influence their personal use and influence their child's technology use in preschool and on into elementary and middle school.

Preschool students' associative technology microsystems. In preschool, teachers make technology available to students to promote learning dispositions, enhance operational skills, and expand children's knowledge (Plowman et al., 2010, p. 99). Preschool students show increased interest, persistence, and ability when using a tablet computer to draw (Couse & Chen, 2010). In another study, preschool age children demonstrated greater communicative participation and reading engagement using electronic storybooks (Moody, et al., 2010). While young children can associate play with learning and technology use, teachers tend to uphold education norms by encouraging children to see technology primarily as a learning tool (Ntuli & Kyei-Blankson, 2012).

A mother who associates technology as a tool for learning or play may influence her child to think similarly—research indicates children have definite ideas related to technology formed from diverse technology experiences in the home (Mawson, 2010) microsystem. A mother's technology decisions may be the reason research indicates that families have a wider range of technology for children to use than schools (Plowman et al., 2010). When children talk

about technology, their responses tend to emphasize products (Mawson, 2010) or activities like social networking with family and friends, watching movies or videos on YouTube, or gaming (Jewitt & Parashar, 2011). Further research about preschoolers indicates they use computers and television mostly for entertainment (Natsiopoulou & Bletsou, 2011). For some children, computers are the entertainment media of choice topping television and books (Natsiopoulou & Bletsou, 2011, p. 102). Consequently, researchers advocate parents set limits on computer use and television watching, and use technology with their children to model appropriate and selective technology use in a "media-saturated environment" (Natsiopoulou & Bletsou, 2011, p. 103). Research does not indicate how preschool mothers' technology decisions may meet this mandate beyond informal modeling.

Bioecological *Time* Characteristics and Technology Decisions. Mothers' technology decisions for themselves and their preschool age children can be examined through the representations of time in the PPCT model. *Macrotime* describes the generational changes in a society's expectations (Bronfenbrenner & Morris, 2006, p. 796). A modern mother may not give her child a cassette tape or a pager because of the changing generational time context of technology decisions. This study of mothers' technology decisions was needed to understand how younger and older mothers differ in their technology decision process based on the types of technology they grew up with, when they first used a computer, and what they think about technology now.

Mesotime identifies routine activities of interactions that consistently occur over days and weeks (Bronfenbrenner & Morris, 1998, 2006). When a mother buys her child a LeapPad so that he or she can play education games after naptime that is a proximal interaction that produces technology decisions that occur daily and weekly in mesotime. *Microtime* represents the

proximal processes that occur during a specific action or interaction (Bronfenbrenner & Morris 1998, 2006; Tudge et al., 2009). When a mother gives her fussing child an iPad to play a game while traveling in the car, that proximal interaction process involves a technology decision made in microtime. This study of mothers' technology decisions contextualized mothers' perceptions of how their short term and long term technology decisions affect their development and that of their children in the home environment.

The PPCT model explores the proximal processes that influence human development over a lifetime (Bronfenbrenner & Morris, 1998, 2006). The individual, social, and environmental factors related to technology decisions that influence national interest, teachers, students, parents, and mothers were conceptually examined in relation to the PPCT model. While the PPCT model does not explain how mothers accept technology or make technology decisions for their children, the model provides insight into the proximal interactions that may influence mothers' formations of technology preferences and technology decisions for themselves and for their children.

Related Literature

The conceptual framework describes how the PPCT model explains the proximal processes that influence an individual's development over a lifetime and how the UTAUT model identifies the determinants and moderators of an individual's technology intention and use. Theoretically, neither model explains how an individual forms technology preferences or makes technology decisions for another. The related literature connects theoretical understandings about the UTAUT and PPCT models to empirical literature about individual technology preferences, teachers' decision-making, and the technology decisions that occur outside and inside the home

environment. Understanding how the UTAUT model can be related to technology preferences begins with research about the MTP model.

Technology Preference: The MTP Model

Conceptualized as a theoretical extension of TAM, the Model of Technology Preference (MTP; Muthitcharoen et al., 2011, p. 210) identifies how technology intention is influenced by two types of technology preferences: attitude-based (an individual using their general feelings to develop a preference) and attribute-based (an individual's detailed comparison of technology alternatives based on attribute) (Muthitcharoen et al., 2011). Using the version of TAM that included attitude as a determinant of technology intention (Davis et al., 1989), MTP explains how implicit and explicit choice form technology preferences (Muthitcharoen et al., 2011, p. 213). An implicit technology choice is use or non-use of some form of technology (Dabholkar, 1994). A mother's choice to turn on the TV is an implicit choice. Both TAM and UTAUT indirectly conceptualize implicit choice through factors that determine and moderate whether an individual will use a form of technology or not. For example, both TAM and UTAUT would account for a mother's implicit choice to use a smartphone or not, but neither TAM nor UTAUT would explain a mother's explicit technology choice of an iPhone 6 rather than a Google Nexus 6. An explicit technology choice is one that compares alternatives and chooses one as preferable to the others (Muthitcharoen et al., 2011, p. 214). Thus, a technology preference is an implicit or explicit choice that represents an individual's perception of best (Muthitcharoen et al., 2011, p. 209).

The MTP model explores the antecedents of technology intention and extends TAM and UTAUT by explaining how individuals "use preference evaluation prior to the decision-making process of whether to adopt certain systems at the explicit level. The comparison of alternatives

is made for each attribute, and the decision is based on the summation of all aspects" (Jaafar et al., 2014, p. 703). Thus, MTP theorizes that individuals exercise explicit choice in forming attribute-based preferences that inform their attitude-based technology preference and determine their technology intention. Research describes the influence of technology preferences on technology intention regarding social media and information-seeking (Naftel et al., 2013) and age-related use of communication technologies (Weinberg, Guarino, Savoy, Horton, & Reed, 2012). This study of mothers' technology decisions was needed to understand how mothers form attribute and attitude-based technology preferences that inform their technology decision-making for themselves and for their children.

The marketing context and the limited research (Jaafar et al., 2014; Muthitcharoen et al., 2011) validating the MTP model made it unsuitable as a conceptual foundation for this study. However, researchers using MTP believe it can be customized for other contexts and that use of MTP to explain technology preference and intention in non-work environments could identify stronger determinant relationships between preference and intention (Jaafar et al., 2014; Muthitcharoen et al., 2011). MTP calls attention to technology preferences as an under-researched component of technology intention (Jaafar et al., 2014; Muthitcharoen et al., 2011) and confirms the need for additional research into how technology beliefs and intentions evolve over time (before, during, and after the adoption of a technology; Kaba, & Touré, 2014) and the needed expansion of UTAUT (Venkatesh, 2006) to include variables that explain how technology preferences inform the determinants of technology intention and use. Neither MTP nor UTAUT explain how an individual forms technology preferences that inform the technology decisions they make for another. However, pedagogical literature describes how teachers

integrate technology into student learning by making technology decisions for themselves and for their students using the TPACK model.

Technology Integration: The TPACK Model

Teachers are increasingly ICT literate and use technology in the classroom to increase student motivation and learning (Gialamas & Nikolopoulou, 2010). Teachers who used technology as college students bring their ICT knowledge and perceptions to their classrooms (Al-Barakat & Bataineh, 2011; Gialamas & Nikolopoulou, 2010). However, not all teachers show a predisposition to increased ICT use in the classroom in part because some are unsure how to integrate it into their subject (Morley, 2011) or teaching style (Padron, Waxman, Lee, Lin, & Michko, 2010; Wikan & Molster, 2011). Thus, the TPACK framework (Mishra & Koehler, 2006) offers teachers a helpful guide to select technology for themselves and for students to support learning in the classroom (Jamieson-Proctor et al., 2013; Matherson, Wilson, & Wright, 2014). The framework is used with pre-service (Kabakci Yurdakul, & Coklar, 2014; Lu, 2014; Maeng, Mulvey, Smetana, & Bell, 2013) and in-service (Hwee, Chai, & Ching-Chung, 2014; Matherson et al., 2014) teachers to merge their content knowledge (CK), pedagogical knowledge (PK), and technological knowledge (TK) to form an integrated technological pedagogical content knowledge (TPACK or "Total PACKage"; Thompson & Mishra, 2007, p. 38). The framework helps teachers across grade levels (Doering et al., 2014) and disciplines (Hong & Stonier, 2014) pedagogically choose what the best technology is for themselves and for their students.

TPACK is not a formal theory (Kimmons, 2015): it provides a framework for conceptualizing "what is important and what is not [important] in any discussions of teacher knowledge surrounding using technology for teaching subject matter" (Mishra & Koehler, 2006, p. 1046). TPACK describes the "intersection and interplay" (Jamieson-Proctor et al., 2013, p. 27)

between a teacher's content knowledge, pedagogy, and technology use and provides "an analytical lens with which to look at the instructional decisions teachers make" (Graham, Borup, & Smith, 2012, p. 3). Thus, teachers make implicit (use or non-use) and explicit (choice amid alternatives) technology choices in their professional use of technology to present instructional concepts to their students (Brantley-Dias & Ertmer, 2014). Also, teachers make implicit and explicit technology choices to integrate technology in student learning (Graham et al., 2012). These pedagogical and subject matter technology decisions teachers make for themselves and for their students in the classroom have little connection to the technology decisions mothers make for themselves and their children in the home. The TPACK framework is for teacher educators in a classroom setting (Abbitt, 2011; Archambault, & Barnett, 2010) making it not a good theoretical fit for this study of mothers' technology decisions in a home setting. This underscored the need to understand how mothers with varying levels of ICT literacy may mimic teachers in recognizing the need to include technology use into their parenting routine to assist in their child's learning in the home environment. Understanding the factors that affect a mother's technology decisions begins with identifying the technology influences she may receive outside the home.

Technology Influences Outside the Home

Bronfenbrenner's desire to study human development to inform public policies that supported positive developmental outcomes in children and families (Bronfenbrenner 1973, 1974, 1975, 1979, 1994, 1995; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Evans, 2000; Bronfenbrenner & Morris, 1998, 2006) led him to place special emphasis on the microsystem of the home. In like manner, this study was limited to exploring the technology decision process mothers use when making technology decisions for their preschool age children in the home

environment. The empirical literature about technology influences outside the home regarding race, employment, and economic status that may influence a mothers' technology decisions for herself and for her preschool age child are best examined conceptually through proximal processes (PPCT model) and determinants of technology intention and use (UTAUT model).

Mothers may be influenced by macrosystem or exosystem (context characteristics, PPCT model; Bronfenbrenner & Morris, 1998, 2006) messages about race transmitted through technology-mediated social interactions. Research identifies the role of technology in forming racial perceptions: "Race has itself become a digital medium, a distinctive set of informatic codes, networked mediated narratives, maps, images, and visualizations that index identity" (Nakamura & Chow-White, 2011, p. 5). How a mother may index TV or Internet-mediated messages about race in the development of her own person characteristics (PPCT model; Bronfenbrenner & Morris, 1998, 2006) relates to Erikson's (1950, 1963,1968; Erikson & Erikson, 1997; Erikson, Paul, Heider, & Gardner, 1959) view of personality development through eight stages of psychosocial crises that build virtues such as hope, will, purpose, and competence. Reminiscent of Bronfenbrenner's (1974, 1976, 1978, 1979) view of human development through proximal interaction, Erikson and Erikson (1997) noted, "We live and move and share the earth with one another. Without contact there is no growth" (p. 8). Psychosocial crises can alter how a mother perceives race through her past growing up experiences (Brown & Bigler, 2005; McKown & Weinstein, 2003; Van Ausdale & Feagin, 2001) and current social interactions mediated by the TV (Aldama, 2013; Jones, 2014) or Internet (Bigelow, 2006; Gajjala, 2011). Thus, this study of mothers' technology decisions was needed to understand mothers' perspectives of how technology influences their perception of race and what

affect they believe their technology decisions for their children will have on their children's perception of race.

Mothers' technology preferences, intention, or use may be influenced by her employment and job tasks. The technology experiences parents have at work become "household cultural capital" (Hollingworth et al., 2011, p. 358) in their parenting technology practices. A mother may exhibit leadership qualities in her job and be attuned to new technologies in the workplace (VanderPal, 2014) that she learns from and applies to other contexts (Dance & Service, 2013). Using technology to multitask on the job (Hall, 2011) may become part of a mother's mesosystem social interactions away from the job. Checking emails as soon as they arrive in the inbox or using social media to take a break from difficult work tasks (Dance & Service, 2013) may transfer from a mother's employment to other settings such as the home environment. This study of mothers' technology decisions was needed to understand how working mothers may form technology preferences from their job that transfer to their technology decisions for themselves and for their children in the home environment.

A mother's socioeconomic status (SES) may influence her formation of technology preferences and her technology intention and use. Research (DeHaan, 2004; Warf, 2013) describes the role of SES on technology use:

> . . . class remains an important dimension of the US digital divide, as reflected in different internet access rates by educational level and household income. Educational level remains a major facet of who has access and uses the internet and who does not. Vast numbers of people – disproportionately minorities, the under-educated, those earning low incomes and employed in the lowest rungs of the service sector – have relatively little opportunity to access the internet. To them, who form one quarter of the

> national populace, cyberspace appears as some nebulous and dimly perceived planet far beyond their reach. (Warf, 2013, p. 13)

The socioeconomic digital divide of access has been somewhat alleviated by schools and libraries offering computer and Internet access (Warf, 2013). However, if a mother must rely on public computers or Internet access because she has no Smartphone or personal computer this will affect her opportunity to engage in lengthy, varied, or private online social interactions (Pearce & Rice, 2013), thus affecting her communication competence (Lee, Park, & Hwang, 2015) and her resource characteristics (person characteristics, PPCT model; Bronfenbrenner & Morris, 1998, 2006) in proximal processes. Research describes these technology-mediated social interactions as digital fluency (Wang, Myers, & Sundaram, 2013). *Digital fluency* is "the ability to reformulate knowledge and produce information to express oneself creatively and appropriately in a digital environment" (Wang et al., 2013 p. 409). This study of mothers' technology decisions was of value because it explored the technology decision process of mothers from various economic backgrounds: how they perceive social or financial status affects technology use and how they view technology in terms of their children's future.

A mother's socioeconomic status may influence how she values her child's technology use. Low socioeconomic status limits parents' material ability to facilitate their children's use of technology (Hollingworth et al., 2011; North, Snyder, & Bulfin, 2008). However, families of varying income levels both value technology in their personal life and encourage it in their children's life as necessary for the future (Plowman et al., 2010, p. 110).

The technology mothers give children to use outside the home (context characteristics, PPCT model; Bronfenbrenner & Morris, 1998) influences their peer image (social influences, UTAUT model; Venkatesh et al., 2003). Technology facilitates social engagement (Kim, Y.,

Kim, D. & Wachter, 2013), and children use experiences and objects associated with consumer culture to achieve social visibility (Pugh, 2011, p. 2). A three-year ethnographic study of three schools and 54 families investigating peer group, home life, and school setting found children use group conversations about new technology to generate a sense of belonging to the group; some by claiming they own an object and others by concealing their lack of the object (Pugh, 2011). Children "appeared to be reaching to be part of something, a larger group they wanted to join" (Pugh, 2011, p. 8). Bowlby's (1969, 1972, 1980, 1982) attachment theory describes this tendency for children to choose desirable and proximate attachments that promote a feeling of security (Bowlby, 1988). Recent research of attachment styles confirms that attachments can be modified and that "change in attachment can be conceptualized as a proximal outcome" (Levy, Ellison, Scott, & Bernecker, 2011, p. 201). This study of mothers' technology decisions was important to understand if mothers perceived the social influence of technology on their children's peer image.

The empirical literature describes technology influences outside the home regarding race, employment, and economic status that may influence mothers' technology decisions for themselves and for their preschool age children. Inside the home environment, mothers make technology decisions that reflect their technology perceptions, intention and use. From perceptions of technology capability (Rothbaum, Martland, & Jannsen, 2008), mothers influence their children's technology intentions and use inside the home.

Technology Decisions Inside the Home

Parents believe technology can support (performance expectancy, UTAUT model; Venkatesh et al., 2003) their parenting (Bartholomew et al., 2012; Daneback & Plantin, 2008; Nystrom & Ohrling, 2006, 2008). New parents find support from other parents and information

from health care professionals through web-based technologies (Nystrom & Ohrling, 2006, 2008). Parents value web-based products and services (Williams & Page, 2011), and web-based information and social support (Bartholomew et al., 2012; Daneback & Plantin, 2008). Therefore an increasing number of websites offer parents social forums, categorized information, and an array of commercial products (Carter, 2007). How parents use technology and the attitudes they form relate to their perceived comfort and positive feeling toward technology (Walker, Dworkin, & Connell, 2011).

Mothers' technology perceptions, intentions, and use. Mothers have varied perceptions and attitudes (performance expectancy, UTAUT model; Venkatesh et al., 2003) about their online chat experiences (Madge & O'Connor, 2006), online recreation (Venkatraman, 2012), and the experience and voluntariness of their Facebook use (Bartholomew et al., 2012). Positive voluntary technology use experiences include mothers-to-be preparing for the birthing process through electronic media (Internet sites, videos, mobile phones; Fleming et al., 2014). Exploration of this trend reveals:

> During pregnancy, mothers-to-be download apps for exercise monitoring and preparation for labour and birth. When labour begins, or if a caesarean birth is planned, the date and time are posted on the network(s) and, during labour, tweets, emails and texts keep everyone informed. When the midwife or doctor pronounces a statement of progress on the labour, this becomes a social media communication for global access. (Sinclair, 2013, p. 3)

Research of new mothers using Facebook to stay connected with friends and family reported greater role satisfaction (performance expectancy, UTAUT model; Venkatesh et al., 2003) but also elevated levels of parenting stress related to managing and updating Facebook content

(Bartholomew et al., 2012, p. 463). Some mothers viewed their online experiences as a "treat" (Venkatraman, 2012, p. 5), a means of escape and play. Increased blogging predicted feelings of maternal well-being and connectedness with others (McDaniel, Coyne, & Holmes, 2012). Mothers reported their online chat experiences produced both feelings of support and empowerment through the variety of information and experience sharing (person characteristics, PPCT model; Bronfenbrenner & Morris, 1998, 2006), but also feelings of constraint and gender role stereotyping (Madge & O'Connor, 2006).

One of the ways mothers use technology for support (performance expectancy, UTAUT model; Venkatesh et al., 2003) is using social networking sites to give and glean information (Harpham et al., 2002; Putnam, 2000) and to connect to friends and family (Lin 2001; McDaniel et al., 2012). Mothers frequent use of social networking sites can "build and bond" social capital (Jang & Dworkin, 2014). *Bonding* and *bridging* social capital (Gittell & Vidal, 1998; Jang & Dworkin, 2014; Putnam, 2000) describes social interactions (person characteristics, PPCT model; Bronfenbrenner & Morris, 1998, 2006)—bonding by information sharing with close friends and family (Lin 2001), and bridging by information seeking through acquaintances (Harpham et al., 2002; Putnam, 2000). These building and bonding behaviors were of particular interest to this study of mothers' technology decisions because there is conflicting literature about the frequency of younger mothers using social networking (Bartholomew et al., 2012; Jang, & Dworkin, 2014) and the frequency of older mothers using social networking (Madden, Cortesi, Gasser, Lenhart, & Duggan, 2012). This study of mothers' technology decisions was needed to understand whether older or younger mothers use social networking more for information and/or social support as they develop their own person characteristics through technology-mediated interactions.

Developmental assistive technologies help (performance expectancy, UTAUT model; Venkatesh et al., 2003) mothers of children with disabilities promote their child's development. Children with autism spectrum disorders receive language and social development support from computer-assisted technologies (Allsop, Gallagher, Holt, Bhakta, & Wilkie, 2011; Guldberg, Porayska-Pomsta, Good, & Keay-Bright, 2010) such as computerized visual feedback and keyboard-controlled audio-visual displays (Ploog, Scharf, Nelson, & Brooks, 2013). Children with motor disabilities can use augmentative manipulation systems (such as robots) to demonstrate and develop their cognitive skills (Cook, Adams, Encarnacao, & Alvarez, 2012). Robot-aided neuro-rehabilitation provides children with cerebral palsy data-driven interactive and intensive sensorimotor therapy (Aharonson & Krebs, 2012). Assistive technologies help parents enhance the resource characteristics (PPCT model; Bronfenbrenner & Morris, 1998, 2006) of children with disabilities as they take the next step in their motor learning (Aharonson & Krebs, 2012; Cook et al., 2012; Krebs et al., 2012) and language and social development (Ploog et al., 2013).

Mothers make personal technology decisions to use technology to support (performance expectancy, UTAUT model; Venkatesh et al., 2003) their mothering. Mothers' varied technology perceptions (Bartholomew et al., 2012; Madge & O'Connor, 2006; Venkatraman, 2012) and use (Harpham et al., 2002; Lin 2001; McDaniel et al., 2012; Putnam, 2000) made this study of mothers' technology decisions vital to understand how a mother forms technology preferences and how her preferences inform her personal technology decisions and those made for her child. Mothers influence how children use technology for learning, playing, and socializing.

Mothers' influences on their children's technology intention and use. Mothers influence their children's perception of performance expectancy (UTAUT model; Venkatesh et

al., 2003) for learning with technology. Whether it is the choice of electronic books (Moody et al., 2010) or using the Internet (Lee & Chae, 2007), children develop ideas about technology from what they experience in the home (Jewitt & Parashar, 2011; Natsiopoulou & Bletsou, 2011). Both parents and children use technology for specific purposes such as Internet research of various topics (Herold, 2011) and for educative purposes (Grant, 2011; Hollingworth, Mansaray, Allen, & Rose, 2011; Jewitt, & Parashar, 2011; Korat, & Or, 2010; Plowman et al., 2010; Plowman et al., 2011; van Steensel, McElvany, Kurvers, & Herppich, 2011). Technology has made it easier for parents to facilitate learning (Selwyn, Banaji, Hadjithoma-Garstka, & Clark, 2011), particularly technology-mediated reading skills improvement in the home. Often the first educational interventions in a child's life are parent/child read alouds (Barnyak, 2011). Parents may choose print books over e-books while children display mixed feelings: in a pilot study of three families, three out of the six children preferred electronic books (Maynard, 2010, p. 245). The quantity and quality of technology-mediated parent-to-child directed speech can improve children's vocabulary development (Rowe, 2012). Early literacy development may be affected by different mother-child interactions using print or electronic books (Korat & Or, 2010). One way a mother can facilitate her child's literacy and technology use is using Skype for a relative to read a story to the child or for the child to read the story to the relative (Herold, 2011, p. 46). This study of mothers' technology decisions was important to understand mothers' perceptions of how they influenced their children's learning through technology use.

Mothers may influence a child's perception of effort expectancy (UTAUT model; Venkatesh et al., 2003) through informal technology modeling. Research of preschool families indicates informal usage modeling is occurring in the home microsystem in which a child possesses an awareness of the functionality of the item without knowing how to operate it

(Plowman et al., 2011). Family ownership of technology does not mean a child has access to it or knows how to use it without parental assistance (Plowman et al., 2011, p. 368). Even when there is a high level of technology present in the home, children may not choose to use it even when parents encourage it (Plowman et al., 2010, p. 101). This study of mothers' technology decisions explored how mothers' perceive they encourage their children's technology use by their informal technology modeling.

Mothers provide facilitating conditions (UTAUT model; Venkatesh et al., 2003) for their children's electronic play. Computer use provides a type of structured play that mothers perceive as an intellectual benefit to their children (Fisher, Hirsh-Pasek, Golinkoff, & Gryfe, 2008)—a perception influenced by advertising that targets parents (Gardner, Golinkoff, Hirsh-Pasek, Heiney-Gonzalez, 2012). Among preschoolers, using electronic toys, visiting websites for children, gaming, television and DVD watching are popular home technology activities (Plowman et al., 2011, p. 368). Computer usage tends to be longer for boys than for girls (Harris, Straker, & Pollock, 2013, p.70). Recognizing that computer use increases as a child gets older (Harris et al., 2013) and that developmental harm can occur if children access social or gaming interactions (Teng, Fan-Chen, Chen, & Wu, 2012) that are not appropriate, Membership Categorization Devices (MCDs) are becoming a popular way for regulating what age-appropriate interactions children have with games and other children (Schank, 2012). This study of a mother's technology choices was necessary to understand how mothers' technology decisions facilitate and limit their children's technology use.

Mothers may not fully realize the social influences (UTAUT model; Venkatesh et al., 2003) of technology on their children. Research indicates social media draws children and youth because it gives them the ability to test and manage their own abilities and identities (Sánchez-

Navarro & Aranda, 2013, p. 74). The new technology young people use is "fundamentally bound up with their own identity" (Furlong, 2012, p. 59). This identification can place children and adolescents who use social media at risk for cyberbullying (Smith, 2012) and depression (Völlink, Bolman, Dehue, & Jacobs, 2013; Wang, Nansel, & Iannotti, 2011) making the scrutiny of parents and/or the intervention of teachers and healthcare professionals necessary (Ackers, 2012; Le Heuzey, 2012).

Mothers of older children express concern about their children's use of social technologies but differ in control of their child's access because they lack technology expertise and differ in their perception of the value of social media from that of their children (Fletcher & Blair, 2014a). Youth rely on social media contact with their peers that can bypass communication with their parents (Mesch, 2012). Parents who expect increased communication through digital means may worry about their adolescent's safety or wonder about their activities when the adolescent communicates infrequently (Weisskirch, 2011). This and other technology related social scenarios (time spent with technology, websites visited) require parents and adolescents to evaluate the process (actions and responses) and structure (roles and responsibilities) of their relationship (Hertlein, 2012). Research further explores maternal authority in the context of parental mediation (monitoring and controlling) adolescents online experiences (Fletcher & Blair, 2014b; Vaterlaus et al., 2014) but does not indicate how a mother makes monitoring and controlling technology decisions for a preschool age child—decisions which may affect her maternal authority when the child is older. This study of mothers' technology decisions explored the varied technology experiences of mothers and how their perceptions of technology influence on their children affected their monitoring and control of their children's technology experiences.

Summary

Parents influence their children's development (Plowman et al., 2011; Tu et al., 2013) and well-being (Swindle et al., 2014; Wonsun et al., 2012) by the technology decisions they make. As a primary caregiver and decision maker (Jang et al., 2015), mothers can support their children's development (Song et al., 2014) through their involvement (Brown et al., 2011) and interactions with their child. Exploring the technology decisions mothers make for their preschool age children in the home environment informs American mothers in their decision-making and ultimately promotes the well-being and development of their children (Bronfenbrenner 1994, 1995b, 2000, 2001; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Evans, 2000; Bronfenbrenner & Morris, 1998, 2006).

The UTAUT and PPCT models provided the best conceptual framework to explore mothers' technology decisions. The conceptual framework described the factors that determine and moderate an individual's technology intention and use expressed in the UTAUT model and the proximal processes that influence an individual's development over a lifetime identified in the PPCT model. The individual, social, and environmental factors related to technology decisions that influence national interest, teachers, students, parents, and mothers were conceptually examined in relation to the PPCT model. Theoretically, neither model explained how an individual forms technology preferences or makes technology decisions for another.

Related literature connected theoretical understandings about the UTAUT and PPCT models to empirical literature about the MTP model and individual technology preferences, the TPACK framework and teachers' decision-making, and the technology decisions that occur outside and inside the home environment. The conceptual and empirical literature did not explain the process of mothers' technology decisions by identifying how mothers form personal

technology preferences, how mothers' preferences inform their intention to use technology and make technology decisions for their children, and how mothers ascribe meaning to their children's technology use. Filling this research gap in the UTAUT and PPCT models was needed to understand the systems of influence that shape a mother's technology intention and decision-making for herself and for her child.

CHAPTER THREE: METHODS

Overview

Research examines the influence of technology on proximal processes between adults and children in social culture, school environments, and within the family setting. Research does not indicate how mothers form personal technology preferences, how their technology use affects their technology decisions for their children, or what meaning mothers ascribe to their children's use of technology. This research gap formed the impetus for this grounded theory study investigating the technology decision process mothers use when making technology decisions for their preschool age children in the home environment. Addressing this research gap may also help mothers understand how their technology choices may benefit their children.

I begin this chapter with a description of the research design and study questions. Next, I explain the selection of participants and setting. I conclude the chapter by describing the data collection procedures, data analysis, trustworthiness, and ethical considerations specific to this study.

Design

This study investigating the technology decision process mothers use when making technology decisions for their preschool age children in the home environment required a qualitative research approach because the interaction of proximal processes and technology decisions are units of analysis (Corbin & Strauss, 1990, 2008) that occur in social phenomena best examined through "natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them" (Denzin & Lincoln, 2011, p. 3). Qualitative analysis facilitated my study of the experiences, opinions, and actions that affect mothers' technology decisions for their preschool children. This design allowed me to address the research gap by

exploring and describing how mothers "construct and reconstruct self" (Charmaz, 2004, p. 977) in relation to technology and their parenting role in the microsystem of the home environment.

Grounded theory research focuses on generating theory from participants who have experienced a similar process or interaction (Corbin & Strauss, 2008). A grounded theory design fit this study because it provided an integrated theoretical inquiry to describe and explain (Corbin & Strauss, 1990, 2008) the "systems of interaction" (Bronfenbrenner, 1977, p. 514) and proximal processes of the Process-Person-Contex-Time (PPCT) model (Bronfenbrenner & Morris, 1998) with the determinant and moderating factors of the Unified Theory of Acceptance and Use of Technology (UTAUT) model (Venkatesh et al., 2003) that collectively shape mothers' technology preferences and decisions for their preschool children in the home environment. This study explained the technology decisions of mothers for their preschool age children through theoretically relevant components of the PPCT model. Bronfenbrenner encouraged this theoretical focus: "The specific components of Process, Person, Context, and Time to be included in a given investigation should be those that, from a theoretical perspective, are maximally relevant to the research question under investigation" (Bronfenbrenner & Morris, 2006, p. 808). This study also used determinant and moderating factors of the UTAUT model within the context of the elements of the PPCT model to explain and understand how a mother accepts technology for herself and for her preschool age child. This approach helped me develop a theoretical model of the process phenomenon (Corbin & Strauss, 2008) of the social interactions of mothers and preschool children.

Because grounded theory traces sociological and philosophical changes affecting individuals (Corbin & Strauss, 1990, 2008) it was necessary for me to use an organized and reflexive approach (Corbin & Strauss, 2008, p. 31) to recognize and attend to "the effects of

researcher-participant interactions on the construction of data" (Hall & Callery, 2001, p. 257). Corbin and Strauss's (2008) systematic grounded theory approach, characterized by theoretical sampling guidelines and constant comparison data analysis procedures, allowed me to conceptualize the influences of mothers' personal technology preferences and personal technology use on their technology decisions for their children. The guidelines of a systematic approach helped me organize and conceptualize what influences mothers' technology decisions and heightened my awareness of the determinism (Corbin & Strauss, 1990, p. 5) that guides the technology choices mothers make in their own lives and the lives of their children.

Research Questions

Proximal processes define living environments (Bronfenbrenner & Ceci, 1994). Proximal processes are *reciprocal interactions* (Bronfenbrenner & Ceci, p. 572) whereby an individual is influenced by an immediate environment while exerting influence on that environment. The complexities of these interactions in the mother/child dyad prompted the research questions that guided this study:

1. What factors influence how a mother of a preschool age child forms personal technology preferences?
2. How does a mother's personal technology preferences and technology use affect her technology decisions for her preschool age child?
3. What factors influence how a mother ascribes meaning to her preschool age child's use of technology?

Setting

The setting of this study was a southern locale with a traditional "Bible belt" culture in urban, suburban, and rural areas located in or around one college town in central Virginia. This

college town supports five colleges and has a population of 75,568 (U. S. Bureau of the Census, 2010a). An estimated 55% of individuals in this city are enrolled in college or graduate school (U. S. Bureau of the Census, 2010b). Some of these students would classify themselves as religious and/or conservative (Thompson, 2012; Williams, 2010).

Household demographics provided the opportunity for maximum variation sampling. Economically, this central Virginia city has a median household income of $38,005 (U.S. Bureau of the Census, 2010a). Of the 27,875 households, 58% are families with an average family size of three persons (U.S. Bureau of the Census, 2010b). It is estimated that 41% are married-couple families, and 7% are female only households with children. These categories provided opportunity for maximum variation sampling of working and stay-at-home mothers, married and single mothers, younger and older mothers, and mothers of upper, median, and lower household incomes. This diverse group of mothers provided insight into mothers' technology decisions for their children.

Participants

This study used a convenience, snowball, and maximum variation sampling of 18 mothers (see Table 1) with preschool age children (ages 3-5) living in urban, suburban, or rural areas located in or around a college town in central Virginia. After receiving IRB approval (see Appendix A), sampling began in January with information provided through email (see Appendix B) by fellow professors at the university where I teach who are members of various faith communities and have diverse community contacts. Fellow professors with their community contacts and participant mothers contacting fellow mothers served as a "gatekeeper" (Lewin, 1943; Devers & Frankel, 2000) to ensure a mother's contact information was supplied voluntarily and with full knowledge and consent of each mother.

