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Parental Perception of Mobile Device Usage in Children and Social Competency

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This is to certify that the doctoral dissertation by

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Walden University
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Abstract

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Christin Topper

MA, University of Queensland, 2007

BS, La Trobe University, 2003

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Educational Psychology

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Abstract

Parents in the 21st century are concerned with the ubiquity of mobile devices and their effects on the progression of social development. A review of the literature indicated that although digital interaction has become more prominent, limited empirical data existed on whether children who spend more time interacting in the digital realm would develop the necessary competency to handle social situations in real-life settings. Using social constructivist theory and the Schramm model of communication as the theoretical foundations, the present study examined the relationship between mobile device usage and the level of social competency in young children as perceived by their parents, in relation to parental monitoring. A total of 401 parents of children age 5 to 12 years who have their own personal mobile devices completed the online questionnaires. Pearson correlation and linear regression showed that parental report of children's social competency was positively correlated to parental perception of mobile device usage and parental monitoring. Parental monitoring was also found to be a statistically significant moderator of the relationship between parental perception of mobile device usage and parental report of children's social competency. Positive social change of this study may include alleviating the misconception that digital interaction impeded social development, promoting parental role in raising socially competent children in the digital age, and advocating for a more collaborative parental monitoring strategy.

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Dedication

This dissertation is dedicated to my family. Thank you to my parents who allowed me to pursue my dream to be the first in the Topper family to earn a doctorate degree. I would like to share this accomplishment with my husband, Dan Bulman, who read copious drafts of every single word I have written for the dissertation, and for being a voice of reason and a pillar of strength throughout my doctoral study. To my three daughters, Samantha, Sarah, and Amelia Bulman, I hope I have instilled in you the love of learning and the courage to dream big. Unlimited opportunity awaits those who dare to dream.

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Chapter 1: Introduction to the Study

Introduction

The current generation of children is growing up in an era when mobile devices are normal parts of daily communication and interaction (Buckingham, 2008). Modern families are spending more time indoors with multiple electronic devices (Rideout & Hamel, 2006) and less time interacting face-to-face in outdoor settings (Clements, 2004). A market research study investigating technology ownership and usage by children aged 3 to 18 years reported that 78% owned mobile phones, 23% had personal tablets, and 93% had laptop or computer access (Grunwald Associates, 2013). Children were reported to use mobile devices to go online, either daily (60% of the time) or weekly (93% of the time), with 87% using them at home and 63% at school (Grunwald Associates, 2013). These trends indicated that children are owning their first personal mobile devices at a younger age, and that there is a growing reliance on using mobile devices to stay connected (Livingstone, 2014). This raises the question of how mobile devices are changing the progression of social relationships and the nature of peer interaction in the digital age.

The implications of owning a personal mobile device at a young age are currently being studied extensively across Europe (Livingstone, 2014), Australia (Holloway & Green, 2013), Africa (Marais,Van Niekerk, & Von Solms, 2011), Asia (Dor & Weimann-Saks, 2012), and North America (Grunwald Associates, 2013). On the one hand, mobile devices have been found to give users autonomy and independence (Kalogeraki & Papadaki, 2010), foster a sense of belonging (Quinn & Oldmeadow, 2013), provide

opportunities for global learning and collaboration (McPake, Plowman, & Stephen, 2010), and create a platform for initiating social change (Allen, Wicks, & Schulte, 2013). On the other hand, mobile devices have been documented to increase the likelihood of engaging in high risk and socially destructive behaviors, such as underage smoking, drinking, speeding, and substance abuse (Carson, Pickett, & Janssen, 2011; O'Keeffe & Clarke-Pearson, 2011), and cause socioemotional distress (Ey & Cupit, 2011; Holloway & Green, 2013; Li et al., 2013; Pea et al., 2012).

Parents acknowledge the importance of adopting mobile technology in order to function in the 21st century, but many are confused by the conflicting information available in the media about the benefits and perils of mobile devices (Chaudron, 2015). Parents reminisce about the times when mobile devices were not around and compare their childhood experiences to the screen-heavy and device-laden reality of children in the digital age (Brown, 2008). This is causing a generational divide between parents and children (Booth, 2010). According to Booth (2010), although the developmental progression into adulthood remains the same, the environments in which the socialization processes unfold for children in the digital era are markedly different from their parents' environments. Children are growing up in a ubiquitous digital environment with a different set of social conventions and developmental challenges, which make children feel that parents do not understand the reality of living in a digital age when parents limit their access to mobile devices (Buckingham, 2008), whereas parents are concerned that children are growing up with poor social skills, superficial relationships, and unhealthy obsessions or addictions to mobile devices (Al-Khaddam, 2013; Booth, 2010; Drusell,

2012; Turkle, 2011). In the present study I examine how social development is affected by the way mobile devices are currently being used, which could potentially bridge the digital divide between parents and children of the 21st century. By exploring parental perception of mobile device usage and how it affects social competency, the present study contributes to the literature on the positive and negative effects of mobile devices, which should address the dichotomy that currently exists between parents and children about the effects of mobile device usage on social development.