Table 1

Participant Characteristics

Pseudonym	Age	Race/ethnicity	Marital status	Employment status
Amanda	29	Caucasian	married	stay-at-home
Anita	36	Caucasian	married	stay-at-home
Aryn	31	Caucasian	married	stay-at-home
Becca	26	Caucasian	married	stay-at-home
Cala	36	Caucasian	single	working
Ella	30	Caucasian	married	working
Fiona	26	Hispanic	married	working
Kameya	29	African American	married	working
Kamile	31	Caucasian	married	working
Katherine	22	Caucasian	married	working
Kora	25	Caucasian	single	working
Lainey	31	Caucasian	married	working
Leticia	20	African American	married	stay-at-home
Lexie	31	Caucasian	married	stay-at-home
Maya	27	Hispanic	married	working
Rilee	33	Caucasian	married	working
Shay	32	Caucasian	married	stay-at-home
Sibel	43	Caucasian	married	working

I used snowball sampling from information provided by email correspondence (see Appendix C) from fellow professors with their community contacts, from participant mothers contacting fellow mothers, and from participants recommending fellow mothers to obtain a total of 18 mothers and four sampling variations (working [mothers who have their preschool age child taken care of by a family member or non-institutional home care] and stay-at-home mothers, married and single mothers, young [under thirty years of age] and older [thirty years of age and beyond] mothers, and mothers of upper [150 thousand dollars and beyond yearly household income], median [30 to 100 thousand dollars yearly household income], and lower [25 thousand and lower yearly household income]) (Francis, 2012; U. S. Bureau of the Census, 2010b). I sampled until there was no new information (Strauss, 1987) and until the data was saturated by the occurrence of repeating themes.

Procedures

After IRB approval, I recruited mothers using convenience, snowball, and maximum variation sampling beginning with information provided through email correspondence with fellow professors at the university where I teach. These professors knew mothers who fit the study criteria, and they asked them if they would be willing to participate. My fellow professors also had community contacts who knew of mothers who fit the study and asked the mothers to contact me via email if they would like to participate. After I completed each participant interview, I used snowball sampling to ask each mother if they could provide the names of two mothers they thought might be interested in participating in the study. Study participants recruited fellow mothers by giving them my email address and encouraging them to contact me if they would like to participate. These three gatekeeper groups provided sampling variation (working and stay-at-home mothers, married and single mothers, younger and older mothers, and

mothers in upper, median, and lower household incomes). I continued sampling for maximum variation until group data was saturated by the occurrence of repeating themes and the absence of new information (Strauss, 1987, p. 21).

I made first contact with each mother by phone or email and arranged a convenient time and preferred place to meet. Most mothers chose to meet at their home. At this face-to-face meeting I explained the study criteria and gave each mother an informed consent form (see Appendix D) and a packet containing a self-addressed stamped envelope and a paper and pencil demographic questionnaire (see Appendix E) about themselves and their child. If a mother could not participate because she did not meet the study criteria, I asked her to refer someone else who might be interested. When I received the signed consent form and the completed packet in the mail, I analyzed the data reflectively to determine each participant's study eligibility with the intent to form a theoretical sample (Glaser, 1978) of participants who could provide rich information (Patton, 1990). As I reflected on the questionnaire data, I added clarifying questions to those already a part of the semi-structured interview protocol.

I phoned or emailed each mother to arrange an interview at a convenient place and time selected by her. Most mothers chose to be interviewed in their homes. In a few cases, participant mothers chose phone interviews rather than face-to-face interviews due to health, bad weather, or child-related issues. I video or audio recorded each interview.

After interview data was collected and analyzed, I invited participant mothers to participate in focus groups at my home. I wanted to protect participants' privacy by not revealing where they lived by asking them to host a focus group, but I still wanted to situate data collection in a home environment if possible. Through email and Facebook messaging we agreed on dates and times that would accommodate between two and four mothers each session. Most mothers

chose a Saturday or Sunday evening when their husband or babysitter could watch their child or children. Some mothers did not come as scheduled and I tried to reschedule or offer another means to customize a focus group to meet their individual needs. Four mothers chose focus group-related phone interviews due to health, bad weather, life circumstances, or child-related issues that prevented them from leaving their home. To accommodate my interpreter and my participants whose first language was not English, I held a focus group at their Hispanic church. Some mothers requested I come to their house a third time to tell them about the weekend focus group and get their individual responses. Regardless of the focus group customization (focus group related phone interviews, non-home environment focus groups, or meeting individually with moms to tell them about the most recent focus group) I used the transcripts from recent focus groups along with the focus group questions to give each mother opportunity to respond individually and react to others' input. All focus groups were orchestrated to confirm categorical saturation and provide the opportunity for member checking. During individual interview and focus group data collection, I continued to sample if categories were not saturated. I used constant comparison to explore possible connections between technology decision process themes and analyzed all data using open coding and memoing, axial coding, and theoretical coding to form a paradigm process model (Corbin & Strauss, 2008) of mothers' technology decisions for their children.

Researcher's Role

As the human instrument in constructing meaning about mothers' technology decision process, I began building critical process awareness in myself by describing my professional experiences and my personal bias. I am a teaching fellow at Liberty University's School of Education where I teach residential and online courses in literacy and assessment to

undergraduates pursuing teacher licensure. I have taught in general education and at the undergraduate and graduate levels in college and university settings. My view of the data is influenced by my familiarity with the mother and child relationship in a classroom setting and by my role as a teacher educator.

My view on the topic is influenced by my upbringing. There was not a computer or cell phone in the house while I was growing up. My parents wanted school professionals to provide and guide any technology use. Thus, my parents never purchased a computer or cell phone for me or for themselves. My mother played a more decisive role than my father regarding the technology decisions in our home. My mother had a strong aversion to technology. It was not until I was an adult that my mother let my brother, a Microsoft software engineer, purchase and install computers in my parents' home. Today, my mother only uses the computer for email and to bid on eBay. My mother maintains a strong contempt for technology.

Growing up in a home that associated technology and technology use as a school directed activity, I used the computers and software provided for me by the schools I attended. Likewise, when I began my teaching career, my device and software knowledge was of those provided by the school. I did not purchase my first computer until I entered graduate school. Since then I have only purchased laptops because I value the flexibility of home and school use, and I feel secure in using the same computer for both. Thus, I embrace the perspective of a *digital visitor* conceptualizing technology as a tool for situational use (White, & Le Cornu, 2011). Trial and error has given me the skills I need to complete the digital tasks required by my teaching career and the demands of technology innovation.

I think of myself as a technology rebel and acknowledge my researcher bias in this study. Philosophically and pedagogically, I advocate strongly for technology use, but I advocate just as

strongly for thoughtful technology boundaries expressed in Control Comfort Access (CCA) (Wicks, 2010). This philosophy helps me choose technology that supports my life and work tasks without added distraction. I regularly and personally assess my effectiveness in using new technology, in issues related to privacy, and in time expended using technology. How I assess and manage these issues personally influences my philosophical and theoretical stance in a researcher's role.

As the human instrument in this study, I sought theoretical sensitivity (Glaser, 1978) by grounding my observations in the literature and writing theoretical memos to maintain an informed open mind (Dey, 1993, p. 65) as I collected and analyzed data. I made formal and substantive connections (Dey, 1993, p. 48) by mediating the data to understand more fully the process of mothers making technology decisions for their children.

Data Collection

I collected data in three phases. First, study participants filled out a demographic and journaling questionnaire. Next, participants were interviewed concerning their technology preferences, their technology use, and their technology decisions for their children. Finally, participants were invited to a focus group of other study participants to describe in greater detail individually and as a group their reasoning process regarding technology decisions for their children.

Questionnaire

After IRB approval, participant consent was obtained through receipt of a signed consent form (see Appendix D). Then, I gave each participant a packet containing a self-addressed stamped envelope and a paper and pencil demographics questionnaire (see Appendix E) about themselves and their child. The questionnaire requested contact information and demographic

information related to the mother's age, race/ethnicity, education, and family or personal income. The questionnaire included two questions about the mother's child concerning age and school status. Upon receipt of each completed packet, I analyzed the data reflectively to determine each participant's study eligibility in the theoretical sample (Glaser, 1978) of participants. As I reflected on the questionnaire data I added clarifying questions to those already a part of the semi-structured interview. I added the question, "Do you have a message for American mothers about their technology decisions?" I typically asked this at the end of each interview. This question helped to clarify the present/future attitude and motivation of some of the technology decisions mothers had described in detail during the interview. For a few interviews I added a scenario-based question about how their child waited at a restaurant or doctor's office. I asked this clarifying question to better understand how a mother promoted intentionality through socializing influences concerning waiting with or without technology.

Interviews

I arranged to meet mothers at a place of their choosing and video recorded the in-person interviews. Two mothers preferred an over-the-phone interview. I strengthened content validity by asking standardized open-ended questions that are anchored in the theoretical and empirical literature (Brod, Tesler, & Christensen, 2009) and were subject to expert review by committee members.

Table 2

Standardized Open-Ended Individual Interview Questions

Technology: Personal Perspective

1. How do you define technology? (RQ1)
2. What technology did you grow up with at home? In school? (RQ1)
3. When did you first use a computer? (RQ1)
4. What do you think about technology now? (RQ1)
5. How often do you use technology? (RQ2)
6. What device could you not live without and why? (RQ2)

Technology: Parent Perspective

7. What technology is your child growing up with? (RQ2)
8. How is that different than your experience? (RQ2)
9. How often does your child use technology and what technology do they use? (RQ2)
10. How do you decide what technology to let your child use? (RQ2)
11. In what ways do you oversee (or control) your child's technology use? (RQ3)
12. If you could own only one form of technology for your child what would it be? (RQ3)
13. How will your child's technology use change as he or she enters and goes through school? (RQ3)
14. How will you facilitate or monitor your child's technology use at home as he or she matures? (RQ3)
15. When your child is an adult, in what ways do you predict he or she will use technology in their career and personal life? How might that be different than your adult technology experiences? (RQ3)

These standardized open-ended individual interview questions are grounded in the theoretical literature and further current understandings of bioecological theory (Bronfenbrenner & Ceci, 1993, 1994) and the UTAUT model. Questions 5, 9, 10, 11, and 14 broadened the PPCT model of bioecological theory (Bronfenbrenner & Ceci, 1993, 1994) and the microsphere of the family by examining the proximal processes of mother/child interactions and technology use. Questions 9, 10, and 14 explored the process by which mothers make technology decisions for their children—how parents use technology and the attitudes they form relating to the level of device use and their perceived comfort and positive feelings toward technology (Walker, Dworkin, & Connell, 2011). Questions 1-12 and 14 added to current perceptions of the UTAUT model by documenting how a mother's technology preferences and experience (Questions 1-4) control technology ownership and use for herself (Questions 5 and 6) and for her child (Questions 7, 9, 10-12, 14). Questions 11-15 delved into the determinant factors of the UTAUT model by exploring the meaning mothers ascribe to their children's use of technology.

These open-ended individual interview questions are grounded in the empirical literature. Questions 1-6 described mothers' personal technology preferences and technology use and extended understandings about how individuals use technology, their access to new devices, and their perceived capability with the device (Rothbaum et al., 2008). Questions 5-12 solicited information about how mothers' personal technology use (Questions 5 and 6) affects their technology decisions for their children (Questions 7-12).

Question 7 investigated the wide range of technology families have for children to use (Plowman et al., 2010). It further described the ways parents facilitate early literacy development (Korat, & Or, 2010) and technology use (Herold, 2011). It extended what is known about how

children use technology at home for watching videos, social networking with family and friends, or gaming (Jewitt & Parashar, 2011; Plowman et al., 2011).

Questions 7, 9, and 10 examined how adult ownership of technology may or may not mean a child has access to it or knows how to use it (Plowman et al., 2011). These questions explored whether there is modeling occurring in the home in which a child possesses an awareness of the functionality of the item without knowing how to operate it (Plowman et al., 2011).

Each video/audio recorded session was transcribed verbatim by professional transcribers. I checked transcription accuracy by replaying the video/audio recording and checking the transcription text. A different person translated and transcribed the interviews of Spanish-speaking mothers. I had the interpreter and translator cross-check interview transcripts for accuracy. I analyzed and compared each transcription text and added clarifying questions to those already a part of the semi-structured focus group questions. Using constant comparison, I analyzed each interview before conducting another interview.

Focus Groups

After interview data were collected and analyzed, I held focus groups with participating mothers to gather additional data, confirm category saturation, and provide the opportunity for member checking. Focus groups (Merton, Fiske, & Kendall, 1956) allow a researcher to observe the "process" (Goldman, 1962) of participant interaction that yields additional data beyond the information gathered by other methods (Morgan & Spanish, 1984). Member checking through a focus group helped me question with more depth and follow up with study participants to lessen the gap between participant response data and participant meaning (Yanow & Schwartz-Shea,

2006). I wanted to confirm that the data I was recording and interpreting had the fullest meaning participants wished to convey.

I divided the mothers into focus groups based on convenience. By asking each mother to choose one focus group based on a preferred date and time, I encouraged groups with maximum variation in terms of working and stay-at-home mothers, married and single mothers, younger and older mothers, and mothers of upper, median, and lower household incomes. The potential for diversity in each of these focus groups provided a variety of interactions and information rich data. I video/audio recorded all sessions and asked standardized open-ended focus group questions.

Table 3

Standardized Open-Ended Focus Group Questions

1. What messages do you receive from (media, schools, a faith or cultural community) about technology? (RQ3)
2. What messages do you get from (friends, family, others) about technology and your parenting? (RQ3)
3. From your perspective, how does the United States compare to other countries in technology use? (RQ3)
4. How do stay-at-home mothers use technology differently than working mothers? (RQ2)
5. How does (social or financial status, gender, race) affect technology use? (RQ2)

The focus group questions were grounded in theoretical and empirical research. Question 1 explored the government or media messages parents perceive to control their children's technology use (Johanson, 2010) and parents' perceptions of bringing technology into the home

to provide educational advantages for their children (Stevenson, 2011). It also probed for any school messages parents receive about how students can overcome limitations of socioeconomic status or negative peer and family influences through successful interactions with technology (Lebens et al., 2009). Questions 1-3 prompted further description of how technology and society relate to parenting perceptions of self-efficacy and the determinant and moderating factors of the UTAUT model. Question 4 further investigated education through a mother's working status to find out if technology has made it possible for parents to facilitate education in the home in more ways than previous generations (Selwyn, Banaji, Hadjithoma-Garstka, & Clark, 2011). Question 5 investigated how economic capital may influence how parents experience and use technology and how they facilitate their children's use of technology (Hollingworth et al., 2011). This investigation added to what is known about families of varying income levels that both value technology in their personal life and encourage it in their children's life as a necessity for the future (Plowman et al., 2010).

At each focus group session, I summarized data and had participants member check by confirming or clarifying developing themes generated from the analysis of interview data. I shared the three themes and two of the four subthemes related to each. I chose the two subthemes that needed the most clarification from each theme. The mothers gave additional information that confirmed themes and subthemes. I encouraged the mothers to ask questions but they did not ask any follow up questions. I received positive feedback that I'd been very "thorough" in describing their technology decision-making process.

Data Analysis

Data analysis involved verbatim video/audio recording transcription of interviews and focus groups, open coding and memoing of the data, axial coding, and theoretical coding to

develop the theoretical model of mothers' technology decision-making process for their children. Each video/audio recorded interview and focus group session was transcribed within a week of each session. After each interview and focus group session was transcribed I checked transcription accuracy by replaying the video/audio recording and checking the transcription text.

Line-by-line data analysis and *open coding* for each interview (see Appendix G) and focus group session transcript allowed me to use constant comparison (Corbin & Strauss, 2008) to develop and examine categories. Initially, I used *in vivo* coding, using participants' own words as codes, to highlight key ideas (Saldaña, 2013). In vivo codes such as "hot house lilies" conveyed the situational reflection and limiting conditions one mother remembered about her mother turning off the TV and warning her daughters, as she had been warned by her mother, against staying inside the house too much and not going outside to play. Complex process ideas like these prompted me to "analyze the data minutely" (Strauss, 1987, p. 31) to ensure my developing theoretical perspective was broad and grounded in the data. I looked for "indicators" (Glaser, 1978; Strauss 1987), words, phrases, or sentences that, taken in part or as a whole, convey a larger concept. When participants used indicator words like "leverage" and indicator phrases like "in the trenches with our kids," I used constant comparison to help me find the pattern in these ideas—mothers were describing their technology perception and intention that conveyed the larger concept of mothers reflecting situationally in their technology decision process. During open coding and throughout the data analysis process, I used memoing (see Appendix G) to record my thinking, insights, or developing ideas (Corbin & Strauss, 2008; Maxwell, 2005). Memoing helped me analyze and integrate the data from the demographic questionnaire. I theoretically mixed and matched process, descriptive, and versus coding strategies (Saldaña, 2013; 2014) so that I could fully identify the actions, thinking, and conflicts

mothers' experience as they described the technology decisions they make for their preschool age child.

Axial coding (Corbin & Strauss, 2008) helped me connect and synthesize the emerging categories (see Appendix I) from the interview and focus group transcripts, and the information from the questionnaire (demographic). Axial coding involves "intense analysis" (Strauss, 1987, p. 32) of each category (one at a time) to acquire "cumulative knowledge about relationships between that category and other categories and subcategories" (Strauss, 1987, p. 32). I used a coding paradigm model (Corbin & Strauss, 2008) to identify possible connective or causal relationships between sensitizing (Blumer, 1956) concepts or categories. A paradigm model gave me a means "to think systematically about data and to relate them in very complex ways" (Strauss & Corbin, 1990, p. 99). The model I employed provided a framework from which I could analyze the actions and intentions of a mother's technology decisions for herself and her preschool age child in three ways: the conditions which intervened in or caused her technology decisions, the influence of time and context on her technology decisions, and the meaning she ascribed to technology actions and interactions with her child. This model helped me examine the processes of this phenomenon in relation to "its causes and consequences, its context, and the strategies of those who are involved" (Flick, 2009, p. 311).

Theoretical coding (Corbin & Strauss, 2008) allowed me to generate from the gathered data a hypothetical model of the process of mothers' technology decisions for their children. Theoretical coding is a selection process using core codes (Strauss, 1987, p. 33) to focus further data collection. Sampling is narrowed, and "analytic memos become more focused and aid in achieving the theory's integration" (Strauss, 1987, p. 33). Analytic memoing provided a transition process (Saldaña, 2013, p. 50) for questioning data, categorizing, and systemizing

codes into a coherent expression of study findings (Corbin & Strauss, 2008). At the conclusion of all data analysis I generated a theoretical model that explained the theory. The theoretical model represents the theoretical connections between categories and themes identified during open and axial coding (Corbin & Strauss, 2008). The model helps to organize and express the complexities and nuances of the proximal processes that influence a mother's technology decisions for her preschool age child in the home environment.

Trustworthiness

I followed the principles of credibility, dependability, transferability, and confirmability described by Lincoln and Guba (1985).

Credibility and Dependability

I acknowledged my researcher bias, used member checks and data triangulation, and used video/audio recording and data transcription to enhance study credibility. Disclosing three elements of bias—the influence of my upbringing with my mother's desire that school professionals provide and guide my technology use, my teaching experiences with technology, and my experiences with mothers and children—helped me examine my preconceptions and focus on the study participants (Creswell, 2007). Use of video/audio recording and data transcription ensured data was collected accurately. I used between-method triangulation (Denzin, 1970) to cross-check data between study questionnaires, interviews, and focus groups. These multiple data measures provided confirmation of study interpretations and findings (Webb, Campbell, Schwartz, & Sechrest, 1966). Incorporating member checks during the focus groups allowed me to summarize data and have participants confirm or clarify developing themes (Miles & Huberman, 1994) and the emerging theoretical model.

Transferability

I described in detail the study participants and settings to encourage readers to personally transfer study findings through shared characteristics (Erlandson, Harris, Skipper, & Allen, 1993). Maximum variation sampling of working and stay-at-home mothers, married and single mothers, younger and older mothers, and mothers of upper, median, and lower household incomes heightened the transferability of this study. Also, I provided thick description of the reasoning process mothers use to decide children's use of technology in the home setting. This increases the transferability of the study by prompting readers to decide what information is applicable to their own experience, population, and setting.

Confirmability

The objectivity of this study was maintained by an audit trail. I gave methodological details that enable the reader to trace and audit the decisions made regarding the formation of data into categories and themes (Shenton, 2004). Procedural audit was conducted by a qualitative research consultant with a terminal degree who examined the process of this research study.

Ethical Considerations

This study acknowledges matters of privacy and personal comfort. I obtained IRB approval and participant consent before data collection. To ensure the privacy of participating mothers, I used pseudonyms for all participants and sites. I stored paper questionnaires in a locked file and after seven years I will shred them. Electronic study data is stored on a password protected computer and after seven years I will delete it. As a result of participating in this study, awareness of uncomfortable or unpleasant thoughts or experiences associated with parenting or technology may have occurred. I made every effort to ensure these thoughts or experiences did not pose a greater risk than those experienced in everyday life.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this systematic grounded theory study was to explore the technology decision process mothers use when making technology decisions for their preschool age children in the home environment. The study focused on identifying the influences that shape a mother's decision-making for herself and for her child to create a theoretical model that expands and connects elements of the Process-Person-Contex-Time (PPCT) model (Bronfenbrenner & Morris, 1998) and the Unified Theory of Acceptance and Use of Technology (UTAUT) model (Venkatesh et al., 2003).

This chapter begins with descriptions of study participants' life situations, technology use, and technology perspective for themselves and others related to the home environment. The chapter continues with a data narrative of results organized thematically to describe the theoretical model in relation to the study research questions. The chapter concludes with a summary of study findings.

Participants

Mothers (N = 18) participating in this study were eager to describe and explain their technology decisions. To understand how each mother's varied technology decisions contributed to the development of the theory explaining the process of their technology decisions for themselves and their preschool age child it is helpful to describe their life situation, technology use, and technology perspective for themselves and others related to the home environment. Descriptions are derived from the self-reported information on the demographic and journaling section of the questionnaire, my memoing after face-to-face visits with participating mothers, and clarifying questions I added to those already a part of the semi-

structured interview protocol as a result of analyzing each mother's questionnaire to better understand the mother's technology perspective and decision-making. Each participant description shares some similarity in the demographic information presented; but the inclusion of life situation information (such as a husband's technology usage) or technology use details (such as device information) or technology perspective details (related through direct quotes) is theoretically chosen to accurately portray each mother's representation of herself as it related to her technology perspective and technology decision-making. Pseudonyms are used for each participant mother.

Amanda

Amanda is a twenty-nine-year-old, Caucasian, married mother. She lives in a household with median income and stays at home with three boys, the oldest of whom is 4 years old. Amanda has a bachelor's degree.

Amanda described technology as "things requiring computer programing" and added, "I don't even think you can describe technology without having technology." On the questionnaire she reported that she uses technology the most to stay connected to friends and family and post pictures to Instagram for grandparents to view. When she described the types of technology in her home she described devices based on discrete use—"the boys only watch TV when we're present" or "a DVD player with limited choices for the kids and ourselves."

When I asked Amanda about the future and the role of technology in her boys' lives, she told me that she hopes technology use will generate a greater sense of community. Her sense of community envisions a society that has a healthy balance of real-time social activities and technology advancements. She is concerned about her boys being so connected to technology that they are not connected to the world. Speaking about her boys she added, "they'll be a

generation that set boundaries for their children and they'll be a generation to say like 'this is what we did, this is what you should do.'"

Anita

Anita is a thirty-six-year-old, Caucasian mother. She is married to an African American man and celebrates her biracial family. She lives in a household with median income and is a stay-at-home mother to a 3-year-old boy and a 2-year-old girl. She has a bachelor's degree.

Anita defined technology as "anything that we plug into the wall." She wrote on the questionnaire that she uses most technology at home for Facebook, watching movies, reading books online, and getting recipes "when I try to cook." When I asked her about technology's influence on her role as a stay-at-home mother she said, "It makes me more lazy." She mentioned that Facebook and gaming—"Candy Crush is my go-to game"—interrupted the things that she needed to get done around the house. She told me with chagrin that she probably spends three hours a day using digital technology.

Anita values technology for her children. She got a smartphone with a bigger screen for the sake of her children and the learning apps they play on it. She mentioned how on extended family trips she picks hotels based on the access to the Internet. She is pondering the idea of buying her children an iPad because they like the one her husband has for work.

When I asked about the future and her children's use of technology, she related these ideas to parenting and education:

> . . . technology makes parenting easier in one way. It makes you more of an absent parent. You know, it makes you less involved because you can just hand them something and they can get it, and it distracts them and you can do whatever you want. Or, it can

> distract the parent from actually teaching the child. So, I think technology kind of takes, like, our responsibility of education of our kids away.

Anita decides what educational tasks she wants her children to do and whether technology should be a part of completing those tasks. She believes in technology boundaries to promote proper behavior, socialization, and age-appropriate learning.

Aryn

Aryn is a thirty-one-year-old, Caucasian, married mother. She lives in a household with median income and stays at home with two daughters: a 4-year-old and a 3-year-old. Aryn has a bachelor's degree.

Aryn defined technology as "anything that you would use that is machine-based." The technology she could not live without is her smartphone. She uses it to check email, do grocery lists, and peruse Pinterest for crafts and creative ideas to teach her girls numbers and letters. When I asked her about how technology influences her role as a stay-at-home mother she answered, "Technology mostly hinders my interaction with my children." She believed her overuse of a smartphone affects her relationship with her children. She personalized and projected her technology use quandary to American mothers, "I feel convicted every day—I'm not good at it but I definitely think it's something that we need to just stop and put our phones down, put our laptops down, and just be involved in their lives."

Aryn thinks her daughters' future technology use will be more "sophisticated" and a bigger part of their lives. She believes technology will advance to such an extent that it will affect their ability "to function in society." When considering this reality, Aryn is pragmatic, "technology will come, I mean we all learned it and they're gonna learn it . . . we just have to

make sure we're monitoring that and make sure they understand it's not the most important thing."

Becca

Becca is a twenty-six-year-old, Caucasian, married mother. She lives in a household with median income and stays at home with a 3-year-old boy and a 2-year-old girl. Becca has a bachelor's degree that was partly completed through online classes.

Becca defined technology as "anything from TVs to computers and handheld devices." In their home they have smartphones, a TV, an Xbox, laptop computers, and a LeapPad. On the questionnaire she wrote that her family uses technology equally. Her children watch Netflix and play on the LeapPad on average 2 to 3 hours a day. She and her husband spend thirty minutes to an hour a day on the computer, and sometimes watch a couple of hours of TV when the children go to bed.

As a stay-at-home mother, Becca believed technology influences her role in a beneficial way as a "huge lifesaver." During the focus group she mentioned that she uses technology to occupy her children so she can clean her house and get things requiring focus completed. She tries to limit their technology use and values their outside play and time reading books. She does not want her children to "think they can watch TV or play electronics whenever they want."

When Becca thinks about her children's future technology use she believes "it'll be a huge part of their personal life and career, it's hard to even think about where technology will go between now and then." She believes her children will not control technology for their children as much as she controls it for them, "They'll probably be less strict because there will be so much that they won't even know how to control it." She is preparing them for a technological future by encouraging them to balance their screen time with real-life activities.

Cala

Cala is a thirty-year-old, Caucasian, single mother. She is in the median income bracket and works full-time at a university managing their online advertising vendors. She has a neighbor friend watch her daughters who are 3 and 4 years old. Cala has a master's degree.

Cala defined technology as "anything digital that has become a new format through which we consume content or information." Cala's job requires her to know and use the latest online technology, and this transfers to her home in the many devices she has purchased for her daughters to use. She explained, "As a working mother, I leverage technology to impact my daughters' development in a very honed, precise way." One way she does this is loading the iPad mini her daughters use with apps that relate to each girl's interests and learning level. Cala believes technology helps her "maximize the time I spend with them." She and her daughters listen to music, watch streaming educational videos on Netflix, play educational games on an iPad mini, and stay connected using FaceTime when Cala is traveling for work.

When I asked Cala about the future and her daughter's technology use, she repeatedly used the term *leverage* which I asked her to define in relation to her daughters, "when I say leverage technology, I'm really saying use it to our advantage. To, you know, advance where they stand in their understanding of the world around them." Cala believes her daughters will grow up to be more tech savvy than she is. How Cala uses technology to prepare her daughters for the future is evident in her message to American mothers about technology use: "let it help you in engaging your children and watching them develop and then being present with them to make sure they understand what they're learning and that you can see progress happening."

Ella

Ella is a thirty-year-old, Caucasian, married mother. She lives in a household with median income and works part-time as an online English teacher. She has a 3-year-old daughter and a 2-year-old son. Ella has a master's degree.

Ella defined technology as "some kind of tool that has improved our living conditions." On the questionnaire she wrote that she uses technology the most at home to Skype with her online students, do online grading, and check emails. She is grateful that technology enables her to work from home.

The device Ella could not live without is the TV. Ella explains, "TV helps me be a better mother because I'm able to just step back for a second and say like 'ok I'm just gonna put this cartoon on and I'm just gonna sit here and have a quiet time.'" Ella told me that this and some of her technology decisions are "based upon guilt" because "the older generation of mothers give me their opinions on what they think is right."

As Ella looks to the future and her children's technology use, she believes there will be more "avenues of technology" open to them. She believes her children will have to exercise technology "moderation" in their personal lives in a manner similar to how they were raised. As she prepares her children for the technology of the future, she tells herself and encourages other mothers, "do what works best for you, and what's healthy for you and for your children."

Fiona

Fiona is a twenty-six-year-old, married, Latina mother. She moved to the US from Mexico a few months ago. She is a high income working mother. She and her husband own and work in a popular local restaurant. Her extended family look after her 4-year-old boy while she is

at work. Prior to coming to the United States, Fiona earned a bachelor's degree; she understands some English, but speaks little English.

Through an interpreter, Fiona told me that she defines technology as "whatever way you can communicate." On the questionnaire she described each member of her family as having the latest devices, a wide array of devices (smartphones, TV, DVR, Wii, tablets and laptop computers), and using these devices constantly. When I asked her to describe her technology use and her child's technology use in hours per day, she laughed and said repeatedly that they all use technology constantly.

Fiona feels technology helps her as a working mom to communicate, learn, and teach her son. She uses her smartphone to FaceTime her family in Mexico and translate and learn English words she does not understand. Watching TV and videos on You Tube helps her learn American culture. She uses a tablet computer to read English stories to her son and to help her son practice writing words in English.

Fiona and her husband make technology decisions for themselves and for their son together. The only time they don't make a technology decision together is when they buy technology gifts for each other. She told me buying the latest technology is a way they surprise and show love to each other.

When Fiona thinks about her son's future, she believes his technology use will increase at school and at home. She thinks the idea of loading all textbooks on a tablet computer is preferable to carrying around books. She believes she will have to monitor his technology use through middle and high school to protect him from "bad influences." When I asked her about what his technology use might be in adulthood, she told me he would have a harder time parenting because there would be so much technology he would have to "watch everything" and

limit his child's exposure to technology. When I asked her about this contrast to her own parenting experience, she told me she did not feel she needed to limit his exposure to technology now because he was using it to learn and study English.

Kameya

Kameya is a twenty-nine-year-old, African American, married mother. She lives in a household with median income, works full-time, and is raising a 3-year-old daughter. Kameya and her husband have family close by who help with childcare. She graduated from high school and attended three years of college.

Kameya thinks technology is both a great tool and "an annoying tool because people lose themselves in it." Part of her full-time job is teaching a computer class designed to help older adults leverage technology in everyday life. She understands their frustrations and uses that inspiration to use technology to best advantage for herself and her family. To that end, Kameya has a lot of technology in her home including two smartphones, multiple tablets, and several gaming and music devices. She likes to have a wide range of up-to-date devices. She would like to get her daughter a cell phone made for young children.

Kameya believes technology influences her role as a working mother by giving her a "needed time out." Netflix and Veggie Tales are her "friends" and "allies" when she is traveling or cooking or cleaning. She values her daughter's paperless learning through tablet apps for learning the alphabet and numbers as well as for coloring.

When Kameya thinks about her daughter's future, she is concerned that her daughter will have some limitations in her career choice because jobs people do will be replaced by computer apps. She wants her daughter to be very comfortable with technology because she believes

technology will expand and change current perceptions of career and parenting. She wants her daughter to be proactive in controlling her own technology use.

Kamile

Kamile is a thirty-one-year-old, Caucasian, married mother. She lives in a household with median income and works as a residential and online adjunct professor for a university. A friend watches her girls, a 3-year-old and a 1-year-old, when she teaches residential classes. Kamile has a master's degree.

Kamile characterized technology as something "pre-created" that is "more passive than active" which is designed to "engage a participant or viewer." She laughed as she described her family as an "Apple family" with two iPhones, a MacBook, an iPad, and Apple TV. Kamile reported on the questionnaire that she uses the most technology in the home to keep up with her online teaching responsibilities. She tries to limit her girls' use of technology to about an hour a day of educational viewing (PBSKids shows or spelling and math game apps on the iPad) when she needs to distract them so she can check email, make phone calls, or get a task done around the house. She feels she needs to "make up for" the time the girls spend "distracted" by technology by playing outside or with non-electronic toys for 2 to 3 hours a day.

When Kamile thinks about her oldest daughter's future technology use, she worries about how technology may stifle her daughter's creativity and pose a danger to her daughter. She wants her daughter to think for herself and be proactively aware of the dangers of online information sharing. These ideas were reiterated when I asked Kamile if she had a message for American mothers concerning their technology decisions for themselves and for their children—"I would say be aware and err on the side of caution. So don't post pictures of your naked kids on your

Facebook account because you think it's cute. Disable your location services, you know, choose the right apps. Choose things that are helpful not harmful."

Katherine

Katherine is a twenty-two-year-old, Caucasian, married mother. She lives in a household with median income, and she works evening and night shifts so she can be with her 3-year-old daughter during the day while her husband is with their daughter in the evenings. She is a high school graduate with some college experience.

Katherine defined technology as something "brought about because it's meant to make our lives better." She uses a variety of technology at work as an online insurance representative. Katherine appreciates the variety of technology experiences she has at work and transfers this appreciation to the technology experiences she desires for her daughter.

Technology and learning are recurring themes in Katherine's interactions with her child. She wants her daughter to have every opportunity to explore and learn through technology. In a focus group she mentioned open education and homeschooling often to emphasize how she wants her daughter "to be at the cutting edge" of technology knowledge and use. She believes local schools will not be able to individualize or provide the technology-rich education she wants for her daughter.

When Katherine thinks about the future and her daughter's technology use, she thinks about the experiences she has at work insuring people who have Smarthome technology. She believes technology will be so integrated into her daughter's life that it will be "all around her all day long, 24/7." To prepare her daughter for this eventuality, she wants to maintain open communication with her daughter so that they can discuss any subject with appropriateness and transparency.

Kora

Kora is a twenty-five-year-old, Caucasian, single mother. She lives in a household with median income, works two jobs, and is raising a 3-year-old daughter. Kora lives with her family who provide childcare while she is working. She is a high school graduate who values learning and expresses regret about not finishing college.

Kora defined technology as a device which will "require cable or WiFi." She believes technology helps her be able to work two jobs and stay connected to her daughter and family. Kora also appreciates how technology helps her learn, "Like if there's something that I don't know, I can easily grasp it through technology by picking up my phone or computer or anything like that." When I asked what device she could not live without, Kora chose a smartphone for herself and her daughter. On the questionnaire, she wrote that she uses her phone for work, for leisure to read online, and for learning games and videos to entertain her daughter.

Kora believes her daughter's future technology use will be extensive. She wants her daughter to be able to access and "use technology safely." She plans to maintain open communication with her daughter so that together they can agree on technology boundaries that do not "infringe on her privacy" and keep her safe. I asked her if she had a message for other mothers about their technology decisions, and her answer demonstrates how she tries to prepare her daughter for a tech future, "Have a healthy balance…because you don't know what the future will be like for them."

Lainey

Lainey is a thirty-one-year-old, Caucasian, married mother. She lives in a household with median income and works part-time running an online shop of homemade goods. She has a 4-

year-old son and a 3-year-old daughter and a baby on the way. Lainey is a high school graduate and has some college experience.

Lainey described technology as “innovation and scientific advancement in the form of electronic devices.” On the questionnaire she mentioned that she uses the most technology in the home to keep up with her online shop and participate in online groups with other women who sell items online. When she listed the types of technology in her household she noted that each device is not the latest. She and her husband downgraded from an iPhone and Android phone to basic phones because they decided they really did not need them and the “benefit was not worth the high cost to us.”

Lainey has a purposeful view of technology. She appreciates how technology enables her to stay at home with her children while still supporting her family financially through her online shop. She monitors the TV closely and prefers it to be off “like always” she said with a laugh.

Looking toward the future, Lainey believes technology will be “integral to every part of life in some way.” She is concerned about the influence of technology on individuals and believes every generation has to “wing it” as they parent and respond to the new social challenges innovation brings. She tries to “make the wisest decisions she can” as she raises her children and prepares them for “what’s next.”

Leticia

Leticia is a twenty-year-old, African American mother. She is married to a Latino man. She lives in a household with high income and stays at home with two girls, a 3-year-old and a 1-year-old, and a baby boy. Leticia is a high school graduate who is currently taking college courses online.

Leticia defined technology through devices, “smartphones, to laptops, to GPS systems.” Having just moved to the area from New York City, she uses her smartphone to help her get around town and to stay in contact with friends and family. However, Leticia values activities that do not involve technology such as reading books with her children. She prefers her children to use paper and pencil to work on their letters rather than using a tablet. Leticia wants her children to be able to read and teach themselves to think critically with or without technology.

When Leticia thinks about her children’s future, she thinks their technology use will increase. She foresees they will benefit from being able to store their schoolwork on computer, but she also believes this convenience will not give them the same opportunities she had as a child to practice organization and be “more responsible.” When I asked Leticia if she had a message for fellow mothers, she shared her parenting goal that her children balance their technology use with reading print books in order to find satisfaction in learning for themselves. She concluded, “If they prefer technology over books, it can interfere with their future.”

Lexie

Lexie is a thirty-one-year-old, Caucasian, married mother. She lives in a household with median income and stays at home with three boys: a 4-year-old, a 2-year-old, and a baby. Lexie has a bachelor’s degree.

Lexie defined technology as a “way to access the Internet or some way that I could get information from something for me.” On the questionnaire she wrote that she uses the most technology in the home for accessing the Internet on her smartphone and using Xbox to stream Netflix for her boys to watch educational shows or cartoons. Lexie enjoys having the TV on “constantly for noise for me.” Technology influences her role as a stay-at-home mother by

"allowing me my coveted quiet time"—for Lexie this means being disengaged from mothering duties, not the absence of noise.

As Lexie thinks about technology and the future for her boys, she hopes that they will be mature. Speaking of her oldest son as an example, "I would hope that we had trained him up well enough for him to be able to make smart decisions." Decision-making is a key element as she expresses her view of how American mothers can prepare their children for a digital future: "I would tell them, don't be afraid of being judged because you use it, because there are so many movements now that are everything has to be all-natural . . . use it as it works for you."

Maya

Maya is a twenty-seven-year-old, married, Latina mother. She recently moved to the US from Mexico. She lives in a household with low income and works part-time at a dry cleaner while a friend watches her 3-year-old daughter. Maya is a high school graduate, understands some English, but speaks little English.

Through an interpreter, Maya told me that she defines technology as TVs and DVDs and adds "it is an advantage." She believes "you can use it in a good way and a bad way." Maya thinks she is using technology in a good way when she uses her phone to stay connected with her husband and family. Her husband is an interstate truck driver and her family is still in Mexico. When I asked her about an example of "bad" technology use, she tells me that she and her daughter do not watch "soap opera dramas" on the TV.

On the questionnaire Maya reported that technology influences her as a working mother by helping her "have more information about how to raise her daughter" by helping her choose educational apps for her smartphone and educational TV programs that will get her daughter ready for preschool. Her daughter prefers watching TV, but Maya limits this to "not every day."

In both the individual interview and focus group, Maya emphasized "natural education" and told me technology should be a supplement not a replacement to natural learning by real-world experiences.

When Maya thinks about her daughter's future technology use, she believes it is "going to be a big conflict" between school and home because "she hangs out with children who use tablets . . . and she wants one and asks me . . . " She worries about her daughter and desires to "train her now to use technology in the right way, uh, not to be, uh you know, addict to technology, she will not be addict to technology when she grow up, or be dependent on technology." In a focus group Maya confirmed that she wants technology to have a limited part in her daughter's education and future.

Rilee

Rilee is a thirty-three-year-old, Caucasian, married mother. She lives in a household with median income and works part-time as an online product tester and an administrative assistant for her church. She has a 3-year-old boy and a baby girl. Rilee has a bachelor's degree.

Rilee described technology as anything "modern, advanced, anything that has the ability to enhance your daily life with batteries, electricity." On the questionnaire she wrote that she is the person using the most technology in the home for social media, "general entertainment," and completing tasks for her part-time jobs. When talking about the types of devices they have in the home, she laughed and mentioned their Keurig: then she listed two HD televisions, two smartphones, two Blue-Ray players, and a LeapFrog TAG reader. She and her son enjoy Skyping and Facetiming with grandparents.

Rilee believes technology influences her role as a stay-at-home mother by enabling her to earn two part-time incomes and feel less "isolated" from the outside world by connecting with

others through social media. Rilee is highly engaged online and often remarks on blogs she follows, articles she reads online, or crafts she is making from examples on Pinterest. Rilee enjoys her personal and mother-related use of technology but also articulates her perception of social-media conflicts facing American mothers in their mothering and technology decisions:

> I think that we should all go a little bit easier on ourselves because it just seems there's there is so much pressure to think what your kids need . . . that is one negative thing to technology because we see what everybody is doing all the time and that can have a much more negative effect on us. But, I think we all have to do what's right and comfortable for our kids and our families and know there's no magic formula. I think if we're doing the best we can, according to what God has called us to do, that's really all we can do. So I have to tell myself that every day and I want to tell other people that too.

Shay

Shay is a thirty-two-year-old, Caucasian, married mother. She lives in a household with median income and stays at home with a 4-year-old boy, a 2-year-old boy, and a baby boy. Shay has a bachelor's degree.

Shay defined technology as "the use of computers and iPads, smartphones, videogames, that kind of thing." The device she could not live without is her iPad because she can FaceTime with friends and family. She uses technology to facilitate her role as a stay-at-home mother by ordering her groceries online and having her husband pick them up after work. She also uses her Amazon Prime account to look for discounts on diapers and have them shipped to her door in 48 hours. She values technology for its convenience.

Because Shay plans to homeschool her children, she knows technology will increasingly be a "big part of everyday life" as she looks to the future. She believes, "the devices will be way

cooler than what we have right now, and they're pretty cool right now." When it comes to her boys' technology use she explains, "I don't want them to be behind, but I also want them to know that people are more important." Shay wants each of her children to know how to use technology and "make time for quiet" to sit and reflect on life "without the distraction that technology can be." As Shay anticipates the future of her boys' technology use, her technology perspective is revealed in her message of understanding directed to other mothers: "they shouldn't feel bad about how they choose to run their home whether they let their kids watch a lot of TV or use a lot of time with the iPad, I mean God gave them those children so He gave them the wisdom to know what is best—so do what works for you."

Sibel

Sibel is a forty-three-year-old, Caucasian, married mother. She lives in a household with median income and works part-time as an office administrator for a youth camp. She has a 3-year-old daughter. Sibel is a high school graduate and has three years of college experience.

Sibel defined technology as "anything electronic" and "things that like our grandparents didn't have." When I asked Sibel about what technology she could not live without, she quickly rejoined that she could "live without all of it." When I pressed her further, she admitted that she values a basic cell phone, not a "super-duper . . . use Google and watch videos" phone, to call and talk to her friends. Sibel believes technology influences her role as a working mom by allowing her to maximize what she accomplishes during her work hours so that she can "spend as much time as possible parenting." In a focus group, she mentioned she uses the Internet to answer her parenting questions about her daughter's health and development. She explained to the other mothers present that she likes to compare parenting websites to "feel more secure in my parenting decisions."

When Sibel thinks about the future and technology she wonders about how much technology a person can use and still "function as a human being." In response, Sibel plans to limit her daughter's future technology use based on three elements: "Does it interfere with real living, her overall development, and building personal relationships." With an impassioned tone she added, "I weigh these things in my mind constantly." I asked Sibel if she had a message for American mothers, and she said, "Guard your children from technology." She reiterated the importance of children's mental, physical, and social development, and concluded, "Technology interferes with all of that."

Results

Analysis of questionnaire, individual interview, and focus group data revealed that the process by which mothers make technology decisions for themselves and for their children is multidimensional and connect the developmental proximal processes of the PPCT model with determinant and moderator factors of the UTAUT model through three new technology decision constructs derived from this study: *reflecting situationally*, *promoting intentionality*, and *valuing individuality*. *Situational reflection* is a mother's contextualization of time through past and present technology use whereby she forms technology preferences. *Promoting intentionality* describes a mother's development of person characteristics in herself and in her child by connecting her personal technology preferences and use to her technology decision process for her child. *Valuing individuality* is a mother's reaction to the context of changing technology whereby she values individuality of technology use for herself and for her child. The theoretical study model (see Figure 1) illustrates these connections situated in the microsystem of the home environment.

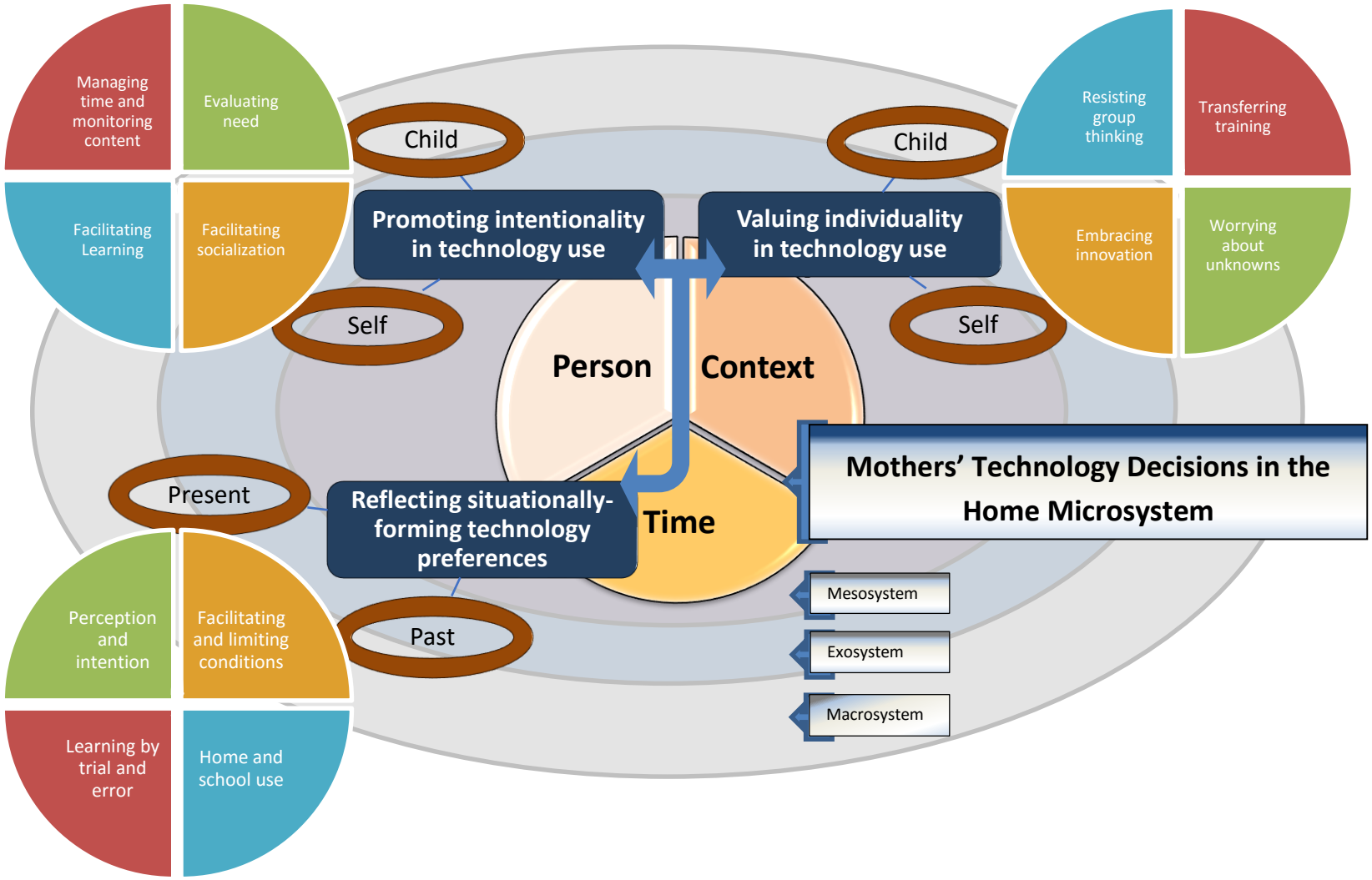

Figure 1. Theoretical model for mothers' technology decisions. This figure depicts the process mothers experience when they make technology decisions for themselves and their preschool child in the home environment.

The model is not linear because mothers make technology decisions using a multi-dimensional cyclic process. Mothers may start the decision process cycle at different points or proceed through the cycle in different directions, but they engage in all the decision constructs (reflecting situationally, promoting intentionality, and valuing individuality) to varying degrees. One cycle construct illustrates how mothers reflect situationally on past and/or present time characteristics to inform their technology preferences. Mothers' technology preferences form from reflection on experiences related to the facilitating and limiting conditions of growing up with technology, their past home and school technology use, how they learn technology through trial and error, and how they perceive and intend to use technology. Another construct in the cycle displays how mothers promote intentionality in technology use to develop person characteristics in themselves and their children. Mothers accomplish this by the way they use technology to facilitate socialization, facilitate learning, monitor time and manage content, or evaluate their technology needs and that of their children. The last cycle construct shows how mothers contextually value individuality in personal technology use when they embrace innovation, resist group thinking, transfer training, or worry about the unknown for themselves and their children.

Where a mother begins her technology decision cycle depends on the nuances of the technology choice: whether it is a personal choice, a choice for her child, or both. When faced with a personal technology choice to keep or downgrade from a smartphone to a basic phone, Lexie's personal technology decision process demonstrated the three construct decision cycle: ". . . they're trying, obviously, to force everyone into the smartphone thing, but I mean for us, I'm at home, with the kids, and we have WiFi, I don't need the 3G, when I do go out, really the only phone I need is a telephone in case of emergency." Lexie's personal technology decision

process began with valuing individuality "for us" in response to the pressure she perceives from her cell carrier. Next, she situationally reflected on the present and what "we have," then she promoted intentionality in addressing her needs: "really the only phone I need is a telephone in case of emergency."

When I asked Sibel to describe her daily personal technology use, her answer demonstrated how a mother's personal technology decision can merge with a technology decision for her child through the three constructs of the decision process cycle:

> I don't even really want her to see me working on the computer because then she's all like "ooo what's that?" And I'm like, "you don't need to know about that now, you can just wait," and she's like, "I'll do it mommy," and I'm like, "I'm sure you would, yeah that's when you get to school worry about that.

Sibel's technology decision process began by promoting technology intentionality in herself by not wanting her daughter "to see me working on the computer;" then, she both promoted intentionality in her daughter by controlling her computer access and showed she valued her individuality in the statement "you don't need to know about that now, you can just wait." Sibel's technology decision process for herself and for her child ended by her again merging two cycle constructs: she valued her daughter's individuality by encouraging her to "worry about" technology, and Sibel encouraged her daughter to situationally reflect on the present "when you get to school"—which, for Sibel's daughter, will begin in a few months.

When mothers faced a technology choice for themselves and/or their children, their technology decision process started at varying points of the decision cycle and progressed multi-directionally to different cycle elements. Several mothers (n = 7) mentioned how they gave their children their smartphone to keep them occupied while waiting at a restaurant or doctor's office.

I added this participant-generated scenario to the interview questions, and Aryn's response to the scenario demonstrated a multi-directional use of the three technology decision process constructs: "We really don't, I don't really let them do that, yeah, I like them to learn how to wait without having to be entertained. I'm kind of old school when it comes to that." She began the technology decision process for her daughters by valuing her individuality in the parenting roll "we really don't" and then she promoted intentionality in technology use with "I don't really let them do that." Next, Aryn's decision process returned to valuing individuality, but this time in developing individuality in her children "I like them to learn to wait without having to be entertained." Her technology decision for her daughters concluded by merging two cycle constructs: she valued her own individuality and reflected situationally when she contextualized time, "I'm kind of old school when it comes to that." Mothers like Aryn made technology decisions for themselves and their preschool children that demonstrated a multi-directional iterative process that reflected their personal technology preferences. To better understand mothers' technology decision process, each new construct is described beginning with how mothers form personal technology preferences through situational reflection.

Reflecting Situationally

The first research question asked what factors influence how a mother of a preschool age child forms personal technology preferences. *Situational reflection* is a mother's contextualization of time through past and present technology use whereby she forms technology preferences. Time was a factor in the situational reflection process mothers used to form technology preferences. Mothers contextualized their personal technology preferences within the changing social/technological expectations of past and present macrotime (Bronfenbrenner & Morris, 2006) concerning the facilitating and limiting conditions of growing up with technology,

their past home and school technology use, how they learn technology through trial and error, and how they perceive and intend to use technology.

Time characteristics. Some mothers situationally reflected through time comparison. Like many mothers, Kameya compared levels of technology use, "My three-year-old can run circles around me, compared to what we were doing back then." She also contextualized technology and social expectations, "I remember when I finally got tapes, then I finally got a CD, Yaaaaaa! I was like 'I got a CD!' You know? Now, what is a CD? Put in iTunes." The interview questions encouraged participating mothers such as Kameya to briefly reflect about their current and past technology use, but the mothers' responses suggested that they had situationally reflected through time comparison well before this study. Cala reflected on how different her childhood is from her daughters'. Cala believes her daughters expect much more from technology than she did at their age. To illustrate this, Cala told me of her oldest daughter's encounter with an old CD player—"She said, 'Mommy, what is this?' And I said, 'You know, that's a CD player; I can play music on that' . . . and so she looks at it and she's inspecting it and then she says in a loud voice, "CD player, play music." Expecting all technology to be voice-activated are just some of the realities in children's lives that prompt their mothers to situationally reflect through time comparison and form technology preferences for themselves that impute value on new technology through comparison with older or obsolete technology.

Some mothers situationally reflected about the past. Rilee reflected on growing up with the joys of getting to pick out and rent a video, "My husband and I joke that our kids will never know what a Blockbuster video store is." Amanda remembered non-digital library use and information seeking in books before Google. These and similar temporal reflections were factors in mothers' technology preferences for approximate experiences such as picking out a video on

Amazon Prime or carry-over experiences such as insisting that some things be researched in a real book.

Several mothers (n = 5) reflected anthropomorphically about technology coming-of-age with them. Some mothers expressed feelings like "technology followed my age group" and "as I have grown so has technology." Kamile, an older mother, summarized this shared feeling—"I feel like I am of the generation that was the first to grow up with technology." Both older (thirty years of age and beyond) and younger (under thirty years of age) mothers shared this idea that technology was coming-of-age with them, and both tried to use the past to inform their current technology preferences and decisions. Katherine, a younger mother, remembered her computer use growing up and her parents' response, "they tried to make sure we had, you know, a basic understanding of them, but they weren't very educated in them." Now in a world of Facebook and Snapchat, Amanda, a younger mother, expressed a frustration shared by younger and older mothers alike, "there isn't a generation before me saying 'oh this is how we dealt with this'—it's hard." Both younger and older mothers perceived their technology-related growing up experiences were so different from the present that they further contextualized time by forming *a priori* technology preferences from the facilitating or limiting conditions they perceived growing up.

Facilitating and limiting conditions. Mothers situationally reflected on the supports (facilitating conditions, UTAUT model; Venkatesh et al., 2003) and limitations to their technology use in their childhood home. Cala's mom stayed at home with seven children and used technology to homeschool. Cala described her mother's appreciation for technology and her excitement "to upgrade and get the next new thing." Cala's experience was different from other participating mothers. Mothers remembered as children how their working parent(s) felt more

comfortable with technology and brought it home for their family to use incidentally while learning how to use the device through trial and error. Typically the working parent was a father, but Kameya described how her mom worked three jobs and was "very big on technology." Lainey's mom worked as an accountant and was "very up on all the technology." Lainey remembered, "I mean I was always impressed as a high school student with how in the know my mom was about technology because most people's parents were just like 'oh what's this, I never used one of these' and my mom really I mean she knew all the cutting edge stuff. She would read you know PC magazine and stuff like that."

Lainey's impression of "most people's parents" was what most mothers in the study remembered about their own mothers' ambivalence, skepticism, or control of technology. Ella remembered her mom turning off the TV and warning her daughters against becoming "hot house lilies"—a phrase she herself had heard her own mother say growing up. Kamile's mother "was always skeptical about TV and computers—she didn't want that to be what raised us, she wanted life experience to raise us." Mothers formed technology preferences that were a reaction to their parents, particularly to their own mother's facilitation or limitation of technology. Kamile used situational reflection to contextualize the technology limitations of the past and form technology preferences for the present, "Technology is just a part of life, you can't do what my mom did and just say 'well we're just not gonna, it's just not gonna be our family, it's not gonna be a part of your growing up experience.' You can't, it's everywhere . . . I think what our job is now is to teach responsibility, teach technological responsibility." Many mothers shared childhood experiences similar to Kamile where their own mothers encouraged outside play as much or more than screen time. Aryn remembered how her mom leveraged TV use, "She had five kids so having a TV wasn't, to her, a bad thing because it kind of kept us busy at certain

times and the rest of the time we were outside." As these mothers situationally reflected on how technology was facilitated or limited while they were growing up, they formed technology preferences for shared technology experiences with their children balanced with non-technology related activities. In a focus group Rilee shared her satisfaction with her balanced approach, "My son wants to be outside and they want to do stuff with their hands and I feel like that's so much a part of boyhood, um, they want to work most of the time. They want to be providers and conquerors and I think that helps them pull away from technology in a lot of ways which is good." Encouraging non-technology related activities with thoughtful technology use was a facilitating condition formed from mothers' reflections on the contextual demands of time.

Mothers contextualized time by situationally reflecting on their growing up years and the lack of access to computers at school and home. Rilee mentioned the lack of computer access and use in high school, "Nobody ever really used the computers to do much of anything for school except maybe type a report, and I remember having friends coming to our house to use the computer to type up a report and print it off because we were one of the few families in town that actually had one." Most mothers recalled having only one computer in the house growing up. The family computer was located in a public space such as the living room, the basement, or kitchen. Mothers shared a common reflection that they did not use the family computer very much based on its limitations of functionality and speed. Reflecting on these limitations, younger mothers formed technology preferences for the functionality of smartphones. Older mothers had the same reflections on the old family desktop, but their reaction was a technology preference for functionality based on need and simplicity.

Home and school technology use. Reflecting on their home situation as children, mothers remembered their technology use by device: using a Commodore for typing games,

using Nintendo for games, or watching TV—rather than describing TV shows. Aryn remembered getting a TV at home when she was middle school age "and my parents got cable and it was like a huge deal it was like the biggest thing ever." Mothers situationally reflected that they watched more TV growing up than using a computer in the home. These reflections had varying effects on the technology preferences mothers formed in the present. For some mothers, the amount of television watching growing up transferred directly to their current technology preference. Lexie reflected, "It's because of my Mom, because it was never quiet growing up . . . umm . . . the radio was always on if the TV wasn't . . . I always remember there being some kind of background noise . . . So it's on all the time here, as far as, at least for background noise." Shay watched a limited amount of TV growing up and transferred that situational reflection to her preference for TV watching being a "treat" for herself and for her children.

Other mothers formed technology preferences about TV watching that were opposite of their parents technology preferences. Lainey identified her parents as "big TV watchers" that "would leave the TV on 24/7." She remembered turning off the TV as a youth when she was home alone—a practice that carries over to her current preference to have the TV off in her own home. Leticia remembered her mom was "completely obsessed with like movies and stuff," but she also remembered that her mom told her that TV "can have an effect on your mind" and that her mother "would try to get us to read books more." Leticia is not a TV or movie watcher which is opposite of her mother's technology preference, but she did carry over to her own mothering a desire to get her children interested in books. Whether mothers developed similar or opposite technology preferences to their own mothers' technology use, their situational reflections of the past informed their present technology choices.

Mothers' situational reflections on their technology experiences in school emphasized actions: learning to read in elementary school with Reader Rabbit, learning to type in middle or high school computer labs, responding to peers or teachers through online platforms, and registering or taking college classes online. Few mothers remembered using computers in elementary school. Lainey remembered seeing one old computer in every room of her elementary school that "just kind of sat there." Mothers who used computers in elementary school described learning the alphabet and reading stories with reading games or reading programs on disk or playing other education games such as Oregon Trail. Interestingly, the absence or limited nature of these experiences did not preclude mothers' development of technology preferences for using technology to teach their children reading and math skills using education games.

As younger and older mothers situationally reflected on secondary school, they had similar technology experiences. Mothers remembered middle or high school as the time they learned to type in computer labs. Some younger mothers recounted how they learned some of the basic programs in Microsoft Office such as Word and PowerPoint as part of a typing/computer science class. Older mothers mentioned high school as the time they saw teachers incorporating technology into their presentations or communicating to the class and parents through an online website or through email. Both older and younger mothers' situational reflections on technology use in middle school and high school promoted a technology preference of wanting schools to be responsible for explicitly teaching their children the technology skills they need to know. Cala was the only mother who did not share this preference. Her situational reflections on being homeschooled in middle and high school prompted a technology preference that she be the one to teach her girls technology skills: "I really view my job as a parent that it's my personal

responsibility . . . to make sure that they're getting the information that they need and are feeling equipped for life—I think that school is sort of a supplement to that."

Mothers' technology preferences were further shaped by their experiences in college. Most mothers (*n* = 17) in this study had some degree of college experience and shared a common situational reflection that this was the time that Internet use, instant messaging, and online platforms became part of life. Shay remembered when the college she attended converted to online registration: "I could get up and register for my classes in my pajamas" from the comfort of home. Younger mothers, like Becca, used the Internet and online platforms in college "to upload papers, and do discussion boards, and we had to do research for research papers through websites." Lainey remembered that the first online classes "didn't really work well most of the time" because of broken links, speed and connectivity issues. Older mothers were going through college at a time when Internet use by college faculty and students was still novel. Older mothers remembered using the Internet for research resources, email, and instant messaging. Aryn explained her instant messaging use, "I did it all the time. It's how we, you know, instead of calling on the phone . . . that's how we communicated." The situational reflections of college technology use for both older and younger mothers developed technology preferences for Internet information seeking and online communication. Mothers turned their college online research skills into online researching skills about mothering, health, and their developing child. Also, their college online communication patterns transformed from Instant Messenger and discussion board use as students to texting, Facebook, and FaceTime use in their role as mothers. Mothers' formal education may have come to an end with the completion of their college experiences, but the informal learning necessary to use new technology is ongoing.

Learning through trial and error. Mothers not only used situational reflection to connect with the macrosystem of the past but also the macrosystem of the present. Mothers expressed concern about their personal level of technology experience (UTAUT model; Venkatesh et al., 2003) with devices and apps for helping their child to effectively interact with people and objects in a fast-paced age of technology innovation. Kameya expressed regret that she "pushed back so much" about learning how to use technology in school. She believes she is learning technology now that she should have learned in school. She explained her current technology learning process as "you're constantly trying to regroup and grow." She concluded that technology is "not smarter than I am—it just knows another way to do it and we're both on the same page, sooner or later."

Several mothers (n = 6) described their technology learning as a trial-and-error process to learn a new platform at work or navigate the features of a new device. Shay reflected on one of her first jobs out of college working with a web-based course management system for distance learning, "I felt like there was a little bit of a learning curve there, but you know, that's always how it is, when you're learning a new program, you have to work with it till you become proficient in it. I felt like, life is about learning." Mothers like Shay were quick to contextualize their past technology experiences and bring them to the present to guide their current technology preferences and use. Younger mothers developed technology preferences for using singular devices such as smartphones that could "do it all." For some mothers, this lessened their feeling of needing to "relearn everything." Some older mothers developed preferences for using devices with fewer features with the intent that there would be less to learn and remember. Ella explained her technology preference and her husband's role in her preference formation:

> He had to convince me to get an iPhone because I was just fine with my little rinky-dink text phone because I feel, a lot of times, I feel overwhelmed by it if I don't understand it right away. So I just throw my hands up in the air, I'm like "wahh, I can't figure it out." Um, so he's kinda the one that will like push me out of my comfort zone, be like "oh you-you really will like this."

As older mothers reflected on their current technology preferences and use with regard to changing technology, they preferred to read and know about changing technology while owning, as Sibel described it, "a step back" from the latest technology for themselves and for their children.

Perception and intention. Mothers' situational reflections on the past and present developed technology perceptions and intentions that informed their technology perceptions. I asked mothers what they thought of technology now, and Becca put into words a feeling many mothers shared that technology "basically runs our lives . . . it plays a huge role in everything." Cala, whose job requires her to know and use the latest digital communication platforms, put it a different way, "I think it's infiltrated society almost to the point of being like a fault . . . we have to really watch and balance carefully our digital consumption." Cala's situational reflection "almost to the point" contextualized her perception of technology "being like a fault" and informed her intention to "watch and balance carefully" digital consumption which formed a personal technology preference to limit her technology use.

Mothers perceived technology as "amazing" and making "life easier," (performance expectancy, UTAUT model; Venkatesh et al., 2003) but they did not perceive technology as making life simpler. Mothers shared perceptions similar to that expressed by Amanda, "Parts of technology are overwhelming." Perceiving that technology could be overwhelming, mothers'

technology intentions for themselves were focused on the immediate and the known. Fiona described herself as using technology "constantly" but focused her technology intentions on immediate communication with her husband and business here in the US and her extended family in Mexico. Fiona and Maya had similar technology intentions to connect what they know about American culture and communicating in English to the unknown. By using Google and translation apps on their smartphones, Fiona and Maya found answers to their cultural and language-related questions. Fiona believes technology is "indispensable" and Maya appreciates "the help" technology provides.

Help was a recurring theme in mothers' situational reflections on their current technology use. Ella described her frustrations with using new devices or apps, "I have very low patience with this so if I don't understand it, I will usually call him, um, and just be like, 'I need you to fix my problem.'" Mothers' technology perception that they could collaborate with and receive help (facilitating conditions, UTAUT model; Venkatesh et al., 2003) from their husbands supported their intention to help others, specifically their children, with their technology use.