Chapter 1 begins with a summary of research literature related to mobile device usage and its impact on social development, followed by a clear articulation of the gap that currently exists in mobile technology research and a statement of the research problem that was addressed by the present study. The research questions and hypotheses are presented alongside the methodology that was used to test them. Chapter 1 culminates with a description of the theoretical framework and a definition of all the terms used in the study, as well as assumptions, limitations, scopes, and delimitations of the study. This chapter ends with potentially significant contributions that the present study hopes to make.

Background

Over the years, mobile devices have grown to become indispensable multipurpose instruments and an extension of the physical, psychological, and social selves (Brown, 2008) to the point where some users have reported that they cannot function in their daily lives without mobile devices (Holloway & Green, 2013). However, with the range of portable and wearable devices, such as Apple watches and Bluetooth headphones,

available on the market, the focus of research is turning to how purposes of use are also evolving in the mobile device domain and their impact on different constructs of psychological well-being, including competencies (Ohannessian, 2014), adjustment (Black, Schiege, & Bull, 2013; Carson et al., 2011), socialization (Al-Khaddam, 2013; Kalogeraki & Papadaki, 2010), and dealing with life challenges (Drusell, 2012; Underwood, 2011).

The continuous presence of mobile devices has resulted in an exponential increase in Internet use (Huang, 2010), the preference for mobile communication (Keller, 2013), earlier exposure to social media (Livingstone, 2014), and underage access into social networking sites (SNS) (Quinn & Oldmeadow, 2013). Mobile communication in digital environments is vastly different from face-to-face communication. Mobile communication enables users to keep an emotional distance by hiding behind texts, posts, or tweets, and to project illusory images of their choice. In the interview on conflict resolution with college students, Drusell (2012) noted that adolescents prefer to use text messages and SNS to resolve friendship problems instead of meeting face-to-face to talk things out, because it is easier and less personal.

According to the Schramm model of communication (1971), people regulate their emotions based on the responses they receive from the social partner they are communicating with. However, without access to nonverbal cues, mobile device users might not be aware of the true feelings and intentions of other users. This partiality towards mobile communication is distressing parents who worry about raising a

generation of technologically advanced children with poor social competency (Rowan, 2010).

Social competency is the ability to communicate and relate to others, commonly characterized by the knowledge of social norms and conventions, such as eye contact, turn taking behavior, facial expressions, and culturally acceptable behaviors (Katz & McClellan, 1997). Social competency has been associated with emotional regulation, psychological wellbeing, academic achievement, and future job success (Blandon, Calkins, Grimm, Keane, & O'Brien, 2010). Children with good social competency are able to compromise in conflicts, navigate through social challenges, and collaborate with others (Ladd, 1999). Developmental psychologists have documented that children develop social competency as they interact and communicate with peers and adults (Berk, 2012; Dubois & Felner, 1996; Kokkinos, Kakarani, & Kolovou, 2015). Although it may be true in face-to-face interaction, less is known about how children develop social competency in the digital age when a majority of their interactions happen in SNS or through mobile communication.

Booth (2010) noted that personal ties and a sense of connectedness are weaker in SNS when compared to face-to-face interaction. To investigate the premise further, Al-Khaddam (2013) asked female college students how Facebook changed their interpersonal communication skills. The students admitted that Facebook reduced their desire for face-to-face communication with other students (Al-Khaddam, 2013). However, not all extant research found negative effects in SNS. Quinn and Oldmeadow (2013) asked 443 children aged 9 to 13 years about the friendship benefits of using SNS

and found that the sites helped foster a sense of belonging in the preadolescent population. Similarly, Antheunis, Schouten, and Krahmer (2014) found that frequent interaction in SNS improved the quality of friendships among adolescents, because the site allowed users to create a safe space to discuss friendship issues. The positive effect is further corroborated by Vodanovich (2014), who explored the social competency of active SNS users from Singapore, New Zealand, and the United States. Vodanovich (2014) reported that adolescents who are able to form relationships and express themselves through SNS have high levels of social competency.

The pervasiveness of mobile devices has also resulted in an escalation of Internet use among children (Huang, 2010). A recent report from the European Commission Kids Online (Chaudron, 2015) showed that 35% of children aged 3 to 4 years and 87% of children aged 5 to 7 years accessed the Internet every day. Ten percent of children aged 8 to 11 years were aware of the high frequency and reported being concerned about spending too much time on the Internet (Ofcom, 2015c), and nearly 30% admitted that they spend too much time on social media (Ofcom, 2015a). Despite the concerns, Ofcom (2012, 2015c) reported that the amount of time children spend on the Internet had doubled by 2015 compared to 2012, which shows that children are not able to manage and regulate the time they spend online. Furthermore, Quinn and Oldmeadow (2013) reported a rising number of children in SNS even though they have not reached the minimum age required to open an account. Livingstone, Ólafsson, and Staksrud (2013) attributed the underaged access to the lack of structure in enforcing age restriction rules and the lack of parental monitoring of digital use at home. O'Keeffe and Clarke-Pearson

(2011) reported that a majority of parents are not monitoring their children's digital activity and mobile device usage, which puts children at risk of viewing inappropriate material (Black et al., 2013), developing irresponsible digital habits (O'Keeffe & Clarke-Pearson, 2011), participating in risky social behaviors (Moore, Barr, & Johnson, 2013), and increasingly problematic Internet addiction (Li et al., 2013). As primary caregivers, parents play an important role in monitoring and regulating mobile device habits and practices, but researchers have paid limited attention to the role of parents in influencing mobile device usage (Olafsson, Livingstone, & Haddon, 2014).

Turkle (2015) expressed concern that parents have been cultivating unhealthy digital habits in children by being absorbed with their mobile devices during family time. Parents need to model and teach positive digital habits, because children do not yet have the developmental readiness to control the amount of time they spend on their mobile devices (Marais, 2012), the understanding of how to make socially acceptable decisions in a digital environment (Supsakova, 2015), or the knowledge of how to meaningfully use digital resources to their advantage (Bloemraad & Trost, 2008). Allen et al. (2013) investigated what motivated a group of youths to use SNS to take sociopolitical stands and found that those youths had parents with strong political ideologies who shared their passion with their children and modeled how to mobilize large groups of people to take social action. Children develop responsible digital habits from observing and emulating adults in their social environment (Kozulin, 2012). As such, children who see their parents constantly using mobile devices will similarly spend more time on their devices (Turkle, 2015).

Problem Statement

The current generation is the first generation of children growing up with mobile devices from birth (Radesky, Schumacher, & Zuckerman, 2015); hence, no empirical longitudinal data exist on the long term effects of mobile device usage on children's development. A review of the literature on both mobile devices and social interaction practices indicated that, although mobile communication is becoming more prominent, what is not known is the extent to which social competency is affected by the way mobile devices are being used.

It should be noted that even though easy access to mobile devices is enabling children to explore the Internet for longer periods of time, at younger ages, and in more diverse ways (Livingstone, 2014), the latest scientific and technical report published by the European Commission Joint Research Center showed that a large percentage of studies on mobile devices has been conducted mostly with the adolescent population (Chaudron, 2015).

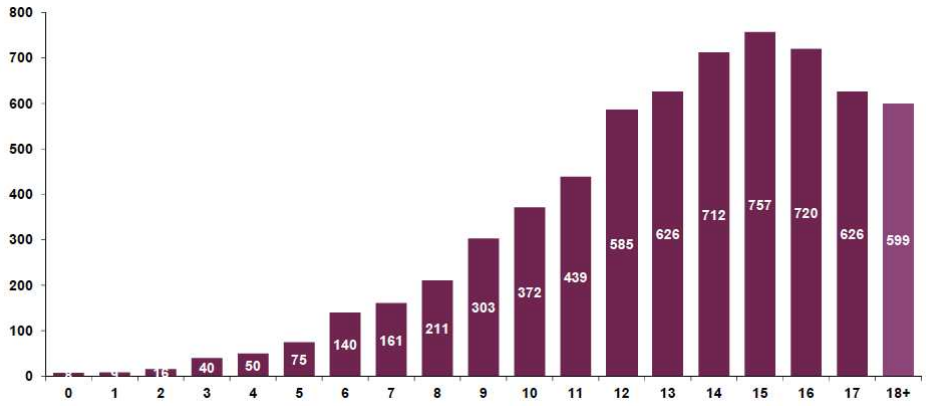

Figure 1. *Number of studies conducted in European countries for children between the ages of 0 to 18 years.*

As Figure 1 illustrates, there is an imperative need for research to encompass the early and middle childhood stage, especially because the age of first Internet use is rapidly descending (Greenfield & Yan, 2006). Furthermore, developmental psychologists documented that children develop social competencies during the early and middle childhood stage (Berk, 2012). Chaudron (2015) noted that mobile device research with young children has been scarce due the challenge of collecting reliable first hand data from children themselves; hence, data on mobile device habits and practices of young children have been collected through secondary accounts, such as parental report, naturalistic observation, and thematic analysis of interviews with primary caregivers.