Mothers contextualized time and situationally reflected on their intention to include technology in their children's lives. Kamile explained her perception of time and her intention to include technology use in her daughters' lives, "I want to include it because it's, it's such a part of life right now and it's going to get more and more so as my kids grow up."" Mothers like Kamile believed they could help (facilitating conditions, UTAUT model; Venkatesh et al., 2003) their children interact with technology more effectively both now and in the future. Cala summarized what many mothers perceived about their children's current and future technology use, "for them there's these expectations of technology because of where they are in history and how at this point they're expecting all this from their technology and being able to interact with

it." Mothers perceived they could help their children leverage the advances in technology through their own technology perception and situational reflections. Kameya explained, "you know ultimately we want these kids to enjoy technology for what it should be—education, enjoyment, a sense of excitement, of exploring, you know . . . always be watchful, always be prayerful, always be intuitive, and in the trenches with our kids." Kameya's explanation demonstrated her technology decision cycle that began with her use of the word "ultimately" as a situational reflection on time and her perception that kids should "enjoy technology." Next, she promoted intentionality by describing how she and other mothers can be intentionally "watchful," "prayerful," and "intuitive." Finally, she valued parental support of children's individuality with the imagery of being "in the trenches with our kids." Mothers used situational reflection to individually and intentionally include technology in their children's lives.

Situational reflection on past and present macrotime helped mothers contextualize the facilitating and limiting conditions of growing up with technology, their past home and school technology use, how they learn technology through trial and error, and how they perceive and intend to use technology. Thus, time characteristics were a multi-dimensional factor in the situational reflection process mothers use to form personal technology preferences. These technology preferences promoted intentionality in mothers' technology decisions.

Promoting Intentionality

The second research question asked how a mother's personal technology preferences and technology use affects her technology decisions for her preschool age child. *Promoting intentionality* describes a mother's development of person characteristics in herself and in her child by connecting her personal technology preferences and use to her technology decision process for her child. By contextualizing time through situational reflection, a mother formed

technology preferences that promote intentionality in her technology decisions for her own personal use and that of her preschool age child. Developing person characteristics is the factor that drives intentionality and connects technology preferences to the technology decision process.

Person characteristics. Mothers used technology to continue their lifelong development of person characteristics. Whether participants made reference to a faith community or not, they articulated their intention to develop personal morality in their technology preferences and use. Amanda was very aware of her smartphone use and resolved, “I'm trying to be careful that I'm engaging the people that I'm around too.” She intentionally did not download many apps or use her smartphone to its full capacity or potential, “I'm sure I could but is that where I should spend my time? Is that what I should do?” Aryn talked about social media and avoiding “the trap” of personal comparison, “Pinterest and Facebook, those are things where you see what people are doing and you compare yourself to them and then you’re like I would love to do all of this stuff and you can’t do it and it just makes you feel crazy.”

Personal morality promoted technology intentionality in mothers’ continuing development of their own person characteristics and in the person qualities they wish to develop in their children. Mothers wanted their children to develop person characteristics that reflect morality and community. This involved using teachable real-time moments to teach “basic morals” such as gender respect, racial equality, and healthy body image.

During the focus groups some mothers linked the basic moral of healthy body image with technology. Katherine believed the prevalence of technology and the need for safety as her daughter becomes a part of the online community necessitated teaching her daughter healthy body image “part of that also includes making sure we are educating her, from the beginning

about things like, you know, her body, and that it is hers." Katherine's technology decision cycle began with intentionality "we are educating her" followed by situational reflection on time "from the beginning" and ended with promoting individuality in her daughter that her body "is hers." Mothers like Katherine viewed themselves as the primary teachers of these moral values, and they perceived technology as both a resource and hindrance. Katherine viewed technology as a resource, "as she gets older, it's a continuing conversation, that technology will have a role in, you know we have to tell her about how people can use technology to do some inappropriate things—but when she reaches an appropriate age to understand it and do something about it."

Some mothers perceived technology could negatively affect their child's moral development. Ella believed technology could be a hindrance to building her child's sense of morality and community. She explained, "I want my child to be kind, I want them to be well-liked, I want them to be able to show love to other people, and I feel too much technology would interfere with her ability to do that." Several mothers (n = 7) shared Ella's belief that technology could interfere with their child's moral and social development so that they intentionally limited their child's use of technology for entertainment purposes.

Some mothers expressed their limitations on their child's technology use as "convictions." For example, Cala limits her daughters' TV use and encourages them to play their iPad mini which is loaded with educational games. However, Cala told me that not having the TV on was "a personal conviction for in my home" that did not extend to someone like the family's babysitter who also makes technology decisions for her girls. Most participating mothers echoed Cala's belief that personal technology convictions for their children did not extend beyond the family's home. This was not the case with Ella. While Ella never used the term *conviction*, she was highly intentional that others honor her device preference that her

daughter use the TV for entertainment and the iPad for education purposes. She explained, "there've been a couple times I've had to step in with grandma or dad and just be like, 'Don't, please don't let her do that on-on that, on the iPad.'" Mothers used their technology preferences to develop morality and person characteristics through intentionality in their technology decisions for their children and for themselves.

Facilitating socialization. Mothers' situational reflections on their technology use prompted them to intentionally limit their own technology interactions (person characteristics; PPCT model; Bronfenbrenner & Morris, 1998, 2006) as a result of social influences (UTAUT model; Venkatesh et al., 2003). Some mothers limited their reading of the news, others limited their online game playing, and some limited their Facebook use. When asked about their imposed limits on Facebook, mothers described intention and access limits imposed for their own personal development. Mothers like Amanda promoted intentionality in their Facebook use by limiting their socializing intentions to stay in *touch* but not in *contact* with people. Amanda explained, "I might not talk to you for the next six months, but I see your kids growing up and I see like stories of what's happening." Staying in touch but not in contact with people allowed Amanda to "rejoice with a friend" asynchronously without taking valuable time away from the social influences of her mothering schedule or her real-time interactions with her family. Amanda also imposed on herself an access limit of asking her husband to make and keep her Facebook password, "That's where my accountability is, 'Okay, you have to log me in.'" Other mothers facilitated their own accountability and socialization using their child's schedule as an imposed technology access limitation.

Intentionally imposing time limitations. Some mothers used their child's napping or "the little in-between times, when the kids are busy doing something" as a limited opportunity to take

a break from mothering and engage with technology. Mothers explained the importance of watching TV, information-seeking on their smartphones, or scanning Facebook with statements such as “some days that’s your only connection with the outside world” and “I feel like I can just turn my brain off for a second.” Mothers in this study shared the view of mothers in other studies (Venkatraman, 2012) that technology was a “treat” and an opportunity for escape. The contribution of this study is the emphasis mothers place on their self-imposed limitation. Like other mothers, Ella views Facebook as a treat; but, when she explained her thinking to me, her emphasis was the time limitation, “Oh, let me just look at that for a second and escape for a little bit.”

Intentionally recognizing social influences. Ella’s explanation alludes to the sanction some mothers described in the questionnaire and individual interviews about the social influence of comments made by husbands and pediatricians about extended screen time. These comments prompted mothers to associate their personal extended screen time (computer, phone or TV) or their children’s extended screen time with bad parenting and inhibiting their child’s social development. In the focus groups, I asked mothers about these influences, and the few that recognized and attended to these messages explained that it was their recognition of the leadership authority of their husband and the medical authority of their child’s pediatrician that prompted them to limit their child’s screen time. It was the lack of perceived authority that made these mothers ignore other social messages about technology, appropriate social interactions, and their child’s development.

Intentionally facilitating social interactions. Mothers promoted age-appropriate social interactions by intentionally facilitating and controlling their child’s technology access. Understanding what mothers think are appropriate social interactions begins with their

situational reflection on technology and the differences between their childhood and that of their children. Having just moved to the US from Mexico, Fiona provided a valuable situational reflection on childhood, "I remember when I was a little girl, the games were house, cooking, dolls, all those things, not games, but toys in reality. But now, the children are focused on Xbox, the Wii, tablets . . . .They don't make games like before. I believe they've forgotten them now because children live in technology." Kameya believes the difference in childhoods is material: "mine was things, touchables as far as like books and so on—hers is DVDs, sounds, music and anything animated." Mothers who situationally reflected on the differences in childhoods shared Becca's concern that their children would "rely" on technology "to entertain them" rather than going outside to play, or as Becca explained, "I had to just find something to do, go play with a friend." Sharing the same reflections as Becca, Ella wanted her children to use technology but also to "be challenged to do independent or imaginative play" without technology. Situational reflection prompted younger and older mothers to compare the socialization of their childhood with the socialization they believe is possible and preferable for their children and to use their technology preferences to promote intentionality in their parenting technology decisions.

Intentionally reacting to technology. With regard to socialization, several mothers (*n* = 6) are parenting as they were parented but with intentional reactions to the prevalence of technology. Mothers wanted their children to know which social interactions fit with technology. Shay valued the socialization of texting, emailing, and FaceTime for herself and for her children; but she is teaching her boys what she was taught about communicating thankfulness, "When we get a gift from someone, we sit down and write a thank-you note. That's polite! That's what you do!" Shay reacted to the prevalence of technology by developing morality and person characteristics in herself and in her children by intentionally using technology for certain

socializing purposes (emailing, texting, FaceTime) and not for others (expressing thankfulness). Shay's technology decision process included intentionality, individuality, and situational reflection when she concluded that technology is "fun and there's a lot that's useful, you know, but at the same time, I don't want to give up the old."

Intentionally learning to wait. Mothers used their technology preferences to socialize their children in appropriate waiting skills. Lainey expressed incredulity about seeing other mothers give their children tablets to use while grocery shopping or while waiting for food at a restaurant, "I just kind of roll my eyes at it because I'm just like, 'Really?' Like you could be talking as a family or playing something." Lainey further emphasized the importance of teaching a child to wait and socialize with the family without using technology as a distraction. Other mothers used their smartphone or brought along a tablet so the child could play games or watch videos while waiting at a doctor's office or restaurant. Kamile appreciated being able to bring a tablet for her daughter to use when they're away from home or at the doctor's office, "She has an immune disease so she can't touch things when we're out and about." Kamile's iPad kept her daughter's hands occupied and away from touching common surfaces. Some mothers gave their children their phone or a tablet to use while in a restaurant. Anita explained, "It's the easy go to babysitter at the table." A few mothers (n = 3) mentioned a local restaurant that offers customers with children devices that children can play or listen to while they are waiting for a table or seated at a table. Whether mothers wanted to teach their children to wait with or without technology demonstrated their technology preference which promoted intentionality in the technology decisions they made for their children. The desire of the mothers to develop their children's person skills by facilitating socialization went beyond appropriate waiting skills to maintaining social connections.

Intentionally promoting social connections. Working and stay-at-home mothers used technology to promote social connections for themselves and their children. Some stay-at-home mothers used FaceTime to talk to relatives or their husband while at work. Katherine, a working mother, used texting to stay connected with her husband, "working long hours like we do can definitely you know, lead you to miss the other person, you know, you still want to have a connection with your spouse." While at work Katherine also sent emails to her daughter's InnoTab so that her daughter could feel connected to her.

Mothers used their technology preferences to promote intentionality in their technology decisions in order to facilitate socialization for themselves and for their children. Mothers facilitated their personal socialization by staying connected with others and limiting the screen time and types of technology-related socialization. To facilitate the socialization of their children, mothers decided how their children should learn to wait, which social interactions fit with technology, and how to use technology to stay connected to family. Amid these elements of social learning, mothers promoted intentionality in how they developed their person characteristics and that of their children through information-seeking and learning.

Facilitating learning. Mothers demonstrated intentionality in their personal technology preferences for technology-facilitated learning (performance expectancy, UTAUT model; Venkatesh et al., 2003). Mothers chose to read blogs rather than books for information seeking. Amanda explained, "Blogs really are the amount of time I have right now." Yet blogs and online information seeking made some mothers feel overwhelmed. Aryn used online resources for recipes and creative ways to teach her girls sounds and letters, but she felt "there's just so much information available so many things to learn that I feel overwhelmed." Kamile shared this perception but felt technology brought information that "really opens my options as far as

learning and growth and development as like a person." Both younger and older mothers sorted through the quantities of online information by comparing ideas to their own situational reflections or information-seeking purposes. Amanda demonstrated her intentionality of purpose when she wanted to learn a broth recipe, "I don't wanna read ten or twenty or fifty other people's recipes. Just show me a good one." Her intentionality of developing person characteristics is seen in her conclusion, "I'm a learner, I want to learn, I want to research but at the expense of what?" Her desire to develop personal morality by not taking valuable time away from her family produced intentionality in her time expenditure for information-seeking.

Learning through experience. Some mothers valued learning without technology and through experience. Sibel used situational reflection to explain her desire to gather information through books and experience, "I'm probably like the cutoff for people who know how to do everything the old-fashioned way." Sibel and Shay shared the view of some older mothers about intentionally reading a book through non-digital means. Shay explained, "I think there's nothing like reading a real book as opposed to reading something on a Kindle." This personal preference was one that Shay transferred to her technology decisions for her boys. Like Shay, Cala valued print books but only for a certain period of time and not for herself. She valued digital learning for herself but thought young children should have their first learning experiences from a real book, "I'm not going to hand my baby my phone to turn the pages and feel the colors and then chew on it . . . There are certain elements that, like, their brain needs to learn about through the real thing." As Cala's explanation suggests, mothers had technology preferences for themselves and for their children concerning how and when technology can facilitate learning. Yet mothers acknowledged that their intentionality in their child's technology use was tempered by their child's natural desire to watch and learn.

Learning through unintentional modeling. Mothers believed their children are learning about technology by watching others. Kameya believed her daughter learned how to SnapChat and take selfies from watching teenagers at their church. When I explored this concept further, and asked her about how her daughter might pick up on her technology preferences, her reflection expressed amazement at her daughter's implicit technology preference learning:

> It's just interesting, interesting to see, my niece, my husband, myself have a big influence—like she said "Mommy is that going on Facebook?"—You're three, why do you know what Facebook is? Ok is Mommy and Daddy on Facebook too much or the teenagers around you, are they on Facebook? Yeah okay no.

Kameya's conclusion, "Yeah okay no," expressed a view of younger and older mothers to intentionally limit what technology they expose their children to.

Mothers told me that they limited their child's technology exposure to mostly educational TV or educational apps, but both older and younger mothers revealed that their children had another kind of exposure through unintended modeling whereby their children knew their phone password, how to use apps on their smartphone, how to find and download videos on YouTube, and how to turn on and operate gaming and other entertainment devices around the home. In an attempt to understand their child's learning, some mothers situationally reflected that their children were much more tech savvy than they were at this age. Katherine reflected, "When I was three I was starting to read, you know, playing outside a lot, making mud pies . . . whereas my daughter she already knows how to navigate a smartphone." When I asked mothers how their children were picking up technology knowledge and perceptions, Anita expressed the view of many mothers, "They've watched, it's what we've done in our house, so they know how to do it." Ella recognized the power of her own technology modeling in her children's lives and added,

"I think kids just acclimate to whatever technology is at their fingertips." Mothers were implicitly teaching their preschool children technology preferences and technology skills without fully realizing it while they endeavored to intentionally limit their children's exposure to technology used for educational purposes.

Learning through intentionality. Mothers intentionally used technology to facilitate (performance expectancy, UTAUT model; Venkatesh et al., 2003) their child's letter learning, reading, and math skills. ABC mouse was a favorite letter learning game app; mothers felt it was easy for their children to use and kept their children's attention. LeapPad and LeapFrog had less appeal according to mothers. They felt their preschoolers were too young to fully know how to use it and that the activities did not hold their children's attention. Beyond learning games, mothers provided educational shows using Apple TV, PBS and NetFlix.

Mothers did not let their children choose for themselves when the TV would be on and what they would watch. Most mothers limited their children's TV viewing to an hour or less a day and paid for cable or streaming services that allowed them to search for and select what shows they felt were educational and appealing to their children. In a focus group, Katherine mentioned that when her daughter watches TV it is educational shows like *Daniel Tiger's Neighborhood* and *Super Y*. As with other technology devices, mothers promoted intentionality and facilitated learning by controlling their children's TV access and content consumption.

Amid these various technology-related learning options, older and younger mothers expressed concern about using technology in a way that might interfere with their children's process learning. Kameya, a younger mother, wanted her daughter to learn how to count and calculate without using a calculation app. She explained there "has to be two sides . . . time where she can use her mind, use her hands, color and play, and other times where she has to use

the technology." Mothers' perceptions promoted intentional technology decisions whether they would use technology or not to help their children with process learning.

Mothers' technology preferences and decision-making for their children demonstrated two types of intentionality. Some mothers turned to technology as the instructional expert in preparing their child for preschool. Fiona's personal use of technology as an instructional authority on learning American culture and learning English transferred to her technology preferences for her son's learning, "Just like in Mexico, you go to school . . . when I am doing things, my son is on the tablet, games, and the same with the television." Fiona is using technology to help her son improve his English speaking before he goes to preschool. Conversely, some mothers believed they were the educators, using apps and devices as a support to their learning interactions with their children. Lainey expressed concern that her son "gravitated toward" computer learning because she wanted to be the one to teach him "through human interaction." Maya preferred native language interactions to teach her daughter how to speak English. She used an English language TV show for one hour "not every day" to support her daughter's English language learning. Amanda used situational, real-time interactions to teach her boys their letters and numbers, but she used YouTube videos as a support to answer her boys' nature questions, "They could see it, and learn, and that's where I appreciate technology." Both technology preferences and the resulting technology decisions demonstrated mothers' intentionality in developing their child's person characteristics through learning. Mothers further demonstrated their intentionality to develop person characteristics in the way they managed time and monitored content for themselves and for their children.

Managing time and monitoring content. Mothers promoted intentionality in their technology use and that of their children through time management. When I asked Kamile about

being a working mom and overseeing her daughters' technology use, she reflected, "Balancing being a working mom and being a stay-at-home mom is really challenging and I don't have anyone older who is like, 'You know like, when I had little kids, you know . . .' Like I don't—that doesn't exist. So, um, we're really paving our own path, figuring out how to do it right now." Kamile's technology decision cycle began with valuing her individuality as both a working and stay-at-home mother. Next, she reflected situationally on the lack of guidance from the past experience of others. Finally, her last statement merges all three construct by using words like "paving" to indicate her intentionality, and "we" and "our own" to describe her decision-making individuality, and "how to do it right now" as a situational reflection about the immediacy of her technology decision-making. Both working and stay-at-home mothers created their "own path" of technology intentionality through merged time management for themselves and their children. Between one and two hours a day, spread out at varying times of the day, mothers facilitated their children's technology use for entertainment or education purposes to keep their children occupied so they could get work done. While their children were using technology, working mothers answered emails, performed online tasks to meet employer demands (performance expectancy, UTAUT model; Venkatesh et al., 2003), or took a break from work and mothering to peruse the Internet or social media. Some working mothers like Cala and Katherine limited their screen time at home and chose to do housework or enjoy hobbies while their children were using technology. In a focus group, Katherine mentioned she crochets during her daughter's technology use because "I'm burnt out, if I look at another screen, I feel like my head is going to explode, you know?" For stay-at-home mothers, having their child using technology at various points of the day for an hour or two meant they could get housework

done. Some stay-at-home mothers shared conflicted feelings of pragmatism and guilt about their technology decisions for themselves and their children. Lexie reflected:

> There have been times where I've felt really guilty, where, like during naptimes, it's like just, hey, go watch yet another movie, because I just need that time by myself, and um I've moaned to my mother, how, I just go, "I'm not a good mom" and she says, "Well do you get things done?" "Well, yes, I get things done, I got the bathroom cleaned this time during naptime" and she goes, "Well!" and so I know my mom would.

Lexie's reflection described her technology decision cycle which began with her intentionality to let her children use more technology so that she could engage in tech or non-tech activities for herself, followed by situational reflection providing the confirmation "my mom would" that supported the value she places on the individuality of her technology decision for herself and for her child. Mothers' technology preferences promoted intentionality in their technology decisions for time management and monitoring technology content.

Mothers monitored the age appropriateness and morality of technology content for their children. Both in the individual interviews and confirmed later in focus group sharing, all participants believed they were the most "strict" person who made technology decisions for their child. Ella described her role as, "I'm definitely the warden on at least technology." As a result, several mothers (n = 5) remarked on the leniency of husbands and/or extended family who let their children use too much technology or watch content that the mothers deemed inappropriate.

Married mothers felt their husbands were receptive to their technology preferences and technology decisions to control their child's technology content. Rilee remembered a TV show her husband started to watch with their son, "I had to let him know that was probably not age appropriate for a three year old, so he just hadn't thought about it, and he was happy to comply."

A few mothers, like Lexie, relied on their husbands' knowledge of super human cartoons and children's shows like *Power Rangers* to promote intentionality in monitoring their children's technology content.

As mothers promoted intentionality in their children's technology use by monitoring content, they worried about online access and the ease with which their children could see explicit or sexually suggestive material through pop-ups. Several mothers (n = 4) mentioned their subscriptions to child-specific monitoring software, but it was not without limitations. To engage their own personal safeguards, mothers previewed educational games, TV shows, and movies to judge content appropriateness for their children.

Mothers expressed a technology preference to judge the appropriateness of content based on their children's developing person characteristics. Sibel previews the movies her daughter watches because she "is like very sensitive to stuff." Her daughter's emotional sensitivity facilitated Sibel's intentionality to not let her daughter watch the movie *Frozen.* Sibel is adamant in her technology decision, and demands extended family honor her decision. Sibel related an exchange she had with her own mother, "I told her, 'Do not under any circumstances,' because she like stays a day a week when I work, and I said, 'Do not, under any circumstance—you are not to show her *Frozen*.' And she thinks I'm nuts." Beyond monitoring content, mothers' technology preferences and intentional decision-making was part of a collaborative process concerning what devices and apps became a part of the home environment.

Evaluating need. Younger and older married mothers collaborated with their husband about purchasing or upgrading devices and/or apps. When it came time to upgrade her phone, Kameya collaborated with her husband about the speed, screen size, and color (e.g., "Can it come in pink?"). Many mothers recounted similar collaboration scenarios in which they led in

determining usage and/or content and their husbands led in technology selection. Katherine explained this collaboration process, “He leads the way, I did the thorough investigation portion of it, and we made a decision based off of that together.” Typically, husbands purchased the device that best represented both their preferences. Anita, an older mother, was one of a few mothers who preferred to research and purchase devices for the family, “I just understand the technology, like, I find the buys, I find the deals, and I have the time to search for them.” Whether mothers were collaborating about or purchasing technology, their technology preferences guided their intentionality in deciding what technology supported their mothering role.

High, median, and lower income mothers evaluated their technology needs and that of their children similarly based on performance (performance expectancy; UTAUT model, Venkatesh et al., 2003) more than cost. When I asked mothers what devices they could not live without and why, most chose their phone. Anita explained, “If I lost my phone all of a sudden, I’m like, like you feel choked.” Younger mothers, regardless of economic status, appreciated the “slip in my pocket” convenience and multiple-task performance of smartphones. Some older mothers, like Sibel, equated the simplicity of an “old timey cell phone” with convenience as the most important measure of performance.

Mothers used their personal technology preferences to promote intentionality in their technology decisions for their children. When asked if they could own only one device for their children what it would be, most mothers chose tablet devices for their children because of the convenience and performance of touch screen. Rilee was one of the few mothers who preferred a MacBook for her son over a tablet. He has an iPad that was a gift from his grandparents. When I

asked Rilee about why she would rather her son have a MacBook, her response revealed how her technology preferences promoted intentionality in her technology decisions for her son:

> I'm just not a fan of the tablet and maybe it's because I haven't used it as much, but I like typing, and I have the smartphone that has the touch screen and I hate it . . . but I can see for my son who's three, touch screen is a lot easier. He can pull up the game all by himself. He doesn't need me to turn it on he can touch, you know. He knows letters. If it says "touch this letter, find this number" he can totally do that by himself.

Rilee's technology decision cycle for her son began with her valuing her own individuality "I'm just not a fan of the tablet;" then she situationally reflected that "I have the smartphone that has the touch screen" which formed a technology preference "I hate it." Her technology decision cycle ended with promoting intentionality "but I can see for my son who's three, touch screen is a lot easier." Whether mothers were evaluating their own technology needs or that of their children, their intentionality demonstrated the value mothers place on their own individuality in making technology decisions and the value they place on helping their children develop their own individuality.

Valuing Individuality

The third research question asked what factors influence how a mother ascribes meaning to her preschool age child's use of technology. *Valuing individuality* is a mother's reaction to the context of changing technology whereby she values individuality of technology use for herself and for her child. The value a mother ascribes to her child's technology use is derived from her personal valuing of technology individuality in herself as well as in her child. Perceived changes in distal and immediate contexts (PPCT model; Bronfenbrenner & Morris, 1998, 2006) were the

factors that connect how a mother values individuality in herself and ascribes meaning to her child's expression of individuality in technology use.

Context characteristics. Mothers valued their personal expression of individuality in their technology decisions and intentionally gave their children opportunities to develop individuality in their technology decisions based on their perception of how technology innovation will prompt change in current and future contexts. As a twenty year old, Leticia, the youngest mother in the study, provided situational reflection on changing contexts:

> In this upcoming generation I'm noticing, like, from when I was in high school, we had limited technology and we thought that technology was amazing, and then now, it's like they have new technology and every day the world is just completely changing.

Situationally reflecting on the innovations of the present, Cala imagined a future where technology will "become so integrated in society that we're gonna have a really hard time living without it." Younger and older mothers used situational reflection on current technology innovation to make technology decisions that honor their individuality and the individuality they wish to develop in their children as a preparation for the digital unknowns of a changing social context. Fiona gave a valuable perspective about changing social context when she described how the US was "more advanced because the people, little by little, are losing everything to technology." Anita reflected on parenting and the prevalence of technology, "It's funny how nowadays my parenting decisions are based around technology, you know, like some of the technology decisions I make are based on w-w-what will we need for our kids, you know?" Several mothers (n = 9) believed that their technology decisions for their children would help the child grow up to individualize their own technology use to the point of being more advanced and knowledgeable than either parent. Amanda reflected about her boys, "I feel like that will

happen—that one day you know they're gonna surpass us." Thus, mothers made technology decisions that value individuality in themselves and in their children as preparation for a future where both must embrace innovation.

Embracing innovation. Mothers valued individuality in their technology decisions by embracing innovation apart from the macrosystem influences of national interest. In the focus groups, mothers shared their perception that America's technology use was behind Asian nations but comparable to other nations. Rilee stays in contact with missionaries in Asia who tell her "that we're a little bit behind as far as the actual equipment." Rilee and other participating mothers did not let national perception influence their technology intention or technology decisions for their children. Instead, they perceived that local schools would know and teach what technology skills their children would need to function effectively in a changing digital context. Mothers exercised individuality in their technology decisions by choosing what schools they thought could accomplish this and using technology to get their preschool children ready to begin school.

Mothers sought trusted individuals, friends or family with older children attending local schools, to understand the innovative ways local schools use iPads in the classrooms. During the focus groups, mothers shared that what they knew about local school's technology use encouraged them to use technology to get their child ready to start school; however, their intentionality was tempered by their valuation of individuality. Some mothers thought their child would pick up what they needed to know for school without needing direct instruction. Aryn explained, "It's definitely the age we live in, so they have to know it, but they learn it so fast! I don't know if it's from watching me, but they definitely figure it out on their own." Aryn's technology decision to not purposely use technology to prepare her daughters to begin school

began with situational refection “It’s definitely the age we live in,” then she promoted intentionality in recognizing “they have to know it” which produced value in her perception of her daughters’ individuality to “figure it out on their own.”

Mothers not only valued their children’s individuality in learning new technology but also in their future cell phone use. Mothers formed technology preferences by situationally reflecting on when they got a cell phone growing up. Anita said, “I didn’t have one until I was fifteen, but now we’re considering giving our elementary kids cell phones.” Anita’s use of the word “we” to denote her perception of society shows the iterative nature of situational reflection from personal perceptions of the past to personal perceptions of society in the present. Reflecting on the past, most mothers mentioned that they received their own cell phones in middle school or later on in life. Younger mothers related that their parents bought them cell phones for safety reasons. Several mothers (n = 4) used these personal experiences to plan on purchasing cell phones for their children in middle or high school. Both older and younger mothers thought their children’s first cell phone should have limited access to the Internet. Whether it was preparing their child for the technology innovations of school or contemplating when to give their child a cell phone, mothers valued their own individuality as they situationally reflected on their own experiences and intentionally made technology decisions that recognized their child’s individuality. The opinions of others confirmed mothers’ desires to value individuality in their technology decisions for themselves and for their children.

Resisting group thinking. Mothers valued individuality by making technology decisions contrary to their perception of social norms. In this study some mothers’ perception of social norms were from other parents’ actions. Leticia resisted group thinking through situational reflection:

> Like my mom, she gave me my phone when she thought I was responsible, but like most parents I see now a days just give their kid a phone just because they feel like everybody else had it and they want their kid to feel like they got something too. I feel like you can't really predict. It's whenever they're ready.

Leticia's technology decision to resist group thinking began with past "my mom" and present "now a days" situational reflection; then she valued individuality in her own technology preference "I feel like" and ended her decision by merging intentionality with valuing her children's individuality "It's whenever they're ready." Becca resisted group thinking when she explained the view of other parents and cell phones, "I know some parents who let their kids have cell phones, um, when they're really young, and I, we don't plan on doing that." The shift from "I" to "we" suggests the very personal value mothers place in their own technology decisions situated in collaboration with their husband.

Some mothers valued individuality and resisted group thinking about using technology for their children's learning. Lainey explained, "I know tons of other people who that's how they learned all of that stuff is through a screen, and we didn't want to do that for our kids." Lainey's technology decision to resist group thinking began with situational reflection on "I know tons of people," then intentionality "we didn't want to do" which brought about individual value "for our kids."

Several mothers (n = 7) valued individuality and resisted group thinking about technology and morality. Amanda mentioned the violence, gore, and sexuality that are on TV, video games, and movies. She explained the individuality of her technology decisions for her boys through situational reflection, "They're going to see enough of that in the world, but they don't need to see that in our home." When I asked her to help me understand her individual sense

of morality, she explained, “We want their foundation to be on Christ, and we want their foundation to be on what is right based on what God says.” As I explored this perception of morality with Amanda and other mothers (n = 4) who expressed resistance to group thinking through moral values found in the Bible, I found they valued their individuality in technology decisions to a greater degree because their morality was based on the changing context of their fuller personal application of biblical principles. Whether mothers resisted group thinking about cell phones, technology-based learning, or issues related to morality, they wanted their individual technology decisions to transfer to their child.

Transferring training. Mothers prepared their child for a technology-based future through the child’s development of individual technology choices connected to their upbringing in the home. Cala used situational reflection to articulate her perspective on the generational transfer of training to her daughter, “I learned from my mom and so, um, like it or not, I know I’m setting an example for her, so I think she’ll probably do the same things, same decisions that I’m making now.” Mothers hope their children will adopt their technology decision boundaries and individualize them for the future.

Mothers valued the transfer of morality to their children’s technology use. With regard to technology use in the future, Aryn believed trust was an important moral value that would continue to guide “the way we raise our family.” Other mothers mentioned the importance of instilling moral responsibility in how and when their children use technology. Rilee explained the transfer of training she desires when her son uses technology, “We want to work hard to make sure he doesn’t ever feels entitled to a certain piece of technology because that’s what everybody else has versus ‘this is what our family needs and this is what our family can provide’ and then we would like to instill a big sense of responsibility in being responsible with it and

consequences when he's not." With regard to how her children use technology, Cala believed the moral training she is doing now will transfer to her girls and lessen the need for intensive technology supervision, "I would rather hope to instill a sense of responsibility and propriety in my children, so that I'm not having to monitor exactly what they do and every interaction." Amanda shared how she hoped when her boys had families of their own they might adopt similar technology standards, "I would hope that they would be similar, umm, yeah, that ultimately they'll see value in what we did and why we did what we did." Amanda's appraisal of her technology decisions shows her situational reflection "ultimately," her intentionality and individuality in "what we did," and her desire that her boys will "see value" as they individualize and transfer the moral technology training they received into their own parenthood. As mothers valued individuality in their technology decisions for themselves and their children with the intent to prepare them for the future, they feared technology-related unknowns in their children's lives.

Worrying about unknowns. Younger and older mothers worried about fostering their child's individuality through access to a wide array of devices that were properly monitored. In response, some mothers pondered the idea of homeschooling their children because they did not know if schools could offer their children the access to different devices with the safeguards necessary to properly digitally educate their child. Anita believed her children had more access to different devices in the home and that schools "haven't become as advanced as we are in our homes." Katherine shared this view and in a focus group explained her concern for her daughter, "Part of the reason we decided to homeschool her is that we looked at some of the local public schools at their use of technology and the lack of understanding or the lack of monitoring on the part of the school, for children who use it, and we're very concerned about that so we'd rather

she do it safely in our home." Katherine's technology decision cycle shows situational reflection on "the local public schools," parental individuality and intentionality in "we decided to homeschool," and promoting individuality in "we'd rather she do it safely in our home." Mothers wanted to develop their children's individuality through the use of various devices in an actively monitored environment

Some mothers worried about cyberbullying. Fiona was afraid that as her son grew up in American schools she would not know his friends and would not know if he was being bullied. When I asked her what advice she would give Latina and American mothers, she advised, "Always see what they are watching, what they are playing, what they are doing, who they are talking to… Our world now is dangerous, one never knows what's being said." Kameya described how she plans to confront the unknowns of her daughter's future technology use through accountability:

> I'm gonna be checking her—"I'm gonna be on you like white on rice, honey," I'm going to be checking everything. I'm going to know everything if I need to print out stuff I will. I will have every password. I will know. You will know there's a time, a curfew, that you're not to be on that cell phone, but I also think of safety, but no, if there's ever a time that they break that trust or break that understanding or things get out of hand, oh mommy will definitely have that phone, not a question about it.