Parents play an important role in modeling, monitoring, and regulating mobile device usage to ensure it is done in an appropriately meaningful way. However, research on parental monitoring so far has focused more on strategies parents can use to monitor, limit, and regulate online activities (Clark, 2013; Livingstone & Helsper, 2008), and less on how parental monitoring affects psychosocial outcomes.

To summarize, a main limitation of extant research is that, although parents are becoming increasingly concerned with the extensive use of mobile devices by children, to date, no researchers have looked into children's mobile device usage to examine its effect on the development of social competency. Secondly, only a small percentage of studies on mobile devices has been conducted with early and middle childhood children. Thirdly, the role of parental monitoring, in assisting or diminishing social competency, has yet to be determined.

Purpose of the Study

Without analyzing the various ways children use their mobile devices, it is hard to establish whether mobile device usage will ultimately support or hinder the development of social competency. As such, the present study had two purposes: (a) to examine the extent to which mobile device usage affects the social competency of children as perceived by their parents; and (b) to explore the role of parental monitoring in moderating the relationship between perceived mobile device usage and social competency.

Research Questions and Hypotheses

The present study aimed to address the following research questions:

Research Question 1: Is there any relationship between parental perception of mobile device usage and parental report of children's social competency?

$H_0$1: There is no statistically significant relationship between parental perception of mobile device usage and parental report of children's social competency.

H_a1: There is a statistically significant relationship between parental perception of mobile device usage and parental report of children's social competency.

Research Question 2: Is there any relationship between parental report of children's social competency and parental monitoring?

$H_0$2: There is no statistically significant relationship between parental report of children's social competency and parental monitoring

H_a2: There is a statistically significant relationship between parental report of children's social competency and parental monitoring.

Research Question 3: Does parental monitoring moderate the relationships between parental perception of mobile device usage and parental report of children's social competency?

$H_0$3: Parental monitoring will not statistically significantly moderate the relationships between parental perception of mobile device usage and parental report of children's social competency.

H_a3: Parental monitoring will statistically significantly moderate the relationship between parental perception of mobile device usage and parental report of children's social competency.

Theoretical Framework

The first theoretical framework for the present study was the social-constructivist theory (Vygotsky, 1978), which stated that children develop their personal constructs through interacting with others in a group setting. Central to the social constructivist theory was the idea that children develop social competency through social interaction, whether it is in a physical realm or a digital environment. Children in the digital age are growing up in a reality in which videoconferencing, instant messaging, tweeting, and picture chatting are the norms in social interaction. Thus, mobile devices are becoming indispensable tools that connect children to the social world, remove geographical and temporal barriers, create instant global access and interconnectedness, and allow children to develop their personal identities in the digital community. As such, Vygotsky (1978) would argue that mobile communication is strengthening the development of social competency.

The second theoretical framework for the present study was the communicative feedback concept from the Schramm model of communication (1971), which stated that people regulate their responses based on the feedback they receive from the social partner they are communicating with. Social interaction on a digital platform is vastly different from social interaction in the physical realm. The subtle nuances of interaction, such as facial cues, hand gestures, and body language, which are integral aspects of communication, get lost easily in postings on mobile devices. Gauging intentions and devising appropriate feedback can be difficult in mobile communication. Based on Schramm's model, I postulate that children would develop a skewed sense of identity and perception of others if a large proportion of their interactions take place on the digital environment. For example, children may attribute their social circle to the number of friends they have on SNS and attach their self-worth and emotional wellbeing on quantity of online friends instead of quality of interaction. According to Schramm, mobile device usage will weaken the development of social competency.

Nature of the Study

Without analyzing children's use of their mobile devices, it is hard to establish whether mobile device usage will ultimately support or hinder the development of social competency. As such, the present study had two purposes: (a) to examine the extent to which mobile device usage affects the social competency of children, as viewed by the parents; and (b) to explore the role of parental monitoring in moderating the relationship between perceived mobile device usage and social competency.

A nonexperimental cross-sectional quantitative research design was chosen to examine the relationship between perceived mobile device usage and parental report of children's social competency. In addition, the role of parents in monitoring and regulating mobile device usage was explored. As such, there were two independent variables in the present study, namely parental perception of mobile device usage and level of parental monitoring. The dependent variable was parental report of children's social competency. While some studies have found positive correlation between social use of mobile devices and social competency (Antheunis et al., 2014; Quinn & Oldmeadow, 2013; Vodanovich, 2014; Wang, Jackson, Gaskin, & Wang, 2014), no study has established any relationship between parental monitoring and social competency. Hence, parental monitoring served as a moderating variable in the present study. Age and gender of children were used as control variables because: (a) past research has found gender differences in social maturity (Devitt & Roker, 2009; Quinn & Oldmeadow, 2013; Tobola, 2009), and (b) as children get older, the way they use mobile devices changes and evolves (Chaudron, 2015).

Data on perceived mobile device usage were collected by asking parents to fill out a Likert scale questionnaire on how frequently their children use their mobile devices for various purposes. The Parental Mediation of Young Children's Internet Use (Nikken & Jansz, 2014) was used to measure the extent to which parents supervise and monitor their children's digital activity. Social competency was measured using the Devereux Student Strength Assessment (DESSA), a rating scale measuring social-emotional competency in students from kindergarten to 8th grade (Naglieri, LeBuffe, & Ross, 2013).

Parents were recruited through flyers posted on community bulletin boards, online parent groups, and SNS advertisements. The flyers included a link to a research website set up for the present study. Putting all the information about the dissertation research in the website allowed participants to be well informed and fully aware of the commitment that was required as part of the study. The results of the present study were also published on the website.

Pearson's product moment correlations were used to determine the strength and direction of: (a) the relationship between parental perception of mobile device usage and parental report of children's social competency; and (b) the relationship between parental monitoring and parental report of children's social competency. A moderated regression analysis was used to check for the moderation effect of parental monitoring on the relationship between perceived mobile device usage and social competency.

Definition of Terms

Digital interaction: This term refers to any social interactions taking place in a digital or online environment through social media updates, texts, and picture chats.

Face-to-face interaction: This term refers to any social interaction and communication that takes place in a real life environment between two or more individuals.

Mobile device: This term refers to any portable computer that allows users to access information wherever they are, including but not limited to mobile phones, smartphones, tablets, laptops, MP3 players, e-book readers, and/or portable gaming devices.

Parental perception of mobile device usage: This term refers to the parental view of the way children use their mobile devices, such as doing Internet searches, working on school projects, texting, blogging, picture chatting, playing games, listening to music, watching videos, telling time, setting alarms, taking pictures, using the navigation system, and other daily activities.

Parental monitoring: This term refers to various practices through which parents supervise and regulate their children's digital activity.

Social competency: This term is defined as the ability to communicate and relate to others, commonly characterized by the knowledge of social norms and conventions, such as eye contact, turn taking behavior, facial expressions, and culturally acceptable behaviors (Katz & McClellan, 1997)

Social networking sites: This term refers to any digital platform designed to build social relationships or networking opportunities between people who share similar interests, backgrounds, and/or real-life connections. Social networking sites are often abbreviated as SNS. Some sites that are currently popular for social networking are Facebook, Flickr, Instagram, Snapchat, Goodreads, LinkedIN, and Pinterest (Steeves, 2014).

Assumptions

It was assumed that the willingness of the participants to volunteer in the present study would not bias the study and that only parents with children who have their own mobile devices would participate in the study. It was also assumed that parents would have reliable knowledge of the way their children used their mobile devices and would

complete the questionnaires truthfully and to the best of their ability. Based on the study by Nikken and Jasnz (2011), who noted increasing monitoring and mediation practices among parents of young children, the present study assumed that parents do practice some level of monitoring over their children's digital activities. These assumptions were necessary because compliance cannot be guaranteed.

Scope and Delimitations

The scope of the present study was limited to the way perceived mobile device usage affected social competency; thus the results should not be generalized to other psychosocial outcomes. These aspects of the problem were chosen because past research indicated that the ubiquity of mobile devices affected communication styles (Al-Khaddam, 2013), interpersonal relationships (Mikami, Szwedo, Allen, Evans, & Hare, 2010; Wang et al., 2014), and conflict resolution skills (Drusell, 2012).

Data collection was delimited to North American children between the ages of 5 and 12 years who personally owned their mobile devices. Because the sample was chosen purposefully instead of through random selection, the results of the study should only be applied to children who have their own mobile devices and not generalized to the larger population of children who share their mobile devices with other family members. In addition, because other variables not identified by the present study may have contributed to the perceptions that parents have of the social competencies of their children, the present study recommends that the results should be interpreted with caution.