Mothers confronted their concerns about technology unknowns by promoting individuality and monitoring their children's technology use. Most mothers tried not to think too far ahead into the unknowns of their children's future but instead focused on using technology to develop their children's individuality as a safeguard to the changing context of digital society.

Summary

This chapter began with a demographic description of study participants including their life situations, technology use, and technology perspective for themselves and others related to the home environment. Study results were visually represented with a theoretical model that expands and connects elements of the PPCT model of bioecological theory (Bronfenbrenner & Ceci, 1993, 1994) and the UTAUT model of technology intention and use. These connections were developed through a data narrative of study results organized thematically in relation to the theoretical model and the three research questions to explain the three-step technology decision process mothers use when making technology decisions for themselves and their preschool age children.

In the microsystem of the home environment, mothers' technology decisions followed a multi-dimensional cyclic process of reflecting situationally, promoting intentionality, and valuing individuality in themselves and in their children. Time was a factor in the situational reflection mothers used to form technology preferences. Developing person characteristics connected mothers' technology preferences to the technology decision process and promoted intentionality in their technology decisions for themselves and for their children. Perceived changes in context prompted mothers to value individuality in themselves and ascribe meaning to developing their children's individuality in technology use as a proactive preparation for an increasingly digital world.

CHAPTER FIVE: DISCUSSION

Overview

The Process-Person-Context-Time (PPCT) model (Bronfenbrenner & Morris, 1998) describes how human development occurs through proximal process interactions within environmental systems, but this research does not explain how an individual makes technology decisions. Research conceptualizes how an individual selects and uses technology through the determinant and moderator factors of the Unified Theory of Acceptance and Use of Technology (UTAUT) model (Venkatesh et al., 2003), but it does not explain how an individual selects technology for another. Research describes how teachers use the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006) to make technology decisions in the classroom for themselves and for students, but the pedagogical and classroom focus of this research did not provide insight into mothers' technology decisions for their preschool age children in the home environment. To fill this research gap, this systematic grounded theory study explored the technology decision process mothers use when making technology decisions for their preschool age children in the home environment. The study identified three new constructs that shape a mother's technology decision-making for herself and for her child to create a theoretical model that expands and connects elements of the PPCT model of bioecological theory (Bronfenbrenner & Ceci, 1993, 1994) and the UTAUT model of technology intention and use.

In this chapter, I summarize and discuss the study findings in relation to current literature and the PPCT and UTAUT models. I describe the study implications and limitations. The chapter concludes with recommendations for future research.

Summary of Findings

Mothers' technology decisions involve the developmental proximal processes of the PPCT model (Bronfenbrenner & Morris, 1998, 2006) and the determinant and moderator factors of the UTAUT model (Venkatesh et al., 2003) through a multi-dimensional process involving three new technology decision constructs: reflecting situationally, promoting intentionality, and valuing individuality. The theoretical study model (see Figure 1 in Chapter Four) illustrates these connections in the microsystem of the home environment. The first research question asked what factors influence how a mother of a preschool age child forms personal technology preferences. The model shows time was a factor in how a mother reflected situationally on her past and present technology use to form personal technology preferences. Mothers contextualized their personal technology preferences as they reflected situationally on the facilitating and limiting conditions of growing up with technology, their past home and school technology use, how they learn technology through trial and error, and how they perceive and intend to use technology.

The second research question asked how a mother's personal technology preferences and technology use affects her technology decisions for her preschool age child. The model shows developing person characteristics was the factor promoting intentionality in a mother's technology decisions and connecting a mother's personal technology preferences to the technology decision process she used for herself and for her child. Mothers developed their own person characteristics and those of their children by making intentional technology decisions for themselves and their children regarding socialization, learning, time management, technology content, and technology needs.

The third research question asked what factors influence how a mother ascribes meaning to her preschool age child's use of technology. The model shows context was the factor that

connects how a mother values individuality in herself and ascribes meaning to her child's expression of individuality in technology use. Mothers' perceptions of the changing contexts of digital innovation made them value technology individuality in themselves and their children with regard to embracing technological innovation, resisting group thinking, transferring training, and worrying about the unknown to proactively inform accountability. Mothers valued the development of their children's technology individuality because they think it is the best way they can prepare their children to successfully leverage technology in an unknown future of digital advancement.

Discussion

Data analysis revealed mothers' technology decisions for their preschool age children involved developmental proximal processes (Bronfenbrenner & Morris, 1998) and determinant and moderator factors (Venkatesh et al., 2003) of technology intention and use through a multi-dimensional process involving three new technology decision constructs: reflecting situationally, promoting intentionality, and valuing individuality.

Reflecting Situationally

Situational reflection is a mother's contextualization of time through past and present technology use whereby she forms technology preferences. Time was a factor in mothers' formation of technology preferences based on their situational reflections on society's changing technology expectations both in the past and present. This study extends the concept of macrotime (Bronfenbrenner & Morris, 2006, 2008) by recognizing changing socio-technological expectations that contextualized how mothers reflected situationally on the past and present. This extension of macrotime connects to technology models that assert that an

individual's technology intention and use will "evolve over time" (Venkatesh et al., 2003, p. 468).

Mothers contextualized time and reflected situationally on the facilitating and limiting conditions of their past and present technology use. This study confirms that facilitating conditions are a determinant of technology use behavior (Venkatesh et al., 2003) and suggests that facilitating conditions have a direct effect on intention. Mothers' situational reflections on facilitating conditions produced technology preferences that influenced both their intention to use technology and their subsequent technology use.

Mothers' reflections on their past home technology use confirmed experience as a moderator of social influence and intention to use technology (Venkatesh et al., 2003). Mothers remembered their technology experiences growing up and their own mothers' technology preferences and reacted by transferring or changing them to form current personal technology preferences for themselves and for their children.

Mothers' reflections on past technology use in schools suggests experience is a moderator of the relationship between performance expectancy and intention to use technology (this is not a relationship represented in the UTAUT model; Venkatesh et al., 2003) Mothers reflected situationally on past school-related actions such as online researching skills and transferred these experiences to present technology preferences for online researching in a mothering role. Mothers' experience and past performance expectancy beliefs that technology could assist their school-related tasks transferred to their current belief that technology could aid their mothering tasks.

Mothers' age and technology experience were moderators of effort expectancy and intention to use technology (Morris & Venkatesh 2000). Mothers reflected situationally on

learning technology through trial and error which developed divergent technology preferences. Older mothers' past technology experiences and effort expectancy produced technology preferences for simpler devices. Younger mothers' experience and effort expectancy developed technology preferences for multifunctional devices. Mothers' perceptions of technology making life easier supports the moderating relationship of experience on effort expectancy and intention to use technology.

Mothers' technology perceptions and intentions support research understandings about the ability of an individual to exert power over their own development through proximal interactions (Bronfenbrenner & Ceci, 1993). This study suggests individuals control their development through human to object interactions. Mothers' situational reflections on technology experiences and interactions led some to perceive technology as overwhelming which formed technology preferences and intentions to focus or limit their technology interactions.

Mothers' technology perceptions and intentions included a reciprocal process of facilitating conditions whereby mothers felt supported in their technology use (either by a spouse or by their own trial and error) so that they believed they could support and facilitate their children's technology use. This study suggests a non-linear interpretation of the determinant construct of facilitating conditions (Venkatesh et al., 2003) by describing a reciprocal process by which individuals who receive help can reciprocate and become a technology support to others. This reciprocal interaction of facilitating conditions extends research understandings (Bronfenbrenner & Ceci, 1993) about human interactions to include human to human with object interactions while also extending research understandings (Venkatesh et al., 2003) about facilitating conditions and intention to use technology.

Promoting Intentionality

Promoting intentionality describes a mother's development of person characteristics in herself and in her child by connecting her personal technology preferences and use to her technology decision process for her child. Developing person characteristics was the factor that connected mothers' technology preferences to their personal technology decision process. Mothers' force, resource, and demand characteristics (Bronfenbrenner & Ceci, 1993) were informed by their intentionality to engage with technology to meet their personal mothering goals with regard to socialization, learning, time management, technology content, and technology needs.

Mothers used technology with intentionality to facilitate limited personal socialization. Some mothers imposed technology time limits while others limited certain technology activities—regardless of method, mothers activated their generative force characteristics (Bronfenbrenner & Morris, 1998) through delayed gratification to actuate their personal mothering with technology image. A few mothers' technology image was informed by husbands or pediatricians that warned against extended screen time, but most mothers used their own situational reflection to promote intentionality in the technology socialization they deemed best for themselves in the role of mother. Mothers' intentionality in sanctioning their technology socialization extends research about the determinant of social influence (Venkatesh et al., 2003) to research about person characteristics in human development (Bronfenbrenner & Ceci, 1993) by theorizing that mothers use situational reflection to create a technology image of the mother they want to be and then use their technology preferences to promote intentionality to meet their technology and mothering goals.

While mothers were developing their own person characteristics through technology decisions about socialization, they were actively promoting technology intentionality in their children's socialization. Mothers reflected situationally on their own childhood to form technology preferences and technology decisions that facilitated and controlled their children's technology access and use. An example of this was mothers' intentionality and differing views about teaching their children to wait with or without technology at a restaurant. Mothers' situational reflections informed their intentionality to make technology decisions for their children that included or excluded technology from their children's social interactions. This technology-related facilitation and control by one individual for another expands existing research (Bronfenbrenner & Ceci, 1993) about the relational controls of proximal interactions to include relational *and* object controls in proximal processes. Mothers' technology intentionality for their children's socialization involved teaching their children to know when technology fit a social interaction such as playing or expressing thankfulness. A mother's personal technology preferences informed the intentionality of her technology decisions about her child writing a thank you note or sending an email or playing using technology or playing outside without technology.

Mothers demonstrated intentionality in their decisions about using technology in their personal learning development and information-seeking. Some mothers preferred to read blogs or use Pinterest, while others purposely read a print book rather than reading from a device. The commonality in these approaches was mothers' expansion of personal resource characteristics (Bronfenbrenner & Ceci, 1993) through increased knowledge and experience gained by intentional inclusion or exclusion of technology. Variations in mothers' perception of technology performance expectancy (Venkatesh et al., 2003) were determined by learning intention and

moderated by experience and perception of time. Whereas other studies (Morris & Venkatesh 2000; Venkatesh et al., 2003) found age to be a moderating variable in determining performance expectancy and intention to use technology, in this study both older and younger mothers believed technology could assist them in learning. The moderators that influenced their decision to use technology for learning were positive or negative experiences using technology to learn and the time available to learn. This finding extends research understandings by recognizing a mother's perception of microtime (Bronfenbrenner & Morris 1998, 2006) as a moderator of whether she thinks technology will be the best way (performance expectancy; Venkatesh et al., 2003) for her to learn.

The intentionality mothers displayed in their personal learning technology decisions transferred to their technology decisions about their children's learning. Mothers used TV, their own smartphone or tablet, or learning devices such as LeapPad to facilitate their children's letter learning and other basic skills. Mothers engaged in a proximal process of relationship and object where their reflections on learning-related interactions with their children informed their technology preferences and decisions for their children. Mothers decided whether technology was the best way for their children to learn (performance expectancy; Venkatesh et al., 2003). Their intentionality was demonstrated in two ways. Some mothers preferred to be the teacher and intentionally chose not to use technology for their child's learning or chose to use technology to augment or supplement their child's learning. Other mothers used technology as the expert means to direct their child's learning. For mothers wanting their children to learn English, technology was the expert tutor. If a mother decided to use technology for her child's learning she reflected situationally on her current learning-related interactions with her child to decide whether a device was easy for her child to use (effort expectancy; Venkatesh et al., 2003), the

child enjoyed using it (experience; Venkatesh et al., 2003), or the device was age appropriate (age; Venkatesh et al., 2003). These situational reflections developed mothers' technology preferences for their children which informed the intentionality and individuality of their technology decisions for their children. These technology decisions included what device to use and when and for how long the child could use the device. These connections between the determinants and moderators of the UTAUT model and the proximal processes of the PPCT model add to current understandings of technology preference (Jaafar et al., 2014; Muthitcharoen et al., 2011) and technology intention and use (Venkatesh et al., 2003) by identifying how proximal relationships influence the intention of one individual to choose technology for another.

The intentionality of mothers' technology decisions was expressed through context factors affecting both her and her child with regard to managing time and monitoring content. In the home environment, both working and stay-at-home mothers used technology to keep their children occupied with learning games or developmentally appropriate videos while they accomplished home or work-related tasks (performance expectancy; Venkatesh et al., 2003). Working and stay-at-home mothers shared a common goal to limit their time away from their child and make the technology their child was enjoying beneficial to their social or learning development. To that end, mothers' intentionality with technology and time management for themselves and for their children also transferred to their management of technology content. In comparison to close friends or family members, mothers viewed themselves as the most "strict" person making technology decisions for their children. Mothers used their own situational reflections on current media or technology offerings to form technology preferences which promoted intentionality and individuality in their technology decisions to allow or disallow certain movies, shows on TV, or certain apps on the mother's smartphone. The intentionality of

mothers' technology decisions about time management and content monitoring in the home context supports research understandings (Bronfenbrenner & Ceci, 1993) about the influence of various environmental systems. Whether it was a time-related issue such as responding to an email from work or a content-related issue such as whether or not to let a child watch the movie *Frozen*, mothers reflected situationally to inform the intentionality and individuality of their technology decisions to accept or reject exosystem and mesosystem influences.

Mothers' evaluation of technology need confirmed performance expectancy and effort expectancy as determiners of technology intention and use (Venkatesh et al., 2003), but not social influence. Mothers' situational reflection, intentionality, and individualism produced technology decisions that controlled exosystem and mesosystem social influences (Bronfenbrenner & Ceci, 1993). Mothers' technology decision process for themselves and for their children superseded social influences about tech image.

Valuing Individuality

Valuing individuality is a mother's reaction to the context of changing technology whereby she values individuality of technology use for herself and for her child. Context was the factor that connected how mothers value individuality in themselves and how they ascribe meaning to their children's expression of individuality in technology use. This supports research on the reciprocal interactions between individuals and systems of context (Bronfenbrenner & Morris, 1998, 2006), but this study furthers these understandings by recognizing mothers make technology decisions for themselves and for their children being mindful of the present and the future. Mothers reflected situationally on current technology innovations and developed personal technology preferences that informed their intentionality and displayed their individuality in choosing new technology.

Mothers' technology decision process embraced innovation for themselves and for their children apart from macrosystem influences (Bronfenbrenner & Morris, 1998, 2006) of national interest. Unlike literature from European countries about the pressure on parents to strengthen national economic interests (Brynjolfsson & Saunders, 2010) or control cultural influences on their children's technology use (Johanson, 2010), this study found mothers perceived no messages or pressures from government macrosystem influences in their technology decision process. Instead, mothers perceived local schools would know and teach what their children would need to know to meet the demands of the future.

Mothers who planned to send their children to preschool sought the experiences of trusted individuals for their knowledge of local schools and which schools would best prepare their children academically and technologically for the future. This study identifies a weakness in technology intention and use models which do not explain the role of advice or second hand experiences in the formation of technology preferences and technology decision-making of an individual. As mothers reflected situationally on this advice they formed technology preferences for their children that promoted intentionality and individuality in their technology decisions to prepare their children for a particular kind of preschool experience.

While mothers sought advice from trusted individuals outside the home about local schools, they resisted group thinking about issues such as when to buy their child a cell phone, using technology-based learning, and issues related to morality. As mothers interacted with others outside the home, their technology decision process (reflecting situationally, intentionally, and individually) became an important medium for mothers to transfer their personal beliefs and technology training to their children. This study informs research (Venkatesh et al., 2003) in

technology intention and use by describing the role of training and belief in the formation of an individual's technology preferences and experiences using technology.

Mothers confronted the unknowns of the future by making technology decisions for themselves and for their children that valued individuality and accountability. Research of technology intention and use (Venkatesh et al., 2003) describes the role of voluntary or involuntary use, but not an individual's personal technology accountability or the technology accountability imposed by another (such as a parent) that can influence an individual's access to technology. This study broadens understandings about technology intention and use by recognizing mothers' intentions to make technology decisions to promote their children's individuality and technological well-being both now and in the future.

Implications

This study's theoretical model connects elements of the PPCT model of Bronfenbrenner's bioecological theory (Bronfenbrenner & Ceci, 1993, 1994) with the UTAUT model through proximal processes and technology-related determinants and moderators represented in a mother's technology decision process of reflecting situationally, promoting intentionality, and valuing individuality in herself and in her child. These constructs explain how a mother makes technology decisions for herself and for her child through complex reciprocal interactions (proximal processes; Bronfenbrenner & Ceci, 1994) whereby she exerts will and control over her technology intention and use (UTAUT model; Venkatesh et al., 2003) to produce a technology environment of development (bioecological theory; Bronfenbrenner & Ceci, 1993, 1994) for herself and for her child.

This study's findings further empirical research on additional determinant and moderating factors (Alharbi, 2014; Oh & Yoon, 2014) related to the UTAUT model (Venkatesh

et al., 2003) by identifying the situational reflection process that influences how mothers form personal technology preferences, which informs the intentionality and individuality of their technology decisions for themselves and for their children. This study's explanation of mothers' intentionality in their technology decisions provides additional research from a mother's perspective about the informal ICT learning in the home (Lahtinen, 2012). The value-laden technology decisions mothers make to develop their child's technology individuality provide the rationale that was missing from existing research about children's performance of specific tasks using technology selected by adults (Couse & Chen, 2010; Isomursu et al., 2011; Lebens et al., 2009; Ntuli & Kyei-Blankson, 2012) and about how adults introduce children to technology and facilitate device and software use (Hollingworth et al., 2011; Mawson, 2010; Plowman et al., 2010).

The practical implication of this study model is to help American mothers personally assess social messages about digital immersion and parenting (Tapscott, 2008) through a greater understanding of their technology decision process: their situational reflections about technology, their intentionality, and their valuations of their own technology use and that of their children. Understanding the technology decision process for themselves and their children supports American women in their motherhood roles. Recognizing how their technology decision process promotes both their technology individuality and that of their child promotes a mother's personal technology development and thoughtful technology consent practices (Block, 2012) that can encourage children's well-being (Bronfenbrenner, 1994, 1995b, 2000, 2001; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Evans, 2000; Bronfenbrenner & Morris, 1998, 2006).

In keeping with Bronfenbrenner's (1973, 1974, 1975, 1979) vision to develop theory that could inform research-based public policies benefitting families and children, the implications of this study offer recommendations for parents, education stakeholders, and technologists. At the end of each individual interview I asked the mothers in this study, "Do you have a message for American mothers about their technology decisions?" Taken as a whole, their responses conveyed a fearlessness and determination to make descriptive rather than prescriptive technology decisions for themselves and for their children. Thus, parents should welcome the opportunities technology innovation offers to extend their situational reflection, intentionality, and display of individuality through personal decision-making and decisions made for their children.

American education is highly prescriptive, making the implications of this study of particular importance to education stakeholders. As a professor of preservice teachers, I am using the results of this study to prepare teachers who seek stronger connections between teacher and parent technology decisions. This does not mean finding ways for teachers to educate parents about the technology decisions that benefit their children's learning and development—just the opposite. The implications of this study challenge teachers and school personnel to learn from parents and make technology decisions that synchronize with the world outside school. Rather than making policies about personal technology use, education stakeholders should promote personal technology decision-making that encourages teachers and students to be situationally reflective, intentional, and individual in their technology decisions. For example, rather than making a policy about cellphone use in the classroom, teachers should encourage cell phone use that is individual, intentional, and reflective of the classroom environment. Encouraging students

to make better technology decisions begins by giving them the opportunity to make personal technology choices.

There are implications for technologists from this study. The individualism, intentionality, and situational reflection evident in the technology decision-making of mothers in this study should alert technologists to the demand for broader, not more, technology choices. For example, cable and media providers tend to focus on providing family entertainment for consumers who are young and progressively-minded (Tryon, 2013), but what about the young and traditionally-minded families? Technologists should reinterpret their demographic and consumer data to provide different (not necessarily more) devices, services or applications that can be accessed at different price points (Yelton, 2012) and better represent different technology preferences. By offering broader technology choices across the ICT spectrum, technologists can truly connect with user's decision-making and technology intention.

Limitations

This study had two delimitations in participant selection. To study mothers' technology decisions with limited influence from formal school settings, I delimited participant selection to mothers with an oldest child of preschool age (3-5) who did not attend a formal preschool. To focus on mothers' technology decisions in a parenting role, I did not analyze fathers' technology preferences, use, or technology decisions for their children.

The transferability of this study is limited by culture and participant selection. This study was limited by nationality, time, and resources to the exploration of the technology decisions of 18 mothers living in urban, suburban, or rural areas located in or around a college town in central Virginia. I recruited mothers through email correspondence with fellow professors at a private, religious affiliated university where I teach. These professors had various community

connections that were invaluable in contacting a variety of mothers for maximum variation in participant theoretical sampling. However, convenience and snowball sampling produced a limitation in racial and ethnic composition and high and low income (see Table 1). Also, a culture of traditional values and/or religious faith may have been shared between participating mothers and community contacts recommended by university professors. Thus, the study has cultural limitations based on southern locale, racial and ethnic composition, high and low income, traditional "Bible belt" culture, and college town culture. The transferability of this study is limited to other traditional and/or religious cultural regions or college towns in the United States. Future research using larger samples and purposeful sampling for maximum variation in race, ethnicity, or SES in other regions in the United States, or in other countries, will increase the understandings afforded by this study.

Data collection was limited by mothers' interview and focus group preferences. Two mothers preferred an over-the-phone individual interview. Four mothers chose focus group-related phone interviews due to life circumstances or child-related issues that prevented them from leaving or allowing visitors into their home. For these interviews and focus groups, I was unable to observe and record non-verbal communication.

This study had limitations related to self-reporting. Asking mothers about their technology use in childhood and technology-related mothering practices can be anxiety producing. Toward the end of one individual interview, a mother let out a sigh and said, "That wasn't as bad as I thought it'd be." When I laughed and questioned her further she said, "I called my husband at lunch to say I was dreading having to tell you that my children watch too much TV. I told him I was just going to have to lie to you—he told me not to." We both had a good laugh about this, and I reassured her that I wanted to record, not judge, her perspective.

This scenario confirms a study limitation. Despite my professional disposition and reassurances that my purpose was to record their experience, perspective, and insight, some mothers may have felt anxiety while self-reporting on the journaling portion of the questionnaire, during the individual interview, or during a focus group. As I have replayed audio and video recordings and combed over transcripts and memos, I feel confident that I have an authentic representation of each mother's self-reporting of technology experiences and perspectives from which this theory of process is derived.

This study was limited by social influences related to focus group composition and customization. By allowing mothers to self-select a focus group based on preferred date and time the potential for diversity in each of the focus groups was maximized in terms of the distribution of working and stay-at-home mothers, married and single mothers, younger and older mothers, and mothers of upper, median and lower household incomes. Some focus groups were held in my home, some focus groups were held in a participant's home or at a participant's church, and four mothers chose focus group-related phone interviews (Using transcripts from recent focus groups along with the focus group questions, I gave each mother the opportunity to respond individually and react to others' input. This was more of a member check than a focus group.) Both the focus group composition and customization (meeting at my home, meeting individually with moms in their home to tell them about the most recent focus group, non-home environment focus groups, and focus group-related phone interviews) influenced the data through social influences related to group norms. When mothers would bandwagon their agreement I would rejoin, "Tell me how you might disagree with . . . " This prompted a deepening and diversity of mothers' responses which helped me better understand the similarities and differences in mothers' technology decision process.

Recommendations for Future Research

Regional studies of the technology decisions of ethnically diverse mothers of preschool age children would provide larger samples that can provide insight into how situational reflection may be different based on culture and childhood. No Asian mothers were represented in this study. Asian mothers may have had greater access to technology in childhood thereby changing their situational reflection and technology use. Latina and African American mothers were underrepresented in this study (see Table 1). Latina mothers may situationally use technology in different ways based on cultural and family reflections. African American mothers may have had greater access to technology at school but more up-to-date device access at home, which may shape their technology reflections and use.

High and low income mothers were underrepresented in this study (see Table 1), with most mothers being in median income families. Further research is needed to better understand to what degree situational reflection, intentionality, and development of individuality is part of the technology decision process of high and low income mothers. Greater economic resources may offer high income mothers more opportunities to purchase a variety of devices that promote their personal intentionality and individuality and that of their children. Low income mothers may have fewer opportunities to promote technology intentionality and individuality in themselves and their children due to the expense of highly functional devices and apps.

This study should be replicated with fathers (including married or single fathers) and anyone (e.g., grandparents serving as guardians, etc.) who assumes elements of a motherhood role. This study excluded fathers because research indicated their role was discretionary and less defined (Brown et al., 2011; Cabrera et al., 2000). Fathers assuming elements of a motherhood role (caretaker, nurturing and affectionate; Fischer & Anderson, 2012, p. 17) may have similar

situational reflections on technology as mothers but differ in how they leverage their personal technology preferences to intentionally make technology decisions for themselves and for their children. Exploring these differences would increase understanding of how fathers or anyone who assumes elements of a motherhood role promote individuality in their personal technology decisions and in the technology decisions they make for children.

Additional research could broaden the understandings afforded by this study. Qualitative research using a case study design could enhance understandings of the technology decision process phenomenon in specific contexts and from different perspectives (including both parents and/or children's perspectives). Quantitative research could test and confirm the hypotheses this study generated such as the role of situational reflection in the formation of technology preferences.

Summary

Mothers make technology decisions for their preschool age children based on personal technology preferences formed through situational reflection on their past and present technology use. Intentionality defines how mothers leverage their personal technology preferences to develop both their person characteristics (e.g., socialization, learning, time management) and that of their children through technology decision-making. Mothers value their personal expression of individuality in their technology decisions and give their children opportunities to develop individuality in their technology choices based on context. Through this technology decision process mothers proactively prepare themselves and their children for the unknowns of an increasingly digital world.

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APPENDICES

Appendix A: Institutional Review Board Approval

LIBERTY UNIVERSITY.

INSTITUTIONAL REVIEW BOARD

December 19, 2014

Carolyn Wicks, Ed.D.

IRB Approval 2040.121914: A Grounded Theory Study Exploring the Technology Decisions Mothers Make For Their Preschool Age Children in the Home Environment

Dear Dr. Wicks,
We are pleased to inform you that your above study has been approved by the Liberty IRB. This approval is extended to you for one year from the date provided above with your protocol number. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. The forms for these cases were attached to your approval email.

Thank you for your cooperation with the IRB, and we wish you well with your research project.

Sincerely,

signature present and digitally protected

Fernando Garzon, Psy.D.

Professor, IRB Chair

Counseling

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Appendix B: Colleague Email Script

(Name),

I am conducting qualitative research on the technology decisions mothers make for their preschool age children in the home environment. The purpose of this email is to solicit the email contact information of mothers who have an oldest child who is of preschool age (3-5 years of age). I would like to interview working and stay-at-home mothers, married and single mothers, younger and older mothers, and mothers of upper, median, and lower household incomes. I will ask each mother to fill out a fifteen minute demographics questionnaire, participate in a forty minute individual interview, and participate in one forty minute focus group.

If you know of a mother who might be willing to participate in this study would you email or talk to the mother to find out if she would be willing to be contacted by me about participating in the study? If she expresses willingness to be contacted by me, would you copy the mother's email address to your email reply so that I may contact the mother directly?

Thank you in advance for your help,

Carolyn Wicks, Ed.D.

Appendix C: Participant Email Script

(Participant's Name),
(Colleague's Name) mentioned you might be willing to participate in the research I am conducting about the technology decisions mothers make for their preschool children in the home environment. As you know I am seeking mothers with an oldest child between the ages of 3-5 who does not attend preschool or school. The research is a three step process. First, I would like to meet you and give you a consent form and a fifteen minute demographic questionnaire to fill out and drop in the mail. Once I receive this, I would like to schedule a forty minute interview at a date, time, and place that works best for you. Finally, I would ask you and two or three other mothers who are involved in the study to participate in one forty minute focus group. Would you be willing to be a part of this research?
Best,

Carolyn Wicks, Ed.D.

Appendix D: Consent Form

You are invited to be in a research study of the technology decisions mothers make for their preschool children in the home environment. You were selected as a possible participant because this study investigates the technology decisions of working and stay-at-home mothers, married and single mothers, younger and older mothers, and mothers of upper, median, and lower household incomes who have preschool children ages 3-5 and live in Central Virginia. Please read this form and ask any questions you may have before agreeing to be in the study.

Background Information

This study is being conducted by Carolyn Wicks, a teaching fellow at Liberty University. The purpose of this study is to explain the technology decision process mothers use when making technology decisions for their preschool age children in the home environment. If you agree to be in this study, you would be asked to:

1. Fill out a fifteen minute demographic questionnaire and participate in a forty minute videotaped interview concerning your technology preferences, your technology use, and your technology decisions for your child.
2. Participate in a forty minute focus group of four or five other study participants to expand upon individually and as a group regarding technology and your child.

Risk and Benefits:

The study risks are no more than you would encounter on a daily basis. As a result of participating in this study, awareness of uncomfortable or unpleasant thoughts or experiences associated with parenting or technology may occur.

There are no direct benefits to participation in this study. Any future publication of study findings may benefit society through an increase in the social science literature and knowledge base regarding a mother's proximal interactions and technology decisions. These understandings may help family and education stakeholders understand and support mothers in their efforts to nurture and train their children for the technological and contemporary realities of culture.

Compensation:

Participants will not be compensated for their participation in this study.

Confidentiality:

Your contact information and records used in this study will be kept private. Research records will be stored securely, and only researchers will have access to the records. Your questionnaire will be stored in a locked file for seven years and then the questionnaire will be shredded. Electronic study data will be stored on a password protected computer for seven years and then it will be deleted. Any sort of published report will not include any information that would make it possible to identify you.

Voluntary Nature of the Study
Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships. If you withdraw, the video recording and all written materials will be excluded from data collection and deleted/shredded.

Contacts and Questions
This study is being conducted by Carolyn Wicks, a teaching fellow at Liberty University. Please send all inquiries via email to cwicks3@liberty.edu. If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, you are encouraged to contact the Institutional Review Board, 1971 University Blvd, Suite 1837, Lynchburg, VA 24515 or email at irb@liberty.edu.

You may print a copy of this consent form or contact me if you would like a copy of the consent form for your records.

Statement of Consent:
I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.)

☐ The researcher has my permission to video-record me as part of my participation in this study.

Signature of Adult: _____Date: _____

Signature of Investigator: _____Date: _____

Appendix E: Questionnaire

Please fill in the blank or check the appropriate circle:

1. What is your age? _____

2. What is your race/ethnicity?
   - o African American
   - o Asian
   - o Caucasian
   - o Hispanic

3. What is your marital status?
   - o Single
   - o Married

4. What is your highest level of education?
   - o High School
   - o Bachelor's Degree
   - o Master's Degree
   - o Doctorate Degree

5. Which best describes the total yearly income of your household?
   - o 150 thousand dollars and beyond
   - o 30 to 100 thousand dollars
   - o 25 thousand and lower

6. Do you consider your home to be in a rural/country setting or an urban/city setting?
   - o Rural/country setting
   - o Urban/city setting

7. What is the age of your oldest child?
   - o 3 years old
   - o 4 years old
   - o 5 years old

8. Does your oldest child attend preschool or school?
   - o Yes
   - o No

Turn over the page.
Please give as much detail as possible in your answers for questions 9-11.

9. Describe the types of technology (smartphones, TV, DVR, gaming devices, computers) in your household.

10. Who uses the most technology and for what purpose?

11. How does technology influence your role as a stay-at-home or working mother?

Appendix F: Transcript Sample

Individual Interview: Aryn

I-Tell me how do you define technology?

P-technology, umm technology is anything that, let's see I'm gonna have to take a second (pause) technology is anything that that you would use that is machine based maybe is how I would define it something that or helps you umm (pause) do something easier besides just your body your physical things.

I-Ok that helps me umm tell me when you first used a computer.

P-ok. The first computer use was probably at school, I don't think we had a computer at our home so this would have been like 200 . . . no sorry it would have been would have been in the 1990 . . . (shaking hand) 8? Maybe? I have to think about when I was in high school but yeah 1998 or around then we had to do it for computer science and eventually my parents got a computer at our home so it would have been when I was in high school that it first started.

I-Now tell me about computer science umm did that involve like typing was it part typing class or…

P-it was yeah well typing we had to type on typewriters first before we were allowed to move to the computer and then once we moved to the computer we typed on the computer it was just a typing class and then after the typing class we moved to a computer science class where we learned Word and Excel and the basic programs and how to run through those so..

I-Makes sense. Ok so let's explore that you said you first used a computer at your at school and then umm when did you get a computer at home?