Limitations

The present study focused on exploring the relationships between perceived mobile device usage and social competency. Due to the cross-sectional and correlational nature of the study, causation could not be established. It was not possible to utilize an experimental research design in the present study, because it was impossible to obtain a naïve population of children who had never encountered or used mobile devices or to recruit children who would agree not to use their personal mobile devices for an extended period of time. Hence, a correlational design was still deemed to be the most appropriate design despite its limitations, because the intention of this study was to determine if a relationship existed between the way mobile devices were being used and the development of social competency.

Internal validity is weaker in nonexperimental correlational studies compared to experimental studies, because correlational studies cannot be used to determine two-way directional relationships. Without doing a longitudinal study, there is no way to ascertain that perceived mobile device usage is the only variable affecting social competency, and vice versa, there is no way to establish that a person's level of social competency determines the way one uses his/her mobile devices. Additionally, there could be other extraneous variables that can affect one's level of social competency, such as personality, family background, or cultural values. To reduce the influence of extenuating variables, the present study used age and gender as control variables.

Because data were collected from parental reports, there is also potential for parental bias and error in reporting their children's mobile device activity. To mitigate

reporting error, data were only collected from parents of children who own a personal mobile device. Parents who are unsure of their children's mobile device usage could check the archived history of web browsing or view the types of apps that are frequently used on the personal mobile devices. Social desirability bias refers to the instinctive tendency to provide socially acceptable answers that may not be entirely accurate (Holgraves, 2004). To reduce social desirability bias, data on perceived mobile device usage, parental monitoring, and children's social competency were collected via an online questionnaire that parents could fill out at their time and place of convenience. In terms of external validity, the generalizability of this study might be limited to comparable populations of children between the ages of 5 and 12 years living in a suburban area of a multicultural city.

Significance of the Study

Theoretical Significance

Mobile devices have become an inextricable part of modern society (Buckingham, 2008). Because their presence will only grow exponentially, it is important for the field of psychology to investigate the impact of mobile technology on physical, social, and emotional development. There are opposing theoretical viewpoints on whether social competency manifests itself similarly in digital interaction as it does in face-to-face interaction. According to the social constructivist theory (Vygotsky, 1978), all interaction will strengthen social competency, irrespective of whether it is happening through a digital or a physical medium. In contrast, based on the Schramm model of communication (1971), social competency will be impeded in digital environments

because meaningful elements of communication, such as tone, body language, and facial gestures, are missing. On a theoretical level, the present study is important, because it will support either the Schramm model or the Vygotsky theory. If the results of the present study show that perceived mobile device usage correlates positively with parental report of children's social competency, then that supports Vygotsky's theory, which means children follow the same developmental progression in social competency in both the digital and face-to-face environments. In contrast, if the present study finds a negative correlation between perceived mobile device usage and parental report of children's social competency, then that means mobile communication could not substitute for face-to-face communication, per Schramm's model.

Practical Significance

On a practical level, the present study was important because the findings might indicate that it is important for parents to take proactive measures in monitoring the way children use their mobile devices, because it may affect the development of social competency. The present research has considerable implications beyond the individual level. Health agencies and educational institutions can also benefit from the results of the present study. Health professionals can use the findings of the present study to promote the importance of making balanced life choices that include a range of indoor and outdoor activities. Educational institutions can develop media literacy programs to teach children to use their mobile devices in a responsible manner, in order to prevent frequent mobile device usage from impeding the development of social competency.

Positive Social Change Implication

On a societal level, the present study could bring about social change by bridging the digital divide between adults and children of the 21st century. By noting the way children use their mobile devices, parents will realize the enriching and empowering potential of mobile devices. The realization will mitigate the generational gap and the tension that currently exists about irresponsible technology use. Adults often forget that children in the digital age are born into a world with constant Internet connection; hence, they do not see the distinction between an online and an offline world and transition seamlessly between the physical and the digital realms. The results of the present study would alleviate the misconceptions parents may have regarding mobile device usage and its effects on social development.

Summary

Mobile device use has been widely researched within the educational and developmental psychology domains. However, despite the popular interest in this topic, there was insufficient research in understanding how its usage can impact the development of social competency, and parents are growing increasingly concerned that children in the digital age are growing up without the skills and the abilities to circumnavigate real life social situations. In addition, the role of parents in assisting or diminishing social competency has yet to be determined. As such, the purpose of the present study was to examine the extent to which perceived mobile device usage affects the social competency of children, as viewed by the parents, and to explore the role of parental monitoring in moderating the relationship between perceived mobile device

usage and social competency. An in-depth review into the various ways mobile devices are presently being used and how they may enhance or limit the development of social competency and other related psychosocial outcomes was outlined in the next chapter.

Chapter 2: Literature Review

Introduction

Parents are becoming increasingly concerned with the extensive use of mobile devices by children and the effects mobile devices have on different constructs of social and psychological wellbeing (Rowan, 2010). New technological advances in mobile, portable, and wearable devices are redefining the purposes for which mobile devices are being used by the current generation (Pea et al., 2012; Rideout & Hamel, 2006; Tobola, 2009). The purpose of the this study was to examine the extent to which social development is affected by the way mobile devices are being used by children, as viewed by the parents, especially in relation to the role of parents in monitoring mobile device practices.

The chapter begins with an overview of the way mobile devices are currently being used in the digital age, followed by a discussion on how social development unfolds in a ubiquitous digital environment, especially with the prevalence of personal mobile device ownership at a younger age. The quadripartite model of social competency (Dubois & Felner, 1996) was used to explain how social competency develops in childhood and the psychosocial indicators associated with it. In addition, two social interaction and communication theories, namely the social constructivist theory (Vygotsky, 1978) and the Schramm model of communication (1971), were utilized to illustrate how perceived mobile device usage can either enhance or limit the development of social competency. Research relating to the positive and negative effects of mobile

device usage on social and emotional development was reviewed. With the growing number of researchers who consider the role of parents in influencing children's digital choices and behaviors, I also reviewed research examining parental monitoring and the factors that inhibit parents from monitoring their children's mobile device usage.

Chapter 2 culminates with a summary of empirical and methodological gaps that exist in the literature pertaining to mobile device usage. The chapter ends with implications of past research and its influence on the present dissertation research.

Literature Search Strategy

Empirical research in the area of mobile devices and social competency is scarce in peer-reviewed journals, but a substantial body of knowledge has been accumulated by independent and government research organizations. A search of the literature was conducted through psychology, education, and multidisciplinary databases such as PsycINFO, PsycARTICLES, ERIC, Academic Search Complete, and Thoreau, as well as through EU Kids Online Network, Kaiser Family Foundation, Grunwald Associates Consulting Firm, and Pew Research Center. The list of search terms used to conduct the literature search included *mobile devices, mobile phones, social or interpersonal interaction, face-to-face interaction, online or mobile communication, social networking sites or social media, social competency, parental mediation or monitoring, digital era, digital native, and children*. The articles reviewed for the present study were obtained primarily in digital format due to the recent emergence of the research topic. Multiple books were also used to provide overviews of research on mobile devices.

Mobile Devices in the Digital Age

Mobile devices are portable computers that allow users to access information wherever they are. The original mobile device, the Personal Digital Assistant (PDA), was equipped with a touch screen interface, access to software programs, and wireless networks, which allowed users to take notes, create lists, and store information on the go (Booth, 2010). In tracking the history of mobile devices, Booth (2010) noticed that the PDA was popular despite its limited functionality, because users liked its size, weight, and portability. Over the years, as data storage, processing chips, and display technology became more advanced, mobile devices maintained the same physical specifications, but technology developers started equipping them with technology similar to personal computers, which enabled users to do activities that were traditionally done with desktop computers (Booth, 2010). Later, as wireless networks evolved, another class of mobile devices, which combined the utility of a cell phone and a PDA, called smartphones, emerged (Booth, 2010). Most cellphone companies provided smartphone users with affordable data plans and continuous Internet access (Castells, Fernandez-Ardevol, Qiu, & Sey, 2007).

Smartphones have overtaken laptops as the most popular type of mobile devices (Grundwald Associates, 2013; Nielsen, 2014; Ofcom, 2015a; Pew Research Center, 2013; Steeves, 2014). Ofcom (2015a) reported that, in the United Kingdom, 90% of the young adult population now owns a smartphone, followed by 66% of the middle adulthood population and 50% of the late adulthood population. In a national survey of adolescents across the United States, the Pew Research Center (2013) reported that 78%

owned mobile phones, half of which were smartphones with Internet access, and 23% had personal tablets. Grundwald Associates (2013), which conducted a market research project investigating technology ownership and usage of children aged 3 to 18 years, reported similar findings. Age group was found to influence the types of mobile device preferences: 12 to 15 year-olds reported to prefer using laptops, MP3 players, and iPod touches; 6 to 11 year olds preferred gaming devices, tablets, and e-readers; and 3 to 5 year olds mostly used their parents' smartphones (Grundwald Associates, 2013).