P-Probably would've been shortly after that so

I-Tell me about the technology that you had in your home, tell me about television use umm

P-We had TV probably we got television when we were probably when I was in middle school and my parents got cable and it was like a huge deal it was like the biggest thing ever I loved it I mean but we watched a lot of TV I remember coming home and watching TV and remembering commercials and stuff like that umm we watched a lot of TV and my parents still do they leave their TV on quite frequently so umm that was probably the biggest piece of technology when we were younger, for sure.

I-Tell me about when the computer came into the home

P-And that came in yeah, when I was in high school and I didn't really do a lot on it, like there wasn't like, you know what let me go back I think we had a computer before that I'm thinking of when we had gotten the Internet

I-Ok

P-We had one of the DOS computers. Because I remember playing that helicopter game I don't know Chopper Command or something that's all we yeah with yeah but that was earlier so that would have been before I was in high school probably middle school again

I-Ok so so that means you first the first computer then…
P-Was probably the early the early 90s or yeah would have been at home yup, sorry you're joggin my memory here

I-(Laughs)

P-Yeah and I remember tying on the old yeah like the dos computers logging in with the c something I don't know it was yeah a long time ago

I-No me too me too (laughs)

P-And nowadays whoo we've come a long way

I-Do you remember when you're parents first got Smartphones or cell phones…?

P-Oh no ok my mom first got a smartphone just last year

I-Ok

P-She's had a cell phone since she was in high school when I went to college I had a track phone that they gave me umm eventually maybe when I was a sophomore but they had cell phones after that so it would have been like 2003 that they got cell phones. My father only had one for his job and my mom got one got on our plan so they used that one together but I mean my mom had a smartphone last year, and gave it back because she didn't want she didn't want to learn how to use it she didn't like it so she just uses a regular umm cell phone for when she's out and about

I-Now let's explore just a little bit, only because I want to understand your perspective, umm do you think your mom perceived technology growing up what did you pick up as her daughter?

P-Me growing up or while she was growing up?

I-No umm about as you were growing up. How did you think your mom thought about technology . . . like what did she think about the computer the cell phone..?

P-Yeah. I don't really remember her thinking negatively or positively either either way umm (pause) because we didn't spend a lot of time on the computer and cell phones we didn't we didn't have the the only technology really would've been the TV and she I think she liked it she have five kids so having a TV wasn't, to her, a bad thing because it kind of kept us busy at certain times and the rest of the time we were outside so you know I don't I don't think that negatively or positively she influence me either way

I-she (words garbled) shut if off or something

P-Yeah well sure if it was yeah it had to be shut off we didn't have like time frames but if she needed us to do something she would say "shut off the TV" and it would get shut off but it was never like "oh you only have like fifteen, thirty minutes" it was more just like at her (word garbled) whatever she felt.

I-That makes perfect sense.

I-What do you think about technology now?

P-I think I think it's great it's amazing it it's crazy what they've done and what they can do and I don't know hardly any of it umm but I think it has its weaknesses and I think it has a lot of things that you know bring us closer together to our families, I enjoy you know, Face timing with my mom and you know just things like that that make things easier, it makes life easier yeah. Does it simplify life? I don't think so

I-Expand on that for me

P-I just feel well and I know that you hear this a lot just even on social media and whatever but it's just like (slight pause) Pinterest and Facebook those are things were you you see what people are doing and you compare yourself to them and then you're like "I would love to do all of this stuff" and you can't do it and it just makes you feel crazy and then or like I could be teaching my child this and this and this and this because I have all this information and it, and I'm the kind of person that if I have information I want to try it or I want to I want to do it research it figure it out and there's just so much information available so many things to learn that I feel overwhelmed a lot just by the

fact that there's so much, but it's also great like I said for learning so you do learn from it just.it doesn't make my life easier but well it makes some things easier but it doesn't simplify it like I said I think it makes it a little more complex a lot of time I just wish I could just put my phone down and just not think about it for the whole day, just, let it go but, it never happens it's the only means of communication I have because we don't have a home phone or anything like that so it always I feel like it always has to be around me otherwise I'm I'm missing maybe something important but.. I don't know if that answers your questions

I-it does it helps me because I want to see it through your eyes…

P-There you go

I-Alright, now you told me what you think about technology now, now let me ask you this, um, how often do you use technology? Cause in the questionnaire you told me how you have a smartphone [P – Mhm] and that your husband uses technology the most so tell me about your use. Give me a, a ballpark.

P-Um, like how many hours?

I-Yeah, like per day.

P-Oh, that's a good question, it's probably way more than I would even guess, but I'm thinking probably at least three or four hours.

I-Ok, and with that, on the smartphone, its calling, it's email, it's what?

P-It's mostly email, it's, a lot of like grocery lists, like I do all my grocery lists on there, I do, yeah a lot of social things (no, you can't touch, you can sit and look) Um, like I said, Pinterest, I spend a lot of time on there, um, researching for (daughter's name), just trying to find out new things for her. Um, Facebook, a lot with my mom, probably daily, close to daily, so, mostly just on my phone.

I-Ok, um, tell me this, if you, you mentioned several things for your smartphones and um, and you have a laptop, and you all share a TV and an XBOX, um if you could only have one device, what would it be?

P-It would be my phone

I-Tell me why

P-It just makes life easier, like I said, like you're going down the road I need to know something about like, What's open, or if it's on, if it's when my husband's driving he's like "oh where could we go to eat" or whatever, it's it's right there, it's available, and um, maps are on there, I mean it's just everything, like everything I need, or don't need really, but makes my life easier, it's right there. So, I think that's why I would, plus the Email is right there, I'm, I'm on the go with the kids all the time, I don't have time to sit down, open up my computer, turn it on, I just hurry up, get on my phone real quick, cause I um, cause I do work at church a lot so a lot of different information I need to know, you know, quickly, I can have quickly instead of having to sit down and, you know, wait for my laptop to load, cause it takes a long time, and it's just, it's just quicker. And I need quick. For my life pretty much.

I-That helps me, um, let me ask you, we've talked about personal perspectives and how you've grown up, let's transition to um, exploring more about your parent perspective, so um, you mentioned uh that your husband uses the most technology, and you mentioned about (P – ok) his work and his research, who buys the most technology in your home? Walk me through your purchasing.

P-Buy . . . like who would research it, and like think about it, and buy it?

I-I mean who walks into Best Buy or who (P – oh, my Husband, yeah definitely) Ok

P-He went to school for computer um, business, something business computer related, I mean that's just kind of his thing, he loves technology, grew up playing video games. Just knows a lot about it, and I don't so, hardly anything.

So yeah, he would definitely do all the research and he would go and purchase it ("I" – So he bought the smartphones) I would go with him, I would go with him, that's because that's just what we do, we do it together, we're family, we do it together, so, but yeah, no, the smartphones come from his, his father, um, the business, his business, um, pays for him to have a phone, that also pays for me to have my phone

I-Ok

P-So, they, they are the ones that really decide what kind of phones we get, and actually with his new job that he has [Honey you have to sit], um, it's not, it's not a new job, it's a new position, and he um, he actually is probably going to get a laptop from that too ("I" – Ok) so, some of it is his father, but I mean, his dad does say, hey, what do you think is best, and um, he'll purchase it. ("I" – Ok) Usually ("I" – so) Not the laptop, but right now the phones in our home ("I" – Ok) are through the business

I-And the Xbox, that was something that you both went in and purchased? Or, how . . .

P-It was something his Mom bought him for Christmas

I-Alright, alright

P-So I mean, the laptop we purchased, he purchased a tablet, a windows phone. (Is this bothering you? With them in there? "I" – no, no please) A windows tablet, he has a tablet that he uses, um, and we purchased those.

I-Is there, help me, help me see one thing that's not very clear to me, um, is, is, when you go to purchase something, are you telling him what you want (P – No) or is it kind of mutual

P-I don't, well ok, yeah that's a good question, yeah, and I see what you're saying, um, yeah, there are things that are more important to me, in uh, in uh technology, so like, certain programs, I'm a big Word fan, I have to have Word, I'm always constantly creating documents for church and things like that, so that's why we purchased the laptop, at first, and and even then, tablets weren't that big, you know this is even three years ago, almost four but they weren't big then, so I just, I needed a laptop something that would do Word and something that would print, so we do have a printer, which I didn't include on that, but that is technology. And so um, yeah, that's the biggest thing for me. So if he's going to buy something for himself, he wants Word, but he doesn't care so much about printing off on it, like he just uses his tablet for you know researching and then writing out his notes for church so that he can preach, teach, and then you know that's, so he has different, different reasons for having it obviously and then mine is just, yeah, so yeah we would look through and say, say "hey, what's important to you" and "what's important to him" and then if he was purchasing it completely for me then, I would get my say, but at this point we haven't really done that, when we bought the laptop it was for both of us (I – Ok) So

I-that makes sense so you helped me (P- sorry) no, no no, I just want to make sure (P – I'm jumbled in my brain) Um, alright you told me how much you, that helps me, um here's something I want to explore, is how often do your girls use technology, um let's focus in on your oldest girl, um, if you could quantify it in a day, how much do your girls use technology

P-I'd say an hour

I-Ok, and television, Xbox

P-And basically it's the TV ("I" – Ok), Netflix, we don't have cable, we don't so um, we just run it through the Xbox, and they usually just watch Netflix. So it's usually something educational. Um occasionally, um, probably like every other day or so, they'll watch a movie at night. So it might be two hours a day. Um, we didn't, um. They don't have tablets, they don't have, I mean they've got toys that are, you know, electronic but they're not technology. ("I" – Ok) I wouldn't label them that ("I" – so like a leapfrog or something) yeah they don't have anything like that, a leapfrog, they have little computers that you know, say the alphabet to them, ("I" – Alright) but that's a toy to me ("I" – quite so) Um, although this is funny because the other day after you came, my mom um texted me and said " Hey, I purchased ABC Mouse, and, um, for (younger child's name), and they can let you add two other people. So she added two other people, which were my kids, to it, and now they're playing that, like

fifteen minutes a day. ("I" – Ok) Each of them. ("I" – That's very) So, yeah, I guess maybe they're up an hour and fifteen minutes Yeah I start thinking about all that, so yeah that's like really their first thing with technology because like I never let them, and they play it on my phone, because our computer is, um, I don't know how you say it, but like this, the mouse pad ("I" – uh huh) is with your finger, and that's hard for them to manipulate and control when they're, when they're using those so they use it on my phone cause they can touch. ("I" –Ok) and um, otherwise they never really use my phone, I mean

I-Now help me know what they're doing on the phone, like playing apps or games

P-It's games, it's an app ("I" – ok) yeah, so they would just, they're just moving puzzle pieces and just creating a puzzle, or coloring with it, or um, they go through and count the chickens, its like a lesson thing ("I" – Ok) So it's very educational, um, but that's about all they do, the other thing they like to do on my phone, is look at the pictures so I'll just let them scroll through my camera roll and that's one of their favorite things to do.

I-Ok, and in your um, Honda, does it, do you have videos on the thing?

P-We don't have a permanent one in the player ("I" – Ok) um, when we're in the car they listen to CDs. Yeah

I-So, like if you're waiting at the doctor is that when they use their smart

P-No, we really don't I don't really let them do that ("I" – Ok) yeah I like them to learn how to wait without having to be entertained, I'm kind of old school when it comes to that. ("I" – I'm just I want to) yeah absolutely, ("I" – do you) yeah, um, so yeah, like today like, I'll just let them use it fifteen minutes when you leave, [Please don't drink mommy's water, ok?] um, but it's usually never for like to keep them just busy. I'd rather them go find something else to do, go you know, use their brains, that's kind of my thing, I like them to just, be off of technology as much as possible, I think it's important for them, and I know you're going to get to this, so I'll just, I'll just wait but it's definitely the age we live in, so they have to know it, but they learn it so fast. Like I don't have to tell them what to do, they just know. I don't know if it's just from watching me, but then, or just putting it all together, but, they definitely figure it out on their own. Cause a lot of times I don't even know what to do and then they can do it. ("I" – Like the swiping and that) yeah, just, yeah, or picking, just knowing.

I-Umm so tell me how you plan to facilitate or monitor your child's use of technology say in middle school like when will they purchase uhh cell phones will they buy them will you buy them or umm Facebook how will you monitor their Facebook account or will you?

P-Right. Yeah umm that those are these are things I haven't even thought of myself but I know that it will be a (husband's name) and I decision and it will be a decision and yeah definitely it will be limited it definitely will be monitored I don't know that they would have to purchase their own umm at this point I mean I don' t I don't know yet but it will definitely be monitored definitely be limited umm I mean there's certain even restrictions on Facebook like how old they're even supposed to be so yeah we would definitely follow that that's I mean that's just… that's definitely something we would…we're we're very much we're gonna follow the rules and then we're going to set our own above that you know rules and standards of what they're allowed to do and I think we would be pretty strict with it stricter than most I think umm with the limiting it and it it maybe this will help answer the question you know being allowed to just go with technology anywhere in the house would not be an option umm being in an open area where we can monitor that definitely you know for I don't know how long but into high school for sure and and maybe all the way through and it also depends on the child I think but I think a family will I mean like I said I haven't really thought about a lot of it but I think technology anywhere you want would would would limit would would not be something we would do we would limit it to which rooms you are allowed to be using it in would cell phones go to bed with you at night probably not they would stay down here you know in the kitchen or someplace you know the where you're not having temptations or being on it constantly umm so yeah there would definitely be limits and that would be umm enforced by my husband and myself and we would come up with those as a family I think even with the girls sitting down and discussing what they really need it for and what… you know what's over over the top, too much. Does that help?

I-Yeah let me, let me run a a scenario that I've heard before and see what your reaction would be umm some mothers are telling me that they they would see themselves uhh like one has a has a doc of and they uhh every night

go through and see what their you know contacts list, calls, texts whatever, do you see yourself being that kind of mother or is that way overboard?

P-See that's funny because I don't I don't even know like I don't know what you can do I've heard like there's things that you can do if you're all on the same line and you can access know where everyone's been I don't I don't know any of that I I know very little

I-Is that a comfort to you or does that make you shrink back or…?

P-Umm yeah those kind things make me a little yeah make me shrink back a little bit I'm … I don't yeah I don't know I don't know if I have an answer to that right now umm (pause) I don't think I would want to be doing that all the time I think I think the way we raise our family and the way that we hope to raise our family would be trust and you know if if we had limits and we knew what those limits were…yeah but I don't I don't know that might be..i think to a certain extent we would probably use that..i just don't know how far we would go and and like I said I don't even really know how how how much you can know or whatever I I'm not very familiar with that kind of technology.

I-Ok. I just wanted to you know kinda probe and see what you know what you think about those things.

P-I'll be having some good discussions tonight with my husband (laughs)

I-Umm as we wrap up here I want you this umm one of our last questions asks you to go way in the future and make a comparison contrast, umm when (oldest girl's name) and adult how do you think she'll use technology in her career and life do you think it'll be like you do, will it be more, do a little crystal balling with me.

P-umm (pause) I don't know you would think it would be more but I don't know how much more you can do but I mean I think our minds are just limited to that because I mean think back to our parents they never thought we would have what we have now you know being able to see each other across the country on a screen, it's pretty crazy, umm, so it probably will…it probably will get I would think probably more sophisticated, it would probably become a bigger part of their life, every day thing, almost where you would have to have it . . . maybe, to function…in society.

I-Do you think she'll parent her girls as you…

P-Nah

I-would as far as technology

P-It'll be different

I-she'll be a little tighter, a little stricter or..?

P-The oldest?

I-hmm hmm

P-She'll be strict. (laughs)

I-She'll be strict. Ok. Ok.

P-Yeah her personality would would I think tend to be more like mine. I'm an eldest and I I feel like there's, there's, there's umm personality traits and things that you keep so I think she'll probably be a little more old school, traditional but . . . we're, who knows

(laughs, both talking at once)

I-Umm let me ask this as we wrap up and then I I did skip one thing I really want to know but umm if you had a message for American mothers about their technology choices and you could just, tell them something what would what would be your message to American mothers?

P-I think it's just the getting back to the letting technology interfere with umm training your children I just think that's a big thing and it's something I feel convicted about every day I'm not good at it but I definitely think its something that we need to just stop, and put our phones down, you know put our laptops down and just be involved in their lives and I'm not saying and and this is you know bad this is portraying me in a bad light because I do it all the time and so I I'm just assuming that other mothers do that give into that temptation too and I just think it's something that, if they're home and they're able to be with their kids then you need you need to do that and even when they come home from work that's even bigger because they don't have a lot of time so keeping that technology at bay or waiting until they go to bed is I think good.. kids need to see our faces they need to know how to interact socially with people they need to understand you know what it means to look someone in the eye and talk to them and have conversations, because the technology will come, I mean we all learned it and and that's just, they're gonna learn it and they're gonna know how to use it, and so we just have to make sure we're monitoring that and make sure they understand it's not the most important thing.

INTERVIEW END

Appendix G: Theoretical Memo Sample

Individual Interview: Aryn

Mothers are reflecting on their present circumstances through the past. While other mothers did more retrospective thinking, Aryn's quick philosophizing frames her past reflections to her current technology use situation. She is identifying with other mothers' reflections about how little technology they had at home and at school (facilitating conditions) and that her technology learning has been trial and error. She perceives that technology makes life easier but not simpler.

Mothers are intentionally choosing technology for themselves and their children. Aryn uses "quick" devices and evaluates what she purchases based on need. She is purposely not using technology to help her children learn—this is a connection to the past (learning by trial and error). Aryn mentioned what others think (social influence, UTAUT model; Venkatesh et al., 2003) and comparison (person characteristics, PPCT model; Bronfenbrenner & Morris, 1998, 2006) with others on social media. She is aware of social influences related to time spent on her smartphone and, like other mothers, is refining her person characteristics by limiting the time she allows technology that takes her away from face-to-face interactions with her children. Like other mothers, she is facilitating her children's socialization about learning to wait without technology.

Mothers are very individual in how they use technology and they want their children to be like them. Like other mothers, Aryn resists what others think about technology and is self-directed to what she thinks is best for herself and her children. She is not overly concerned about the future because she trusts her children to internalize (transfer of training) morality and proper technology use for themselves.

Appendix H: Open Coding Sample

Individual Interview: Ella

Transcript	Open codes, in-vivo codes, and quotes
I-My first question is how do you define technology?	
P- (laughs) Umm well (pause, sigh) I guess I would I equate it with, well I guess right off the top of my head I think anything that has a screen and that you are watching (laughs) umm but obviously that's not the case but umm I guess it's I guess any kind of technology would be umm some some kind of tool that has improved…our living conditions because I mean tools are technology and but I guess in today's age when you think technology you think of electronics so	Defining/equating with screen watching "tool that has improved…our living conditions" defining tech as electronics
I-Well tell me this umm when was the first time that you used a computer?	
P-umm…I was in Middle School I believe, umm and it was probably in like 1996 I was in 6th grade and my school at the time had like a computer class that your parents could pay extra for and it was like he was just the teacher would just kind of introduce us to the computer like we would play games like Sims city kind of stuff like nothing groundbreaking but just to like get used to the computer and then my parents got a computer maybe before before that or slightly after that but it was all around the same time	Using tech first in MS Paying extra for computer training-parents Playing computer games Nothing groundbreaking Getting use to computers
I-Now let me walk though so I know I'm seeing this in my mind the way you're seeing it in your mind so Middle school is when you started and it was kind of something that you that you had to pay for, it was kind of introductory, tell me about umm what high school was like, what college was like, as far as computers?	
P-(pause) I remember it wasn't, I got through most of middle school with hand written papers and I don't believe that it was till 9th or 10th grade that teachers required you to type it out on the computer and I I remember hating that because I had no typing skills, and then when I was in either 11th or 12th grade that's when I had like an actual computer class where they taught us Microsoft, Excel umm other things like that I can't remember everything yeah it was it's kind of interesting time because I started middle school everything was hand written and then by high school everything had to be typed out and the paper that that the little circles on the side and had to like catch and then, yeah by college everything, everything was online	Writing handwritten papers in MS Requiring computer typed papers in HS Hating typing papers because of poor typing skills Having computer class in 11/12 HS Learning programs Interesting time Contrasting handwritten reports in MS with required computer typing in HS Remembering dot-matrix printers Everything in college online
P-But I remember in college as well we had to have, we were required to have umm an online source and a print source	Requiring online and print sources in college
I-Really?	
P-So it couldn't all be online	Imposing controls on online sources-college
P-And then I think and then for my master's everything was online (laughs) so it's kind of just like a gradual	Everything online for master's degree Indicating tech advance was gradual in schooling

I- That makes-ok now let's um up for a minute, you've helped me so much with school, tell me, bring me back to when you're umm family got the the computer and and what happened thereafter	
P-Umm well in middle school I just looked used it to look up pictures of cute boys I liked and like movie stars and then umm I I uhh I would use it for IM instant messenger to talk to my friends so the only I I the only time I really used it was for just my own pleasure and then for print-like typing as like a type writer but that was the only time, I don't remember ever really doing research too much on on it	Using computer at home in MS Looking up cute boys and stars w/computer Using IM at home to talk to friends Using computer at home for pleasure Using computer at home for typing Not doing research at home
I-Now let me ask you this, what did your…do you remember what your mom thought about the computer, did she use it a lot…?	
P- (pause) Uhh I honestly can't remember I remember my dad definitely used it more than my mother umm (pause) yeah my mother , my mother didn't use it very much at all and it probably hasn't been since the past three years that she has become like "computer savvy" (laughs) and that's simply because her work requires her to do it so umm but yeah at home she she rarely got on the computer and yeah I don't really growing up ever remember my mom using the computer umm yeah and just in recent years, she's now that she's a grandma she just uses it to look at pictures on Facebook (laughs)	Remembering father used computer more than mother Becoming computer savvy recently-M/Mother Work requiring M/mom to be tech Growing up M/mom rarely on computer Looking at pictures on FB as a grandma-M/Mom
I-yes, yes and tell me about Facebook that's I'm so glad you brought that up when were you on Facebook did you start in college or…?	
P-Yes umm my roommate told me about this thing called The Facebook and she emailed them and asked if Liberty could be accepted as one of the schools there umm because she was from Massachusetts and she was closer to where it started so at the time it was still called The Facebook and you had to have a dot edu umm email in order to get on soo I still have my email that says welcome to the Facebook from like 2009 or 200- or no when was that 2005 2004 something like that but yeah I was a junior in college	Learning about FB from friend Asking if college could be part of FB Keeping email first welcoming to FB Starting FB junior in college
I-And your mom, has it been relatively recently since she's joined Facebook and …?	
P-Umm she shares an account with my dad and they probably started that maybe 4, 5 years ago, give or take	Sharing FB account with father-M/mother
I-Let me make sure I…two things that I still don't see as you do in the home, umm, the computer was it in a special room was it in the living room?	
P-it was in the basement, it was in the basement and we did have a family room in the basement umm so umm yeah it wasn't necessarily, my dad also had my dad had ok I'll say, my dad had a computer in his office that was in the basement and and he would I'm sure he used it to work but I don't remember he was a teacher and umm once the Internet came out then we got a computer for the family like before just my dad would go on and I would play games like umm Where in the World is Carman San Diego when I was little and then	Having computer in basement Computer in father's office Using computer for work-dad Getting computer for family once Internet came Playing games on computer Carman San Diego

once the Internet came then we got a computer for the family room in the basement that was more like for everybody umm so	Having a computer in family room for everyone
I-Beautiful that helps me kind of see ok yeah	
P-It's hard to remember all this stuff (laughs)	
I-I know	
P-It's like man, I got to clear out the cobwebs	
I-Umm let me ask you this I'd be remiss since you mentioned about you know defining technology that's it's a screen and so on I'd be remiss if I didn't ask you about TV growing up because that's technology as well, help me understand your family and TV watching, was it a lot, how was it monitored or?	
P-Well umm we had TV we did not have cable growing up so we just had the basic 7, 10 channels or whatever you had and umm on Saturdays my sister and I would watch cartoons and my mom would eventually turn it off and tell us we would had to go play outside or we would become hot house lilies and umm but my but we would watch it at night like my I remember my dad would always watch it after dinner for a couple hours and he still does so we probably watched a good amount of TV growing up	Didn't have cable growing up Watching Saturday cartoons Turning off TV-m/mother Valuing going outside-m/mother Warning daughters against becoming "hot house lilies" Watching TV for a couple hours-dad Watching a "good amount" of TV
I-Now was there the same sort of limits on TV watching that there might be with the computer because you're mentioning instant message and looking up people and…	
P-Honestly, my parents never really put limitations on the computer because I was on it so rarely they never felt the need…	No limitations on computer because not using that much
P-So compute- I don't really remember having any, any limitations really	
P-Um, just 'cause it was in the basement, it was cold and we didn't really wanna hangout there anyway	Lacking access/opportunity-cold in basement where computer was
P-So, it wasn't that… and, um, for TV, my mom would try to limit it	
P-Um, like when we would get home, we could watch an hour or two before dinner and after dinner we had to do our homework, um, and then like I said, in the mornings, um, like Saturday morning, she'd let us watch some cartoons and the she'd turn it off and say, you know, "you gotta go play or go outside"	Limiting television before and after dinner m/mom valuing playing outside
I-I love it	
P-Get out of the house. The hot house lilies	
I-Tell me that again…That is marvelous	
P-And I think that's because her mom told her that	m/mother saying what was said to her transfer of training
I-Okay, perfect, beautiful Well you've helped me, kinda, because I wanna make sure I had a clear view of what it was like in your house, and then at school, so that helps me Um, let me ask you this What do you think about technology now?	
P-I think it can be both helpful and a hindrance Um, but I think it's like with everything	Thinking technology is both a help and hindrance
P-Moderation needs to be used because if-if, um, people rely on it too much than it-it hurts their ability to socialize, and	Believing "Moderation needs to be used" Reading about depression from overuse of FB

I've read reports about the more you spend on Facebook, you know, the more likely you are to feel depressed	
P-Um, things like that, so, ah-like anything, I think it needs to be used in moderation and just pick and choose how and when you wanna use it	Exercising moderation in the "how and when you want to use it"
I-Now you mentioned, um, some good ways. Um, like for instance you said because you teach online you're able to afford stating home and that helps you get some extra grading done during the day and so on. Um, give me an idea of-of what a bad use of technology would be from your perspective	
P-(talking to child) Um, I think a bad use, as far as childrearing, is if my daughter were to just sit with an iPad all day, and-and never be challenged to do independent or imaginative play or do anything 'cause it'll just suck her in and she won't-, the world around her will fade away, just the IPad	Explaining bad technology use is sitting with an iPad all day and "never be challenged to do independent or imaginative play"
P-So, I think that's something that I try to avoid but sometimes I feel like I also have to let her, um, use the IPad	Feeling like she has to "let her" use the iPad
P-And not that using the IPad is necessarily a bad thing, but, um, if I could say she never uses anything, I'd be hap-I think I would feel better about it, but with my situation I just feel like, it's just, I don't know have to…	Feeling happier if she did not use anything technological for play Equating feelings with situation
I-Now tell me, help me with one thing…When people anonymously read your thinking, they'll want to know precisely, and I think I know, but let's get it on paper. When you say if she could not use anything you'd be happier, just develop that further for me	
P-Well, I, again I've read reports, um, they talked about just how too much-too much time on the computer, on a screen for young children can be detrimental to their development Um, and so I feel if she were just on a screen all day, she wouldn't, she wouldn't develop properly, socially or cognitively	Reading reports too much screen time effects on development Wanting proper social and cognitive development
I-Now tell me, as far as you go, um, like what would be, it-it may hurt her development and I'm hearing that from you, wh-what about you? What are some of the uses that you're wanting to avoid personally?	
P-Um, I don't think there's any one thing I want her to avoid altogether, I just think I want to avoid an excess of-of being, watching too much TV. , being on an IPhone, being on an IPad, things like that	Avoiding excess with TV and iPad and i Phone
I-Okay	
P-Um,…	
I-So the same limit of screen time for her is what you impose on yourself? Is that…what are some of the controls you impose on yourself?	
P-Um, I never really thought of putting anything on myself just because I don't feel like I us-, if-if I didn't have to be on my laptop, I wouldn't…	Not imposing restrictions on self because she just uses tech based on need
P-So I guess any limits would be is I'd try to get off the laptop by eleven o'clock each night because I usually start working from home, doing my online grading, from eight or nine to eleven or twelve and for my own sanity and to just get enough sleep, I have to limit myself	Limiting her laptop use for grading and online work after kids go to sleep and going to bed about 11

P-But, my husband, I feel is, he enjoys, like, the IPhone, the IPad, the laptop, where I don't get that much enjoyment from it, I'd rather do other things	Getting little enjoyment from using devices
P-So, for me saying, like, I have to limit myself, I-I don't really go on it for pleasure. I guess I just do it for work	Using technology for work rather than pleasure
I-That makes perfect sense	
I-I'm glad you, 'cause I just didn't understand and th-that really helped me. Now before we go to your parenting perspective, which you've been so beautiful, you know, kind of alluded to, um, if you could only have one device, what would that be? What could you not live without?	
P-Television	Preferring television
I-Okay, tell me why…I love it	
P-Um, I think just from growing up, I would like, Saturday mornings I'd wake up and watch cartoons, and now when I wake up I get my cup of coffee and put on the news	Equating growing up TV comforts on Saturday morning with current comforts, coffee and the news
P-Um, so, it's a comfort thing… (talking to child) …um, I just lost my train of thought	
P-It's comfort, oh and being a stay-at-home mom, sometimes it's just kind of the noise in the background helps	Reinforcing idea of comfort Having background noise helps as a stay-at-home mother
P-Um, so, yeah, it-it's kind of, I feel like, especially when my kids were younger and they weren't as interactive it-it gave me some, not interaction, but able to see adults conversing	Providing adult conversation when children were small-TV
I-Okay, that makes perfect sense	
P-Yeah	
I-Let me turn to your parenting perspective and I'm gonna kinda use your questionnaire to help me fill in, um, anything that I don't quite have in my mind	
I-Now you said that you use the most technology, um, what I'm interested to know is who buys the most technology in your home	
P-My husband	Husband buys most tech
I-Tell me about that	
P-Um, I'm not that, uh, tech savvy, so I usually just trust him, whatever he thinks is best	Trusting husband because she feels not tech savvy
I-Alright	
P-Um, and, and I guess just like for gifts or graduation presents or Christmas presents, I mean, I would probably want a new outfit and he'd want an IPad or he wants the next phone, where he-he had to convince me to get an IPhone because I was just fine with my little rinky-dink text phone because I feel, a lot of times I feel overwhelmed by it if I don't understand it right away. So I just throw my hands up in the air, I'm like "wahh, I can't figure it out" Um, so he's kinda the one that will like push me out of my comfort zone Be like "oh you-you really will like this" So, he buys it all	Articulating differences of gifting-she wants a dress, he wants an iPad or phone upgrade "He had to convince me to get an IPhone because I was just fine with my little rinky-dink text phone because I feel, a lot of times I feel overwhelmed by it if I don't understand it right away. So I just throw my hands up in the air, I'm like "wahh, I can't figure it out" Um, so he's kinda the one that will like push me out of my comfort zone Be like "oh you-you really will like this"
I-So help me, I-this is great. You helped me figure that, um, when-when you don't understand it, do you just work at it until, do you kinda self-teach yourself or do you…?	

P-I have very low patience with this so if I don't understand it, I will usually call him, um, and just be like, "I need you to fix my problem"	Calling husband for tech support
I-Unders-I can sympathize	
P-Just being honest here	
I-Absolutely, Um, okay, let me make sure, so, um, you got your smart phone, take pictures, check, browse social. Tell me about social media. Um, when-when you're browsing it, is it-is it just for you or is it sometimes for parenting things, or, tell me…	
P-Um, usually it's for me just to get a break, like if (husband's name)goes to bed or something and (child's name) sitting quietly, I'll just be like, "Oh, I have a moment, let me go on Facebook"	Using social media to take a break Having a moment to use for Facebook
P-Um, so that's usually what it will entail and it's usually like five minutes at the most 'cause then one of them needs me again	Having five minutes on FB before child needs her again
P-So that's probably what I use social media for most	
P-Um, mostly Facebook and sometimes Instagram and then, um, yeah, that's pretty much it	Using FB and IG
P-And then I'll also try to post pictures of the kids just so grandparents and aunts and uncles can-can see pictures of them	Posting pictures for family
I-Alright, Now some mothers, let me just make sure, some mothers were telling me that they go on, um, Facebook or whatever when-when their children are occupied just as kinda like a treat, is that…?	
P-It is	Agreeing with other mothers that FB is a treat
I-Is it?	
P-Yes	
I-Okay, that's what I wanted to ask	
P-And I feel like I can just turn my brain off for a second, but yes, I would definitely describe it as that It's just kinda like a "Oh, let me just look at that for a second and escape for a little bit"	Relishing turning off brain for a second with FB "Oh, let me just look at that for a second and escape for a little bit"
I-Um, okay, let me make sure, I don't think you said this so let me investigate here. Um, tell me how often (child's name) uses technology…And I think I saw that she was using a few educational games. Is that off of your smartphone?	
P-I'll let her use the IPad for that	Using iPad for educational games
I-The IPad, okay	
P-Um, but for (child's name), the most, she usually uses the TV or Apple TV more than any other piece of technology	Using TV more than other tech-child
P-Um, and then, occasionally I'll let her use the IPad, um, to do those-those games like the letters and numbers games But that's usually maybe like twice a week	Using iPad twice a week for letter and numbers
I-Okay	
P-So if we're putting it in a, if we're doing twice a week, I suppose we can't quantify it by day Maybe we can for tel-for Ipad…	
P-Televis-uh, Television, and I feel guilty about probably saying how much TV she watches during the day, but probably like three hours	Feeling guilty about child's TV watching Watching TV 3 hours a day-child
P-Three, yeah, maybe even four sometimes	Watching four hours some days-child

I-Okay, that's what I wanted…	
P-That the TV's on…	
I-Um, see, I've got, and you told me, um, IPad	
I-Is there any other, you've got IPad, television, is there anything else that she uses that I'm not getting a sense of as far as, like for instance, in your van, I think you have a van if I remember, is there a DVD for long trips?	
P-No, if we do go on a long trip, we will let her watch cartoons on the IPad if she starts to get kind of fussing	Watching cartoons on iPad for long trips
P-So we'll use the IPad, um, instead of a DVD player	Using iPad instead of DVD player
P-And, um, like sometimes she'll play with my phone but really she'll just scroll through pictures or take pictures of herself or something, but again that's just if she happens to find it laying around somewhere	Scrolling through pictures on mom's iPhone Picking up mom's phone and scrolling through pictures
I-Now let me walk you through a couple scenarios, um, that I've heard and I wanna just get your opinion about this. Um, in a restaurant, is there ever a time that, um, that you would want them to use like your phone, so tell me about that.	
P-I-I-I, I'm not opposed to that, but honestly don't remember the last time (child's name) has used an IPhone or anything like that at a restaurant	Not opposed to using something to distract child, but not part of normal practice
P-I'm sure-I feel like, I'm sure she has used my-my IPhone but I honestly can't remember, it probably was like, yeah	Difficulty remembering if that has happened in their experience
I-So they're just enjoying the restaurant and the people and watching and…	
P-We choose our restaurants wisely…	Choosing restaurants wisely
I-So tell me about that, yeah…	
P-…so, we will go to a Mexican restaurant where there's already chips there that she can snack on and the food comes within five to ten minutes of ordering	Picking a restaurant with chips for child's snacking. Wanting food to come quickly for sake of child's waiting
I-Okay	
P-So, we just don't put ourselves in a position where we're waiting like an hour for our meal	Don't put selves in a position to have trouble with wait time based on restaurant choice
I-See why I ask you this, 'cause I wanna make sure. What about doctor's offices? Some of the mothers were telling me about doctor's offices and what they do there.	
P-Um, again, I feel like they have books and they have the fish, and that usually keeps her attention, um…	Using books and looking at fish during wait time at doctor's office
I-So it doesn't sound like the IPad leaves the home or…	
P-No, the IPad only leaves the home really if we're doing a long road trip, 'cause my family lives about eight hours away so we use the IPad for…, but, yeah. Uh, yeah, the doctor's office, she doesn't really, I wouldn't say she's used it there either	Using iPad during long road trips Indicating daughter doesn't really use i Pad outside of home
I-Alright Um, let me have you do some comparison and contrasting with your own childhood experience, how is (child's name) growing up differently with technology, IPads, television, phone, and how is that different than yours?	
P-Um, well I-I guess with-with the ability to have IPhones and IPads, um, obviously I never had those, um, and so sometimes I think like, man, what did my mom do, like when we had those like eight hour drives or whatever	Wondering what own mom did on long drives before iPad and iPhones

P-Um, I would say our upbringing is similar in that I probably, I love watching cartoons on TV and she loves watching cartoons on TV so that would be how it's similar	Comparing her love of cartoons with daughters
P-Um, but yeah, she knows how to use the IPad, she knows how to use the IPhone, um, she knew-she knows how to use the-the DVR player, but I probably knew how to use the VHS player when I was her age	Contrasting daughters knowing how to use iPhone, iPad, DVR with her growing up knowing how to use VCR
P-And I think kids just acclimate to whatever technology is at their fingertips	"I think kids just acclimate to whatever technology is at their fingertips"
P-Like they just catch on very fast	Catching on very fast
I-Now let me ask you this specifically because I wanna make sure everyone reading this anonymously understands what you're thinking	
P-Sure	
I-Um, how did she learn all these things? Does she watch your husband, does she watch you, do you think it is modeling? How did this happen?	
P-Uh, definitely modeling	Identifying modeling as the way her daughter learns how to use devices
P-Um, yeah, I mean, 'cause it probably, it probably started with the IPhone when she was younger and probably things like going to the doctor's or, um, things like going-going out or long-long road trips	Believing daughter first saw iPhone use modeled when going to the doctor or on trips.
P-I remember having little baby games on the phone and that, it's, just like things like that	Remembering baby games on phone
P-She's watched me, we just got a PlayStation, we've had it for a week, and she already knows how to work it, just from watching me do it	Watching mother play new PlayStation and now knows how to work it
P-So yeah, so definitely just from watching and then, and sometimes, you know, like with the games, I'll sit down and show her how to do it and how, where to put the letters and where to put the numbers	Showing daughter where to put letters and numbers in a game
P-So some of it is intentionally showing her how to do it and other times it's just, she just picks it up just from watching us do it	Intentionally showing her how to do things Picking it up just from watching parents
I-She sounds like a quick learner. Um, is there, what I'm eager to know is who else makes technology decisions for (child's name) Um, would it be your husband, would it be grandparents…?	
P-Um, her grandmother, um, watches them two hours a week, um, because I have to do um, live chats with my students	
P-So usually I'll go upstairs and grandma will come and um, and watch the kids and a lot of times it is putting on a movie or, um, my-my mother-in-law is very tech savvy so she has games on her IPads and on her IPhones that she's shown (child's name) as well	Putting in a movie while babysitting-mother-in-law Mother in law is tech savvy and shows granddaughter games on iPad and iPhone
P-She's probably more tech savvy than I am	Believing mother in law is more tech savvy than she (mother)
I-Okay that really helps me kinda compare and contrast. Let me ask you this, um, if we could put it in these terms of strict or not strict, who do you think controls technology more? Do you control technology more for (child's name) or does grandma?	
P-I do	Controlling tech more than mother in law

I-Okay so you'd be more strict if you put it in those terms	Identifying with being strict
P-Yes, I try to limit it more where I feel grandma or dad would just let her play on the IPad all day or just keep putting movies in	Limiting tech more than mother in law or husband
P-Um, so yeah, I'm definitely the warden on at least technology time	"I'm definitely the warden on at least technology time"
I-Alright, and I'm glad you menti-so how uh, let me ask you this. I-I understand, uh, with grandmother, tell me about your husband. You tell that me he'd be more inclined to have her play, uh are there any other technology decisions that would be different or the same as yours that he would make for her?	
P-Um, I think, just the amount of time probably	Differences in control between husband and wife is amount of tech
P-I mean, we're in agreement with what she can do, for the most part	Agreeing together on what child can do just not amount
P-Um, I think one of the things I don't like, I don't like (child's name) watching cartoons on the IPad	
P-Um, I want, I would rather just have the IPad used for games, like the-the educational games, and there've been a couple times I've had to step in with grandma or dad and just be like, "Don't, please don't let her do that on-on that, on the IPad	Wanting child to associate iPad with education games not cartoons-mom Stepping in and asking mother in law and husband to honor her device identification values (TV for cartoons, iPad for learning)
I-Umm now you've I want to make that I've covered everything that you want me to get, umm my next question is how do you oversee or control your child's technology use and if I'm if I'm understanding everything from what you've said and everything you said on your questionnaire it sounds like time is is a controlling umm you you mentioned about not watching television on the IPad is there any other way that you control or oversee technology that I haven't heard or I've missed?	
P-Yeah I I think the biggest thing is just time amount I'm all for her trying different, if something new comes out I'd be all about her trying that too but just with time constraints because obviously she won't limit herself and just like she'd eat only cookies all day she would just watch cartoons all day if I let her	Identifying a child's inability to limit themselves Recognizing daughters natural desire to watch cartoons all day if mother didn't control it
I-That makes sense. Umm I want to ask you a similar question that I asked you for (child's name) and that is if you could own only one form of technology for her what would it be?	
P-Probably the TV as well umm yeah just because it's part of our routine umm if I have to shower or as we're having this conversation the TV kind of works as a babysitter in some ways and it'll entertain her so I can do things that require more focus or something like take a shower where I don't want her to get into too much trouble while I am you know not available (laughs)	Same preference as self-TV Identifying TV watching as part of routine Identifying TV as babysitter so mom "can do things that require more focus"
I-Totally understand. Umm now I wanna kind of start going towards the future and umm the next couple questions first is how do you think (child's name)technology will change when she enters preschool, school and so on?	
P-I'm sure it will be even more advanced than it is now umm and where I mean I imagine that she will be using the	Believing technology will become more advanced as daughter goes through school

computer on a regular basis umm when she when she's in elementary school umm I wouldn't be surprised if schools started having a bring your own device policy for for work or research umm I know a lot of schools are are considering having students each have their own IPad umm so yeah I expect all of that either laptops of IPads that she will just start bringing her own to school where I would bring tons of textbooks to school	Daughter will be using computer on a regular basis Anticipates schools having a bring your own device policy Identifying some schools polisices about iPads Comparing her daughters bring a device with her (back in the day)bringing textbooks to school
I-So you think, if I'm if I'm hearing you right, sounds like there will be a lot at school will that transfer to the home are you gonna keep it limited like you're telling me now or…?	
P-If I think so you're asking if I think there will be limits at school as far as technology or?	
I-No umm like you're mentioning a lot of technology use at school do you think that she'll bring her IPad back home and will you will she use technology more at home because she's bringing it from school?	
P-Oh yes I believe the older she gets the more technology she will use and the more I will have to control it umm yeah I I guess as a mother, I want to make sure that she can interact with people and that umm she… I guess …I want my child to be kind, I want them to be well-liked, I want them to be able to show love to other people and I feel too much technology would interfere with her ability to do that umm so I feel like as she gets older she will want umm IPhone, IPad all that stuff and while I'm not opposed to it I just know that I'll definitely have be having to put a lot of time limits on it umm and limiting it for her safety and just for her development as a person	Believing daughter will use tech more at home because she uses it more at school Believing she will have to control increased home use Wanting daughter to interact with people Wanting child to be kind and well liked and show love to other people—feeling tech would "interfere with her ability to do that"
I-Ok. We're gonna investigate that because you kind of jumped even into-you're doing great it's wonderful umm let me ask you this, as far as cell phones do you foresee you buying it for her or her working for it and her purchasing it herself?	
P-I ohh I (pause) I definitely think it will be something that will have to be earned and maybe not necessarily earned as she has to get the honor roll but earned that I know I can trust her or that she's shown herself responsible enough to have something like that umm and I also see it me being the last one to consent to it I think dad will be like "sure" and I will be the one being like "I don't think I'm ready for this"	Earning a cell phone Knowing that child can be trusted with a cell Seeing herself as being last one to consent to a cell for her daughter "I will be the one being like 'I don't think I'm ready for this.'
I-Now let me ask you before, because I want to explore her as a teenager (coughs) pardon me, but I want to make sure that I umm that I run a scenario by you, what if a school say she's in first grade and they say you know "we want you to read with her you know 10 minutes a night and we would like it to be on an IPad or something digital rather than a standard book" what do you feel about that?	
P-Umm I, I would think, I would not like it, I would have a negative view towards it umm…however I would be foolish to not realize the day and age in which we're living and just like…	Having a negative view toward e-books rather than a real book at home
P-I want (child's name)to be umm be able to interact and be a kind and caring person towards other I also want her to be successful in whatever vocation she chooses I want her to be	Rehearsing desire for child to interact and be kind in tech age

successful in her academics and I know technology I mean, everyone's on, she will need those skills in order to do it so if a school are going to require such a thing, I mean for 10 minutes that would that would I would it but I would just think "well that's dumb" (laughs)	Desiring success for child in vocation and academics Recognizing child needs tech skills to be a success
I-Yeah is there, do you see foresee any issues between school and home as far as technology go that you would draw the line and go "whatever you're, whatever you're doing that's fine but we're not gonna do it" is there ever anything that pops in your mind?	
P-For a school to require and me just say I really don't think so? Umm I think if they were to do something where the, I think where the teacher interaction is put aside for her to be taught by a computer or something umm I would have a problem with that… umm yeah I think if if something were if the social aspect were to be taken away and the computer were to be put in place instead I would, I can't think of anything specific but just when you asked me that's what I think because I think the social aspect of school is just as important as the academic aspect	Foresees conflict with school if teacher Interaction is sacrificed for computers doing the teaching Issues with social aspect of school being taken away by technology Believing "the social aspect of school is just as important as the academic aspect"
I-Good I'm glad you made that clear for me. Umm, I want to dive in just briefly into more of how you'll facilitate or monitor umm her technology use as she matures and kind of go off on things we've talked about umm when do you think she'll get her first Facebook account?	
P-Ohh, probably not till (pause) I would like to say high school but I feel realistically it will be closer to middle school	Wanting to put off daughters FB account but deciding realistically it will be MS
I-Umm let's talk about how umm again how we're monitoring umm (child's name) use when she say is high school middle school let me run you a scenario, I've had a mom tell me that one of the things she plans to do with her family is to have everybody line up their cell phones when their at the house for the recharging and then umm she and her husband plan to go through their contact list and monitor whatever every night, how do you feel about those sorts of things?	
P-If I felt that extreme of a measure was necessary I wouldn't let her have the phone to begin with, not that I think that's necessary a bad idea but I just, I just feel like if Iand maybe I maybe my opinion of it will change once I get there because like all things when you're not there you think one thing and then once you're in that situation but I think if I I might look through her phone if I was suspicious or if I suspected something umm but I think because my parents were very trustworthy of me, I never had a set curfew as long as I told them were I was and it was reasonable so I think that's how I would operate with with (child's name) umm you know like unless she gives me reason to think something's up	Feeling a parent checking a child's cell contact list is extreme…not a bad idea but an extreme idea Believing views on controlling technology will change in the future when faced with certain situations Controlling daughters tech use if she gives cause for suspicion Equating own parents trust with the trust she hopes to have in her daughter
I-Umm tell me this. I've also heard some other things that I want to get your opinion about umm that phones or laptops say when she's in middle school you know middle school high school that phones or laptops or any technology would	

be used in a family place and not in the bedroom, how do you feel about that?	
P-I would agree with that umm (pause) and and again the computer was in open an open space in our house so umm (pause) yeah I would agree with that umm I'd probably I probably wouldn't forbid her from using her IPhone in her room umm but I think I would probably again tell her she needed to put it away by a certain time like "you can use it but by 9 o'clock, 10 o'clock it needs to go on the table, the kitchen table or somewhere else" just because I would be afraid that she would stay up all night you know not get sleep	Agreeing with the idea that computers be in an open space in the home Allowing iPhone in room Putting a time on when the cell needs to go on the kitchen table—for the sake of child's sleep
I-Ok, umm Is there any other way facilitate, monitor, oversee, when she's…?	
P-Umm I would definitely have some of the safeguard software on the computer where you can't look up certain questionable material or inappropriate websites umm so I would I would definitely do that for sure	Having "safeguard software" to limit "questionable material" or "inappropriate websites"
I-And if she accesses something that is, you know it she gets around the safeguard somehow, the conversation is that going to be you or your husband or both of you?	
P-Umm it would, I would definitely be involved umm and my husband could be in it or he could not be in it umm just, just because I feel like I'm more of the communicator in the household so umm but I think we would agree we would talk together and discuss agree upon if there needed to be a consequence or what actions to take it definitely would have to be agreed upon by both of us	Addressing concerns with child's tech use together Believing she is the communicator in the household Agreeing together on consequences for tech related infractions
I-Let me ask you in my last couple of questions, I want (child's name) to be exactly at your same period of life, how do you foresee that as a stay-at-home mom, do you think she'll have an online job do you think she'll use it in much the same ways, what do you think?	
P-Umm (pause) yeah I mean I imagine that that's definitely a very good possibility and I'm sure she will use TV as a temporary babysitter for when she needs to take a shower in the mornings umm so I I think I would hope that she would want to limit her children as I've also tried to limit her with certain things but uhh like I said I would hope that she would just have discernment to know when it could be positive but not in ex-excess umm so	Believing daughter will parent as she does—using TV as a babysitter Believes daughter will parent and limit her children's tech use in a similar way Hoping daughter will "have discernment" to know when tech use is positive and when it is in excess
I-Do you think so she'll probably use technology more but try and limit, more or just about the same because she'll limit it…	
P-Yes I think there will be more I think there will be more avenues of technology that is available to her (talks to daughter) umm but I would hope even that even though there might be more more out there that there would still be you know constraints, because I think like when I was growing up all we had was TV and really slow computer games but my mom still limited us on it but even though there's more for (child's name) I still try to limit her on it but I'm sure because there will be more options her kids will spend more time on technology than she does just as she spends more techn- time on technology than I did growing up	Believes daughter's future will have "more avenues of technology" Hoping that more technology also means constraints Comparing daughter's future with her past. As mother was parented by own mother, so a transfer of training to her daughter regardless of the increase in the amount or advances in technology

I-Do you think parenting will be harder for her because of technology or easier?	
P-I question that daily, I wonder was it easier for my mother's generation was it easier for me because I have it? I think like "well, what would I do if like the TV went out for a day" but if I never had it then I would never have missed it and my kids would maybe be better at playing independently or things like that so (laughs)	Interesting introspection/situational reflection****(below) "I question that daily, I wonder was it easier for my mother's generation was it easier for me because I have it?" "I think like "well, what would I do if like the TV went out for a day" but if I never had it then I would never have missed it and my kids would maybe be better at playing independently or things like that so"
I-(laughs) One last question umm if you could send a message anonymously to all American mothers, what message would you send them?	
P-I would say umm (pause) it sounds cliché but "do what works for you" I know for myself a lot of decisions I make for my children are based upon guilt and I've had the older generation of mothers give me their opinions on what they think is right umm articles on Facebook will tell you, other mother's will tell you what you need to do but umm as far as technology I think really do what works for you and what is healthy for both you and the kids because I think being able to have TV helps me be a better mother because I'm able to just step back for a second and say like "ok I'm just gonna put this cartoon on and I'm just gonna sit here and have a quiet time so I don't you know lose my temper or anything like that" so yeah… technology like I said like when you said like "what could you not do without" I couldn't do without a TV because like I would lose my mind sometimes (laughs) umm and then but then you know I'll hear older mothers say "don't let them watch TV, just turn it off turn it off" and so you feel guilty and you feel torn umm you know and sometimes it's like "hush hush like I don't want them to know that she watches TV" you know things like that umm so yeah that would be do what do what works best for you and what's healthy for you and for your children	"do what works for you" "I know for myself a lot of decisions I make for my children are based upon guilt and I've had the older generation of mothers give me their opinions on what they think is right" Reading articles on FB about what is best Tech-wise Doing what works best for you in all things not just tech "TV helps me be a better mother because I'm able to just step back for a second and say like "ok I'm just gonna put this cartoon on and I'm just gonna sit here and have a quiet time so I don't you know lose my temper or anything like that" Couldn't do without TV Hearing older others advise turn off the TV—resulting in "feeling guilty" and "you feel torn" Hiding how much TV daughter watches from others
I-Ok, now before I shut this off is there anything that I might have missed in your individual interview that you want to get down on paper?	
P-Umm no I just think like with technology while it can have negative aspects to it I wouldn't be able to be a stay-at-home mom without it so in that aspect I'm really grateful for it because then I'd miss out on a lot.	Believing technology can have negative aspects Feeling grateful for technology so she can work from home Technology helps her not "miss out on a lot."

Appendix I: Axial Coding Table

Category	Subcategories	Open codes, in-vivo codes, and quotes
Reflecting situationally-Forming technology preferences	Time (contextualizing)	"I feel like as I have grown so has technology" "I feel like technology followed my age group" Growing up in small towns-equating with limited tech availability "I feel like I am of the generation that was the first to grow up with technology" "my husband and I joke that our kids will never know what a Blockbuster video store is" "much more advanced" than when she was growing up "I didn't go to school with a SmartBoard, I'll have you know, I don't appreciate it!" Wanting children to have life experience raise them m/mother "the revolution of everybody getting on instant messenger" More advanced experience at home: "I still think my more advanced experience with computers was at home Technology not expected in college Looking to the past for answers "there isn't a generation before me saying 'oh this is how we dealt with this'—it's hard" Spending little time with cell and computers--more with TV "My three year old can run circles around me, compared to what we were doing back then" "nowadays whoo we've come a long way" Equating job with age and and getting a cell phone Everything in college online Using tech in college more and more Everything online for masters work Indicating tech advance was gradual in schooling "I played, we built a treehouse, we played with frogs, we picked wild berries…when I think about the things that could have killed me…but you were only normally inside for punishment" Thinking technologically ready for college because of homeschooling Researching in college a norm Recognizing tech transitions in classrooms at college Comparing texting to IM Remembering how her absence made dad learn technology Growing up preferred to do activities rather than technology Merging technology because of marriage Equating interest with desire to watch TV--Then/now Explaining mom's learning by trial and error Lacking in computer training-mom Comparing school computer labs to what is there now "These kids don't know what a record was" Contextualizing time-Internet starting "I remember when I finally got tapes, when I finally got a CD, Yaaaaaa! I was like "I got a CD!" You know Now, what is a CD? Put in iTunes" Contextualizing early stages of Internet use Contextualizing time by remembering non digital library use Contextualizing time by contrasting information seeking w/Google Remembering how FB has changed Own mother ambivalent to computer

		"technology was very sporadic, it wasn't reliable" Technology in the past was exciting and mysterious--Combination of inaccessibility and restrictions of parents Everyone had their own computer in college Remembering the TV was always on Remembering mom turning off the TV and warning daughters against becoming "hot house lilies Valuing going outside-own mother Getting to HS computers used in everything Growing up equating tech with timewasting Contextualizing her current TV watching with that of her mother's "excessive" TV watching TV personal preference: "like being in front of it on for a long period is such a turn off for me" After college computer became part of personal life "there was a big separation between technology and personal life until that point" Growing up riding bikes and playing outside "playing outside all the time when that was normal" Reading a lot of books growing up Having gmail account Using AOL Using a computer the first time at 14yrs old First used a computer in school in MS Getting computer for home in MS First computer use in MS Getting Commodore 64 in HS Remembering reel tape to play computer program First time using computers in pre K at school Using computer for first time at school Using tech first in MS Using computer at home in MS Starting FB junior in college Firsts-Getting a cell phone second year in college Getting Internet in HS Driving=cellphone Using IM end of HS start of college Keeping IM on all the time First one to have cell-dad Remembering firsts-Google starting Remembering first laptop after two years in college Remembering first computer class in 7th grade Clarifying first at home not school Remembering firsts –cell in HS Using computer for first time at school First used a computer at home Remembering first search engine Using computer first as preschooler Remembering first computer use in school Using Instant Messenger Using the Facebook Having a cell phone Purchasing a smartphone First to have cell phone Getting your college on the Facebook Status of early picking cell number—one she still has

		Achieving status-Gmail invitation Getting a VCR "oh gosh, such a big deal" Getting Nintendo for Christmas In kindergarten when Nintendo purchase for family "such a big deal" Watching adult TV shows not meant for kids Remembering Duck Hunt and the gun you could point at the screen "hot commodity that year" Remembering first family to have a nice desktop computer that could print and get on the Internet Remembering first among friends to have IM and email
	Facilitating and limiting conditions	Bring computer from work Originally Facebook was college only Work required own mom to be tech savvy Growing up own mom rarely on computer Relating mom's tech use to work No limitations on computer because not using that much Remembering a tech childhood Parents leveraged tech in curriculum Remembering governors school prepared her better for college "She had five kids so having a TV wasn't, to her, a bad thing because it kind of kept us busy at certain times and the rest of the time we were outside." Thinking technologically ready for college because of homeschooling "very high tech family" We kept up with technology When there was advancements in tech, "we had always had the next one" Had awesome tech for the time Uncle who worked for NASA Buying technology for work Dad being engineer for Erickson "always respected technology and knew what the need for it was" Having a computer lab Discovering tech things because of parents work as recruiters Parents did not upgrade computer—became obsolete Professors using tech more to communicate with students First online classes "didn't really work well most of the time" Own Mom using computer to supplement eclectic homeschool curriculum Teachers requiring typed projects Mom "very big on" technology Remembering mom had no technology during growing up years Mom purchasing cell phone for daughter despite grandmother's objections—freshman in HS Remembering mom did not use computer a lot Own mom worked three jobs so cell phone helped her feel safe as a latchkey kid Parents didn't know how to use home computer Got Internet at home in third year of HS Own mom pushed technology use in HS Bringing computer home from work-dad Own mom did not get on computer very much while she was growing up Starting in second grade school computer labs

		Growing up as a missionary kid m/mother Not having modern amenities-m/mother Growing up active outside m/mother Saying you have to go outside and play m/mother Desk top brought to college was from church where dad worked Growing skepticism of technology m/mother Fearing technology would raise children m/mother Own mother very comfortable with computers Own mother never scared of tech Dad and she financed HP laptop through best buy as an upper class man Reflecting on own mom's excitement to upgrade to newest thing Doing computer work in library because that's where Internet access was in college library and computer labs Learning about FB from friend Turning off TV-m/mother Not having a computer at all at home? "I got to use computers in school, we were still able-it-it wasn't a full-fledged need to have a computer, it was more of a luxury that you could or could not have" Bring computer home from work-Father Relating dad's job to computer ownership Learning to type at 7/8 because of computer Professors requiring online resources Remembering mom never needed a cell phone Hanging out with dad involved TV Using technology because of bad weather Buying tech for work Wanting to take computer science class Talking her out of it—friends Friends demanding-get Gmail account now Preferring to go see if a professor was in rather than email Parents-"tried to make sure we had, you know, basic understanding of them, but they weren't very educated in them." Buying cell—parents for child
	Facilitating and limiting conditions (cont.)	Having only one computer in home Having only three channels of TV Using IM in the kitchen on computer Not having cable till middle school Parents big TV watchers but she was a book reader Growing up with three televisions at home Siblings were gamers but she "stuck to books mostly" Using cell as an emergency Own mother hesitant about technology Remembering mom, who was a nurse, got more comfortable with computers as healthcare industry became more computer-based Parents wanting her to use her cell to stay in contact with them while she was traveling with high school clubs Remembering old family DT worked slowly Typing in code to make figure in game move Having to type :// to access video games "didn't have a whole lot of focus on computers at home" Having college Spanish professor who wanted all work turned in on floppy disk

		Sister encouraged her to join FB: "she was like 'Facebook, you have to do this you can connect with people' I was like ok whatever and I signed up for it. Parents big TV watchers Equating Indiana and small towns and not having much technology Equating limiting conditions to a region of the country(South) and rural Remembering feeling of family was computers are for people who need it for work Remembering cell phone was large and could only be used in car Indicating technology was very slow and inefficient Computer in parents' bedroom Computer in living room Mom was "very up on all the technology" I mean I was always impressed as a high school student with how in the know my mom was about technology because most people's parents were just like "oh what's this, I never used one of these" and my mom really I mean she knew all the cutting edge stuff she would read you know PC magazine and stuff like that" In college nobody had computers-went to lab Having little technology growing up Second year of college shared computer with sister Lacking access computer in basement Typing various code to operate computer Going to the computer lab Having only 10 computers in the entire school-Mexico Lacking access to Internet—just floppy disk Not having Internet till MS/HS Placing computer in office=work Lacking opportunity-Father controlling Internet to when he was there Remembering not using because of house heating Using computer lab in college because not one of the "blessed ones" who had a laptop Lacking access/opportunity-cold in basement where computer was "having a computer in your home was more so for persons who could afford it because it was so much more expensive" Having technology in public spaces at home Computer owned by family-centralized Using Internet in the library in HS "TV always highlighted like you know the most privileged situations so you see kids who were playing on different, you know, game devises" Looking really fun Wondering what it was like Not having exposure Noting tremendous expense 1,500 dollars for laptop Sharing home computer Lacking access- computer purchased for home in HS HS had "basic library computers" Having computers in labs at school Parents paying extra for computer training at school Having computer in basement Computer in father's office Using computer for work-dad

		Getting computer for family once Internet came Having a computer in family room for everyone Lacking technology in standardized testing Not cutting edge technology in college classroom Having computer labs Hating computer class-feeling intimidated because didn't like tech that much Imposing controls on online sources-college Limited access logging in with c prompt DOS Lacking access to personal computer two years into college Computers not in individual classrooms, in computer labs one computer lab for each school: elementary, middle, and high Remembering computer moved to kitchen before senior year of HS Lack of access-basement Remembering computer in dad's office garage Remembering moving to grandparents—no computer use Remembering computer in parent's bedroom Having only one computer in the house Home computer dad's for work Lacking opportunity in school due to funding Lacking access to upgrade due to price "Not a whole lot available to us" Having computer class once a week Using what technology is on hand due to life situation Remembering elementary school computer labs Lacking cell use because of college building structure
	Learning through trial and error	Learning program for job Learning to stay ahead of children Knowing is preferable to owning Preferring all-in-one devices-younger Preferring devices that "a step back from the latest" some older Contrasting learning new technology vs. learning technology upgrades Remembering ease of use for others Nobody knew how to use word "tutor yourself on how to use Word" "I was slow to get on the wagon, I still am, but um, I personally learned-taught myself on a typewriter" at home "he had to convince me to get an IPhone because I was just fine with my little rinky-dink text phone because I feel, a lot of times I feel overwhelmed by it if I don't understand it right away. So I just throw my hands up in the air, I'm like "wahh, I can't figure it out" Um, so he's kinda the one that will like push me out of my comfort zone Be like "oh you-you really will like this" "I made myself-because I realized, you can't survive without knowing the computer, without at least knowing the keystrokes" Remembering didn't know how Trauma of turning in assignments on disk with trial and error Learning tech she believes she should have learned in school "you're constantly trying to regroup and grow" "I would just go, in tears…"It's gone I can't find it, I can't," and I would like have saved it under the wrong directory or something, because you didn't understand what a file folder was, you didn't, I mean I understood it was saving it on that disk"

		First job out of college working in a technology-based distance learning program—" I felt like there was a little bit of a learning curve there" Responding to learning computers through trial and error "I mean, that's what I HAD to do, to be a good employee, or a good student"
	Linking school use with activities	Learning to read Reader Rabbit in ES Remembering teacher smart board use In HS teachers used LCDs and laptops Doing assignments online in college Taking keyboarding class in ES and MS Learning to type with computer Taking a very basic computer science class in HS Making PPT presentations for English class in HS Using Internet a lot in college Keyboarding class learning how to play piano with computer program One old computer in every room of school-it "just kind of sat there" Newly built school with "cutting edge computer lab" in MS learning how to do word processing Uploading papers in college 5th grade school got the Internet School was "pioneering" Internet access and teachers didn't know how to use Internet because they did not have access at their homes-MS Using Internet for pen pal through email Required to get FB account as part of high school history class project: "I was very against the project because I had resisted Facebook for a long time, I didn't like the, you know, the thought of sharing my personal information, but it was a requirement so I went ahead" MS taking typing class Using computer "seen as recreation" in schools Getting all work done in school could go play Oregon train on the computer Doing DB online in college Researching through websites for college Learning to type on computer was first computer experience in school Using paint and playing Oregon Trail in school As a junior in college registered for classes online "super excited" about computerized registration for college Really excited because "I could get up and register for my classes in my pajamas" Playing Oregon trail in ES IM-"that's pretty much how we communicated across campus" Alphabet games in PreK Learning to type at school when 15 years old Computers in lab in MS Pull out for CS class Learning computers for accounting class Taking computer classes in HS Researching in computer lab in community college Learning to type domains Researching online rather than using books in library

		Researching online in HS as a homeschooler Remembering doing AR with computers Typing papers for high school Using spreadsheets in school Researching online-HS Analyzing credible online sources Learning hardware functions in school Playing computer games in MS Requiring computer typed papers in HS Having computer class in 11/12 HS Learning to type on a computer as an elementary student Increasing tech use with teachers Remembering school first Nothing in elementary school Typing in middle school Taking tech class Learning spreadsheets Remembering elective course in MS Using IM in college Remembering not much technology in HS Using email Teachers using tech Parent running website for school Remembering communication posting in college Graphing with calculators in college Putting HS syllabi online Typing research papers at school Using IM more in college IM in college alot Receiving college scores online Submitting college papers online Emailing professors Taking online classes Not needing computer work for school Learning to type in MS and HS Using IM and Facebook in college Learning to type in 5th Learning how to use Internet at school Registering for classes online Taking college classes online Learning how to do Excel and PPT in MS
	Linking home use with devices	Using Commodore for typing games Playing a typing game at home Common thing to have laptop or computer in the home in HS Using computer at home for email and IM 5th grade got Internet at home Playing Nintendo Using IM at home Getting Cable (need) football season Using a Commodore at home at 6 or 7 Using computer for educational purposes as a homeschooler Mother was “completely obsessed with like movies and stuff” Mom to children-TV and movies they can have an effect on your mind, Mother “would try to get us to read books more”

		Doing what was done growing up---“we always just say, "TV is a treat!" It's a special thing once in a while, it's not something that we do every day.” Remembering Atari as a symbol of computer types Using computer for projects @ home for school in MS Using Mac for learning games Identifying device in home Watching Saturday cartoons Having computer at home and at school in Mexico Having desktop since third/fourth grade Listening to radios and grandmothers records Using technology for movies Playing video games at home Remembering software at home Playing a lot of typing games at home as a homeschooler Looking up cute boys and stars w/computer Using IM at home to talk to friends Using computer at home for pleasure Using computer at home for typing Not doing research at home TV=“the biggest piece of technology when we were younger, for sure” Getting TV in middle school “when I was in middle school and my parents got cable and it was like a huge deal it was like the biggest thing ever” Watching a lot of TV Remembering commercials “TV is a treat” transfer of training Equating preference for noise with m/mom Growing up was never quiet Relating devices to mom Watching Saturday morning cartoons Remembering device at home Linking home with device Watching little TV Using Nintendo for games Using Xbox to stream Amazon Prime Using Computer for Instant Messenger Linking home with dot matrix printer Typing reports at home
	Perception and intention	Helping mom (grandparent) with devices Giving devices (gifting, or passing along) Collaborating with others-dating Technology is amazing Crazy what technology can do Thinking technology has weaknesses Thinking technology brings families closer Believing technology makes “life easier” “I think they definitely use it more and rely on it more than I did” “infiltrated society almost to the point of being like a fault” Thinking technology is overwhelming “we have to really watch and balance carefully our digital consumption” Getting iPhone last year Appreciating what technology does for us Appreciating that tech keeps us in touch with people

		Using GPS to get around town Wanting not to go back to the old days Loving that all devices are condensed into one Not wanting to go backwards from a smartphone Everything done on phone Reflecting on how a radio, clock and computer are combined now into a smartphone Respecting technology more now than in the past Changing importance of technology Technology is a great tool and it's an annoying tool because people lose themselves in it." Technology is indispensable Technology is a benefit "have access to a lot" Parts of technology are overwhelming Using texting for spur of the moment efficiency—example going to the museum "he leads the way, I did the thorough investigation portion of it, and we made a decision based off of that together" Thinking technology is very interesting Technology-"it's a blessing and a curse" Own mother needs lots of help—even checking email "I would say just the variety of technology and how everything has become so much more digital these days" Differences in today's technology and yesteryear—it can travel anywhere with you and provide information and produce memories immediately Communicating with family in Mexico Using apps to transition to life in America Using a translation app to identify unknown words Knowing how to apply English words to Spanish meanings using apps Preferring having something on constantly Disliking quiet-technology helps Daughter and siblings offer mom support Own mother gives back smartphone to daughter-- did not want to learn to use it Advancements in technology "just ridiculous"—"I feel like I can't keep up with them anymore" Believing technology is very practical and good Making life easier not simpler "I would like the record to show that I got my IPad first, and that my parents thought it was cool so they went out and got IPads" Working from home because of technology Assisting others-Mother only got I Pad because children got it for her Being impressed by technology Intrigued by technology "for them there's these expectations of technology because of where they are in history and how at this point their expecting all this from their technology and being able to interact with it" "I want to include it because it's, it's such a part of life right now and it's going to get more and more so as my kids grow up" Making money for family because of technology Watching other writing program code Technology use "Moderation needs to be used" Calling husband for tech support

		Learning texting and email with friends help Telling own mom how to do it-not remembering afterward Helping own mom with devices--can't help because its job-specific tech Having to teach mother in law "whereas my daughter she already knows how to navigate a smartphone" Making VCR work for grandmother who was raising her
Promoting intentionality in technology use	Developing moral person characteristics	Keeping age appropriate "no, you're too young to do that" Asking self if that is what she should do: "I'm sure I could but is that where I should spend my time? Is that what I should do?" Honoring personal convictions "I know that's one thing that I don't want to, you know, tell her, don't have the TV on, because that's just a personal conviction for in my home" Missing out on sense of community Trying to fill a void in their lives Teaching religious values "I want my child to be kind, I want them to be well-liked, I want them to be able to show love to other people and I feel too much technology would interfere with her ability to do that" Teaching body image Teaching racial equality Teaching gender respect "I'm trying to be careful that I'm engaging the people that I'm around too" Wanting child to associate iPad with education games not cartoons-mom Stepping in and asking mother in law and husband to honor her device identification values (TV for cartoons, iPad for learning) Teaching children how to engage technology in the "right way" "my parents didn't like Facebook, they had a lot against it was very much a concern that was brought about by them and I kind of enforced that personally"
	Facilitating socialization	Staying in touch but not in contact but with friends through FB Not talking to the person for six months but can see kids growing up on FB Preferring calling to texting Using TV and social media to know what is going on in the US and Mexico Going on the Internet gives her answers about American culture Keeping up with friends all over the world using FB Technology is "ever present" difference in childhoods Remembering she had the latest technology growing up but it was in a desktop at home--not mobile technology like her children are experiencing Communicating with husband during work hours Using social media to take a break from mothering Posting pictures for family Mexico to America children the same: "I remember when I was a little girl, the games were house, cooking, dolls, all those things, not games but toys in reality. But now, the children are focused on Xbox, the Wii, tablets…They don't make games like before. I believe they've forgotten them now because children live in technology" Agreeing with other mothers that FB is a "treat"

		Relishing turning off brain for a second with FB "Oh, let me just look at that for a second and escape for a little bit" Now using FB to post pictures so extended family can see children "When we get a gift from someone, we sit down and write a thank-you note That's polite! That's what you do!" Not being able to read emotion through text FB defeats purpose of having a HS reunion Rekindling friendships through FB Technology helps her Rejoice with friend asynchronously because of mothering schedules Having no satisfaction with only technology-mother "I wonder if they will rely on it to entertain them and not wanna go out and play or go do other things and when was growing up, I had to just find something to do, go play with a friend" Interacting with family without technology Feeling trapped in house- stay-at-home mom, tech helps Providing adult conversation when children were small-TV Feeling very isolated at home when Internet goes down Keeping up with family through technology Keeping in contact with husband through texts real-life things like potty training success Using FaceTime with family even though they live close by Enjoying one on one socialization with daughter Like, that's really, my husband does not understand Facebook. He's like, "This is a waste" And but I really, I feel like as a mom at home, some days that's your only connection with the outside world Accountability through husband with FB password has to log her on Talking is preferable to texting Playing Wii as a family Reading about depression from overuse of FB When something wrong write in in an email Really having conversation with technology? Mother says of self that she had more "freedom" to go outside and play(safety reasons not tech reasons)than son now does "I can do it in the little in between times, when the kids are busy doing something Having to find a balance between tech and non-tech activities Difference in childhoods? "They have ACCESS to a lot of nicer things" When we get a gift from someone, we sit down and write a thank-you note. That's polite! That's what you do!" Explaining bad technology use is sitting with an iPad all day and "never be challenged to do independent or imaginative play" Thinking son watches more TV than she did growing up because there is a TV in the kitchen "Truly you have to at some point say that like "I'm not going to talk to you in real life, I don't care what your pictures look like" Equating drama with Facebook Teaching children to wait without technology Phone-"it's the easy go to babysitter at the table" At a doctor's office- "if I can't read them a book, or if I can't just like talk to them and entertain them, the phone is the go to thing" Technology-helping at Dr. office to keep son occupied

		Technology not at doctor's office—socializing and reminding boys to answer doctor's questions "She has an immune disease so she can't touch things when we're out and about." Not opposed to using something to distract child, but not part of normal practice Don't put selves in a position to have trouble with wait time based on restaurant choice Using books and looking at fish during wait time at doctor's office "it's I've always been kind of turned off to it because I think there's real value in learning to wait" "I don't like going to a restaurant and seeing the children on smartphones" "I think children need to learn how to engage with people, they need to learn how to sit and eat their dinner, that kind of thing" "I just kind of roll my eyes at it because I'm just like really like you could be talking as a family or playing something" Opposed to kids watching tablets in grocery store "you don't need a television show while you're in the grocery store" Handing children an iPad is a helpful a helpful way to kind of distract them Restaurant has DVD player on the table for the kids Daughters tablet allows her to receive email from parent Keeping in touch with child through InnoTab "working long hours like we do can definitely you know, lead you to miss the other person, you know, you still want to have a connection with your spouse"
	Facilitating learning	Encouraging alphabet and phonics learning Kids not really into LeapFrog yet—using phone for ABC mouse Technology "really opens my options as far as learning and growth and development as like a person" Learning through trial and error-daughter on LeapPad Making profile on LeadPad for daughter Using tablet for playing English games "Like if there's something that I don't know, I can easily grasp it through technology, by picking up my phone or computer or anything like that." Using tablet for Spanish grammar Just like in Mexico, you go to school…when I am doing things, my son is on the tablet, games, and the same with the television." Using TV to familiarize daughter with English Father teaching how to use iPad "they've watched, it's what we've done in our house so they know how to do it"-Anita Believing son is more advanced than she was in technology skills Valuing how the Internet answers her questions "at this stage, they are more advanced then I was at their age" Valuing daughters imagination and wanting to play teacher Realizing there "has to be two sides… time where she can use her mind, use her hands, color and play, and other times where she has to use the technology" "You put so much into technology and we lose our minds" Just got daughter an InnoTab because she showed interest Swiping through mom's pictures Customizing education through homeschool to child's interests Daughter using tech three hours

		"when I was three I was starting to read, you know, playing outside a lot, making mud pies… whereas my daughter she already knows how to navigate a smartphone" Daughter using tablet to draw Showing daughter where to put letters and numbers in a game Intentionally showing her how to do things Picking it up just from watching parents Using iPad for educational games Using iPad twice a week for letter and numbers Contrasting daughters knowing how to use iPhone, iPad, DVR with her growing up knowing how to use VCR Just got daughter an InnoTab because she showed interest "we want her to be at the cutting edge" Son using PhotoBooth to take selfies-" we didn't know he knew how to do that" Daughter using tablet to draw "I think kids just acclimate to whatever technology is at their fingertips"-Ella Using the tablet for math and English language reading Identifying modeling as the way her daughter learns how to use devices Believing daughter first saw iPhone use modeled when going to the doctor or on trips. Remembering baby games on phone Watching mother play new PlayStation and now knows how to work it "I'm probably like the cutoff for people who know how to do everything the old-fashioned way" Giving children their "phones" (really iTouch) so they can play ed games while she gets work done Passing down iTouch to children as she upgrades her phone so they can play education games "their talking to devices to get what they want, their touching devices to get what they want" Learning how to use built in mouse on laptop Using apps on mother's phone Daughter knows how to move her phone icons Daughter knowing about selfies from teenagers at church "it is surprising what he is able to do by himself and to turn on buttons" "I don't know if it's just the age and the development part of it just learning how to look at something and figure it out but I'm sure a lot of it is just observing us and remembering and seeing that manifest itself in his life" Didn't like that son "gravitated toward" computer learning because mother would like to be the one to teach them those things through human interaction Using the Jake game to capture son's attention and assist in potty training Daughter does SnapChat Daughter identifies the process of video buffering I don't wanna read ten or twenty or fifty other people's recipes Just show me a good one I'm a learner, I want to learn, I want to research but at the expense of what? Asking mother "Mommy, is that going on Facebook?"

		Watching Russian cartoon on You tube Believing daughter is picking things up Dad teaches her games on devices Unlocking mothers phone Having technology as an aid Helping reinforce learning Valuing hands on stuff Using Net Flix rather than having "traditional television" Teaching daughter to care for technology-by putting it back in its case and charging it "there still has to be tangible realness to the learning side of things" Taking pictures off a phone Differences in growing up? "I had a dictionary she has a phone" Mom wondering how her daughters just know…watching her. Kids figuring it out on their own Girls not interested in LeapFrog not engaging enough Watching videos and scrolling through pictures and taking pictures on mom's smartphone Mom doesn't know how but daughters do Girls use tech for two hour basically TV Netflix for educational…movies occasionally Son loves TV (an hour a day) Learning shapes and tracing Learning numbers and colors Difference in childhoods: "mine was things, touchables as far as like books and so on, hers is DVDs, sounds, music and anything animated" "I'm not going to hand my baby my phone to turn the pages and feel the colors and then chew on it… There are certain elements that, like, their brain needs to learn about through the real thing" Homeschooling necessitates computer Answering boys questions with a You tube video "they could see it and they could see it and learn and that's where I appreciate technology" Mom for self- Choosing blogs over books because of amount of time Concerned about children not going through the process of math(counting) just using smartphones to calculate Mom for self- Having friend come over to show how rather than web searching Mom for self-"I'm a learner, I want to learn, I want to research but at the expense of what?" Using technology to see the world outside-as a stay-at home mom Mom for self-"there's just so much information available so many things to learn that I feel overwhelmed a lot" "I think there's nothing like reading a real book as opposed to reading something on a Kindle."
	Managing time and monitoring content	"I think at this stage in life right now I'm thinking about what has to be done today, and during the day and if technology fits into it then maybe" Have to keep changing online business to keep up with people hacking and producing "workarounds" Giving children their "phones" (really iTouch) so they can play education games while she gets work done Seeing self as most strict in controlling screen time

		“It’s kind of a struggle like to decide how much you want your kids to be using technology, but at the same time it’s one of those things where sometimes you just have to give in if I wanna get like cleaning done or something. Sometimes I just have to.’ Identifying TV watching as part of routine Identifying TV as babysitter so mom “can do things that require more focus” If boys are using iPad “it's because I said that it was OK for them to play, and it's in a circumstance that I would be OK with” “There have been times where I've felt really guilty, where, like during naptimes, it’s like just, hey, go watch yet another movie, because I just need that time by myself, and um I've moaned to my mother, how, I just go, “I'm not a good mom” and she says, “Well do you get things done?” “Well, yes, I get things done, I got the bathroom cleaned this time during naptime” and she goes, “Well!” and so I know my mom would.” “I'm limiting much the same way my mom limited us” Scared that technology makes things too accessible Own mother giving children more access than mother herself would Grandmother letting boys watch Curious George on the iPad Preview-daughter “is like very sensitive to stuff” Exchange with her own mother, “I told her, ‘Do not under any circumstances,’ because she like stays a day a week when I work, and I said, ‘Do not, under any circumstance—you are not to show her *Frozen*.’ And she thinks I’m nuts.” Using computer all day for job Everything in moderation Enjoy “binge watching” TV shows through Amazon Prime hour and a half I would say maybe an hour and fifteen minutes children’s tech use “we don’t want to make her life focused around technology” Watching a cartoon for mealtimes if husband is not there Worrying about daughter’s safety online Having son play in his room for an hour and a half if not napping Believing she has the most control over technology because she spends the most time with children—husband will do oversight of cartoons and action heroes Mom thinks she is stricter than grandparent Kids use more tech in the home than mother: “So, for example, I’ve downloaded a ton of apps on there for reading and phonics and math and they’ll be sitting on the couch playing their games, doing their letters, numbers, and colors, and all that stuff and I’m probably like in the kitchen loading the dishwasher So, I feel like they use more of the technology than I do” Believing both are strict on sons technology use Being selective in what she believes on the Internet Feeling guilty about child’s TV watching Godmother gifting daughter an Xbox 360 to “make her a gamer” Kids will go three or four days without a screen “but then on the day that we do, it’s usually because I have a hundred things to do that day and it’s like ‘yay cartoon binge.’” Husband helping her know what is good and bad as far as cartoon action heroes Husband saying no to power rangers “As far as anything else goes, he just defers to me”

		Not wanting children to see technology as "we do this, all the time" because "the society is heading anyway and I don't really want that" Controlling tech use of son based on amount of time and content "so he turned that on for our son one day and I had to let him know that was probably not age appropriate for a three year old (laughs) so he just hadn't thought about it and he was happy to comply" Watching TV 3 hours a day-child Picking up mom's phone and scrolling through pictures Limiting tech more than mother in law or husband "I'm definitely the warden on at least technology" Doing crochet after work because "I'm burnt out, if I look at another screen, I feel like my head is going to explode, you know? Working from home means having "technology with me all day long" Daughters use tech for about an hour a day Mother doing things she need to get done while daughters are engaged with technology for an hour Differences in control between husband and wife is amount of tech Agreeing together on what child can do just not amount Identifying a child's inability to limit themselves Recognizing daughters natural desire to watch cartoons all day if mother didn't control it Looking at IG in mornings at friends pics Interfering with getting housework done Posting to IG in evenings of her kids Using tech for about three hours personally Perceiving she is more strict than father or babysitter Gaming closely monitored Believing she is more strict Viewing self as more strict in tech control Feeling like she has to "let her" use the iPad Using DVD player in car for long trips Feeling happier if she did not use anything technological for play Equating feelings with situation Reading reports too much screen time effects on development Scary how much information people can find out about you Worrying about inappropriate pop-ups Worrying that daughters aren't developing non-screen skills—"because technology is kind of a crutch" Trying to facilitate creativity through non-tech activities Believing she is more strict about the TV watching "because I grew up in a house where it was on all the time" and "I don't want that for my kids"-Lainey Wanting proper social and cognitive development Avoiding excess with TV and iPad and iPhone Bringing Leap Pad along for long trips "sometimes they have access to too much" Never using technology to keep them busy Buying groceries online(saving time) Sister is babysitting and puts cartoons on to entertain-mother would rather this not happen… Wanting filter on information-not options, quality Exercising moderation in the "how and when you want to use it" Paying bills online

		Consuming digital limitedly after work Having tech downtime "we have a lot of websites blocked on our personal computers to make sure she can't access them by accident" Pediatrician conveying research about no more than two hours a day of screen time Pressure from pediatrician about screen time Believing excessive screen time will affect child's brain development "Is this getting in the way and preventing them from being future, creative individuals?" Being intentional about time management Addicting influence of phone/social media Valuing smartphone during nursing for reading Disappointed in self that read random blogs that seemed a waste of time "if I didn't make a conscious effort to get them outside or make them go play, like, he would sit and watch, he would sit and watch TV all day if he could" Setting goal for an hour or less on technology-mom Texting is valued because no time to have a real conversation but can say hi Listening to CDs in car-kids Wanting to FB only once a week-mom Children use tech 2 hours a day "Okay, you've already watched TV today, so I don't want the TV on again, anymore " Rationalizing can't do everything you see on Internet Technology use time is "it's probably way more than I would even guess," Balancing being a working mom and being a stay-at-home mom is really challenging and I don't have anyone older who is like, "You know like, when I had little kids, you know…" Like I don't--that doesn't exist. So, um, we're really paving our own path, figuring out how to do it right now. Technology is good but "really scary" Worrying that things are "too accessible" Mother identifying herself as the primary tech decision maker in the home Comparing her decisions with husbands—she is concerned about their development "I'd rather them go find something else to do, go you know, use their brains, that's kind of my thing, I like them to just, be off of technology as much as possible, I think it's important for them," Making sure kids are occupied and then tending to work situations: "Usually it's the TV or the IPad because that's something that will like guarantee that their attention is focused. If I put the TV on, they will stay here. If I put a puzzle in front of them, you know, I don't know maybe a minute, two minutes till they're bored then they're coming back to me for attention so I'll secure my kids with something I know will keep their attention and then, you know, attend to the work issue." Worrying about pop-ups/advertising Grandpa puts on sponge bob and "And I was like, "That is not age appropriate a cartoon"

		Working from home makes it hard to engage your children in non-tech activities because you have to do your job Wanting children to be outside playing Prioritizing children's engagement when meeting work deadlines "you know all these emails coming in and bosses asking me when I you know, "you gotta get this done, you gotta do this stat" Information on web can be misleading(medical) Limiting movies to every other day "So it just can increase anxiety, fear, panic by Googling something, like you really have to know what you're reading and researching" Previewing movies/shows ahead of time "I like Instagram better than I like Facebook because you can really be more private and really be more choosy" Navigating less strict levels of monitoring with grandparents Keeping phone always on person for emergencies Choosing not to have cable Avoiding the comparison trap Not imposing restrictions on self because she just uses tech based on need Limiting her laptop use for grading and online work after kids go to sleep and going to bed about 11
	Evaluating need	Getting little enjoyment from using devices-mother Using technology(other than TV) for work rather than pleasure' Smartphone tablet and computer "they're all important parts of my everyday Equating growing up TV comforts on Saturday morning with current comforts, coffee and the news Having background noise helps as a stay-at-home mother Being paid for online product testing via Amazon credit which then transfers to need purchases Buying new toys for children with Amazon credit Ordering groceries online husband picking them up Intentionality of simplicity and convenience in "old timey cell phone" Loving tech for the "convenience for myself and my stage of life" "I would like the record to show that I got my IPad first, and that my parents thought it was cool so they went out and got IPads" Buying everything online with free shipping Getting discounts on diapers through Amazon having them deliver in 48 hours Buying technology for daughters gift because "we just wanted to buy her something nice that she would enjoy and learn from, we didn't want to buy her a ton of useless toys" Wants husband to buy tech with good picture taking, fast speed, big screen, and "can it come in pink?" Customer service problem she handles that because husband believes she is more persistent Using tablets for children because of simplicity and customization(LeapFrog/LeapPad Using smartphone for mother because functionality and size Using laptop before having a baby made it impractical Using laptop is cumbersome Preferring iPad for children Picking up the phone is easier for Internet access Using phone for accessing Internet during nursing

		"nursing sessions now where I've got twenty minutes where I can't move anywhere, so, "Alright, and here's my phone…"I think it's gotten to the mentality where you can't just sit still, you have to do something…I don't know if it's, I don't know if it's that my mind is constantly going, or if I don't want to sit still and do nothing" "he can pull up the game all by himself he doesn't need me to turn it on he can touch you know he knows letters if it says "touch this letter find this number" he can totally do that by himself" Traveling for long periods TV in car but not during normal nap time while driving Husband instigating tech purchases "Hey! You should get a tablet" She says "so he's the one that introduces me to technology" "He's the one that initiates it, like, "I really think that you would like this, and these are the reasons.'" Preferring FaceTime to talking on the phone Preferred device is iPad Doesn't like to talk on the phone Researching and buying done by husband "so I just let him know what I need and he kind of carries it out from there so I could say "I need texting, I need picture messaging, I need to be able to get on the Internet wherever I am and it needs to be compatible with Google mail" that kind of thing" Recounting first experience with non-laptop device(iTouch) Playing games, enjoying apps replaced by phone rather than other device Husband buys most tech Deciding both on technology to buy Gifting technology to each other Making joint purchasing decisions with husband Believing FB is just a habit Would choose MacPro for son…not a fan of tablets: "I'm just not a fan of the tablet and maybe it's because I haven't used it as much, but I like typing, and I have the smartphone that has the touch screen and I hate it…but I can see for my son who's three, touch screen is a lot easier. He can pull up the game all by himself. He doesn't need me to turn it on he can touch, you know. He knows letters. If it says "touch this letter, find this number" he can totally do that by himself." "I mean we do have grandparents that are really generous in fact they're the ones that bought the IPad and gave it to us" Trusting husband because she feels not tech savvy Articulating differences of gifting-she wants a dress, he wants an iPad or phone upgrade Using Instagram for online business "flash sales" Using online sales to make money Purchase technology together Collaborating together for tech purchases Husband using PC because of work requirements and she is a mac person because she is creative and artsy Preferring something different for herself than for her child Thinking "what's the best technology we can get for the least amount of money" She tells him the need, he researches and confirms, she buys it Enjoying facetiming doesn't cost anything

		Given a lot of devices Getting a WIFI only iPad because of price Preferred device Xbox and phone Will have television “till it dies and then we’ll buy again” “I don’t want them to think that like every time they’re in the car they need to be playing with something or watching something” Friend purchased leap pad for children but would not have purchased by self because too advanced Husband researching online for best product and deal then wife goes out and buys it while at work Technology doesn’t simplify life Technology making life more complex Wishing could put phone down Husband making final tech decisions Grandparents sending movies “you know we’re not flashy when it comes to technology” Getting what you pay for with technology Wanting technology that last Getting good customer service Tech reviews are not conclusive Knowing what to spend money on is hard Seeing tech as an investment is difficult Preferring MacBook and Smartphone Using phone to choose restaurant Using phone fore email Needing “quick technology” opening laptop is not quick enough “and I need quick” Not thinking about phone for whole day Using smartphone for email and doing grocery lists, social media and researching on Pinterest Using phone fore email Single mom buying the tech for home Needing “quick technology” opening laptop is not quick enough Using technology for “I use them a lot for research or personal development, more just, um, the immediate kind of needs” (email, social media and music) Cell phone only means of communication Feeling cell has to always be around her Not wanting to miss anything important Ordering food online Phone is preferred device because of all in one Doing research and buying upgraded tech for family-mom not husband Using phone as camera to record and share Using iPad during long road trips Indicating daughter doesn’t really use iPad outside of home Gifting tech for Christmas Technology helps daughter with immune disease not touch anything but the iPad Children don’t own their own technology “I just understand the technology, like, I find the buys, I find the deals, and I have the time to search for them” When husband does buy tech she interrogates him and says she could get a better deal Not using laptop, preferring smaller all in one devices

		Using small, immediate on devices in contrast to long start up laptop: Tech helps take real-life not staged pictures Perceived need recording memories through phone "If I lost my phone all of a sudden, I'm like, like you feel choked." Ordering on Amazon makes motherhood easier Preferring phone for functionality, entertaining kids and emergencies "Umm but I mean they're trying obviously to force everyone into the smartphone thing but I mean for us, I'm at home, with the kids, and we have WIFI, I don't need the 3G, I when I do go out, really the only phone I need is a telephone in case of emergency" Praising quality of iPod touch camera verses large more expensive devices Putting in a movie while babysitting-mother-in-law Controlling tech more than mother in law Using technology not to full capacity Using a budgeting app Technology making her more intentional in finances Purchasing after research and collaboration Differing needs to consider in tech purchase husband/wife…his job related hers role related Buying done together Not using or valuing phone for standard talking purposes—pics and Internet Buying done by husband Frustration with technology that does not assist in the way imagined/needed Husband does research and tech purchasing Kids using phone rather than laptop because of mouse pad skill required (touch versus click Scrolling through camera roll-kids
Valuing individuality in technology use	Context (Changing)	Hoping greater sense of community in the future "I feel like that will happen that one day you know they're gonna surpass us" "In this upcoming generation I'm noticing, like, from when I was in high school, we had limited technology and we thought that technology was amazing, and then now, it's like they have new technology and every day the world is just completely changing" Daughter has to "keep up with where the world is going today" through technology Coming to the US-"I know that the world is changing" Hearing from U.S. media that everything is technology What is the difference between US and Mexico-""More advanced because the people little by little are losing everything to technology The age at which children feel ready to have a device "just keeps getting younger and younger" When children are parents "They'll probably be less strict because there will be so much that they won't even know how to control it" Believing technology will be integrated, "I just think it's gonna become so integrated in society that we're gonna have a really hard time living without it "it's funny how nowadays my parenting decisions are based around technology, you know, like some of the technology

		decisions I make are based on w-w-what will we need for our kids, you know?
	Embracing innovation	Relying on schools to know and teach necessary/latest technology Believing teenagers need cell phones but should be socializing with family "If they're teenagers, I can see they would need one, but they should be sitting down eating dinner with their family, especially if there's grandparents around,"' Giving child cell phone in MS or Hs but not smartphone Buying tech in Mexico is more expensive(2Xs) Having come to the US there is more pressure to use technology Believing there is much more technology in the US than Mexico Buying son a cell phone when he needs it Believing son will use more technology when he enters school Believing Internet safety will become a larger issue in elementary school, "Internet safety is going to have to be huge, if they are going to start introducing more internet to elementary kids" "I didn't have one until I was fifteen, but now we're considering giving our elementary kids cell phones" Believing she'll have to invest in Internet filter software, "at home that will be a huge thing we'll have to, to buy into Internet safety and teaching our kids internet safety and watching out for things that, that come into the Internet" Taking tests on computer Believing libraries will be all digital Believing son will research online for school at home "I think the research aspect, I just think in the future, will be done more at home than in the school" Observing that with video baby monitors her kids are used to people watching them via video Believing son will be a gamer when he gets older because his father plays video games Having textbooks on tablet Believing textbooks will be downloaded on iPad, "my husband and I are like, pretty soon, they're just going to have an IPad in their backpack and have all their books downloaded" Believing digital textbooks are much more economical Children will have to contribute for innovation: we don't have a budget for extra expenses they won't have those things unless they're paying for it on their own Being open and honest about what they see and do with technology "it'll very case by case and what technology will look like" Believing Homeschooling for high school will require more technology I'm going to have to use more technology in order to teach them because I I want them to function in the world later and I feel like technology will be a part of it Believing son will be researching in American schools Believing American schools have iPods and iPads and "good will come out of it" Making life/parenting easier "technology is opening up a door for them" Learning industry systems (healthcare) Using voice-activated technologies "It's definitely the age we live in, so they have to know it, but they learn it so fast! I don't know if it's from watching me, but they definitely figure it out on their own."

		Using touch screen Believing technology opens many doors to future learning Having much more tech when children are parents Unlimited "horizons" for children's learning because of technology Technology broadens the possibilities for children Leveraging integrated systems in school settings Taking ownership of devices
	Resisting group think	Making decisions contrary to perceived norm Realizing that many people are using computer learning for their kids but "we didn't want to do that for our kids" "Like my mom, she gave me my phone when she thought I was responsible, but like most parents I see now a days just give their kid a phone just because they feel like everybody else had it and they want their kid to feel like they got something too I feel like you can't really predict. It's whenever they're ready" "I know tons of other people who that's how they learned all of that stuff is through a screen and we didn't want to do that for our kids," Children won't be having cell phones as youngsters I know some parents who let their kids have cell phones, um, when they're really young, and I, we don't plan on doing that Talking about violence, gore and sexuality: "they're going to see enough of that in the world, but they don't need to see that in our home" Leveraging technology as a tool to families advantage "we want their foundation to be on Christ and we want their foundation to be on what is right based on what God says" Conflict with school? "I do see a conflict in one day, if you go digital and the hardcopy's not accessible and they are, and they need that hardcopy, they, not necessarily for fine motor skills, but just for thinking skills" Believing she has more control over her children than other parents: "Other parents let their kids have access to so much stuff on the Internet and so many different apps, but I think I will control which apps they can have and how much they can use their phones alone"
	Training transfer	"I think technology kind of takes, like, our responsibility of education of our kids away" Hoping child will adopt boundaries Transferring accountability with their cell phone passwords to what they will expect of their son's cell and password Making decisions more as husband and wife as children get older Checking cell contact list Believing parenting will be harder for children because "being too connected that you're not actually connected" "I would hope that they would be similar, umm, yeah, that ultimately they'll see value in what we did and why we did what we did." "We want to work hard to make sure he doesn't ever feels entitled to a certain piece of technology because that's what everybody else has versus 'this is what our family needs and this is what our family can provide' and then we would like to instill a big sense of responsibility in being responsible with it and consequences when he's not."

		Rather than checking up on children teaching and talking to them, "I think I would rather hope to instill a sense of responsibility and propriety in my children, so that I'm not having to monitor exactly what they do and every interaction" Thinking son will be relaxed in his tech use because "I mean the example that we're setting right now, I think it will be more relaxed because we are more relaxed" Technology is part of overall training: "we want to train them so that they know, that one day, they can do the same thing" Believing when her son is a parent is will be harder for him to parent because technology is everywhere and always changing Using device in public spaces in home Articulating the generational technology decisions," I mean, that's how I learned from my mom and so, um, like it or not, I know I'm setting an example for her, so I think she'll probably do the same things, same decisions that I'm making now" Create boundaries and stick with them "think I think the way we raise our family and the way that we hope to raise our family would be trust" Understanding technology boundaries as future parents "ultimately they'll see value in what we did and why we did what we did be respectful of it" Training transfer-playing with hands now "so much like they won't be able to sit still" as adults and just focus on a computer Monitoring sons tech use to "build them up and encourage them and edify, spur them on" Believing training is trust "there's still that balance there like you want to trust your child and you want them to trust you and that they can still have a life and be apart from you but that there's still umm there's checks and balances" Explaining about wise choices using movies Homeschooling for personalized education Modeling to form reference point Knowing passwords Instilling responsibility Trusting child Maintaining communication Television is different in Mexico than in US so television will affect son's identity as Latino Believing son won't have much time for technology outside of school in middle school and high school so she won't have to monitor it because he won't have much free time Anticipates only allowing FB and other technology during free time
	Worrying about unknowns	Being afraid schools can't offer devices or controls that she can in homeschooling daughter Believes she will not know her sons friends or know if he is being bullied "They haven't become as advanced as we are in our homes" "Part of the reason we decided to homeschool her is that we looked at some of the local public schools at their use of technology and the lack of understanding or the lack of monitoring on the part of the school, for children who use it, and we're very concerned about that so we'd rather she do it safely in our home."

		Worrying about Internet bullying and if schools teach safeguards against that, “I don’t know how much in schools are they actually teaching that” Trying not to think too far ahead “I’m gonna be checking her—‘I’m gonna be on you like white on rice, honey’, I’m going to be checking everything. I’m going to know everything if I need to print out stuff I will. I will have every password. I will know. You will know there’s a time, a curfew, that you’re not to be on that cell phone, but I also think of safety, but no, if there’s ever a time that they break that trust or break that understanding or things get out of hand, oh mommy will definitely have that phone, not a question about it.” Losing control as child gets older Message for Latinas and American mothers: “always see what they are watching, what they are playing, what they are doing, who they are talking to… Our world now is dangerous, one never knows what’s being said,”