The statistics on trends in mobile device ownership by various users in the digital age are compiled from surveys conducted by government research bodies, nonprofit organizations, and private multinational companies around the world, such as the European Union Kids Online Foundation (Chaudron, 2015; Haddon & Vincent, 2015; Halloway, Green & Livingstone, 2013; Hasebrink, 2014; Livingstone, 2014; Mascheroni & Cuman, 2014; Ólafsson, Livingstone & Haddon, 2014), the United Kingdom Office of Communication (Ofcom, 2015a, 2015b, 2015c), the Pew Research Center (Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013) , the Kaiser Family Foundation (Rideout, Foehr, & Roberts, 2010; Rideout & Hamel, 2006) , the John D. and Catherine T. MacArthur Foundation, Grunwald Associates LLC (2013), the Media Smart Center in Canada (Steeves, 2014), the Australian Communication and Media Authority (Handsley, McDougal, & Rich, 2015), and the Nielsen Company (2014; 2015). Even though the surveys were collected in different parts of the world, the statistics quoted by the different organizations remain similar, which further reinforces the pervasiveness of mobile devices as a global phenomenon. Extensive data are continually being collected on

mobile device ownership by users of all ages around the world, but the range of portable and wearable devices, such as Apple watches, Google glasses, and Bluetooth headphones, presently available on the market is redefining the purposes for which mobile devices are being used by the current generation (Pea et al., 2012; Rideout & Hamel, 2006; Tobola, 2009).

Different age groups were documented to use mobile devices differently. Young children under eight years of age have been reported to use a wide range of mobile devices for recreational purposes, albeit individually rather than socially, with friends (Chaudron, 2015). Preadolescents reported using mobile devices for schoolwork, playing games, watching video clips, and instant messaging (Ofcom, 2015c). In contrast, adolescents spent less time on gaming and schoolwork and most of their time online on SNS, watching video clips, and instant messaging (Livingstone, 2014). Meanwhile, adults were found to use mobile devices for a wider range of functional purposes, ranging from browsing the Internet, to doing online banking and shopping, sending instant messages, accessing social media, and watching video clips (Ofcom, 2015a).

The advances and prevalence of mobile devices are causing substantial changes in the nature of social interaction and communication. Society, in general, has fully embraced the culture of texting and instant messaging because of its low contact and nondisruptive nature that allows users to pick up conversations and manage relationships with peers at a time that is convenient for them (Vincent, 2014). This chapter will now look into social development in a ubiquitous digital environment, and highlight the evolution from face-to-face to digital interaction

Social Interaction in the Digital Age

A recent longitudinal study documenting differences in online experiences between 2010 and 2014 revealed a major change in access to mobile networks and digital services, which consequently expands the utility of mobile devices (Hasebrink, 2014). Because mobile devices are now equipped with a video camera, music player, electronic calendar, email function, internet browsing capability, global positioning service, and instant social media access, there are unlimited possibilities for the ways mobile devices can be used by different populations and age groups. Mobile devices have been equated to an extension of the physical, psychological, and social selves by some users who professed to not being able to function without their devices (Holloway & Green, 2013). Madden, Lenhart, Duggan, Cortesi, and Gasser (2013) noted that, within the last decade, the trend has also shifted from shared or family-owned mobile devices to personal ownership. This has changed the landscape of peer interaction and the nature of social relationships, from landline to wireless, from voice or print to interactive dimensions, and from face-to-face to digital platforms (Brown, 2008). In tracking personal mobile device usage among European children, Livingstone (2014) found that one third of 9 to16 year olds used their mobile devices to go online daily, with 87% using them at home and 63% at school, which indicated a growing reliance on mobile devices to stay connected at a younger age. Market research also showed that children started owning their first personal mobile devices at around age eight (Grunwald Associates, 2013; Ofcom, 2015c; Steeves, 2014). Furthermore, the time spent on mobile devices has more than doubled compared to a decade ago (Ofcom, 2015a).

Modern day families are spending more time indoors with multiple electronic devices and less time interacting face-to-face in outdoor settings (Rideout & Hamel, 2006). In the United States, Clements (2004) surveyed over 800 mothers to document the differences in outdoor play between the present and when they were children. Interestingly, Clements (2004) found that present day children were spending more time indoors and associated outdoor play with organized sports. Interviewed mothers were aware of the discrepancy and its negative effect, but were more concerned about crime rates, possible injury, and safety factors. Similar results were found with older children and young adults (Royal Australasian College of Physicians, 2004). Around the same time, Wridt (2004) conducted a three year historical analysis study of the experiences of children in New York City and found similar patterns of retreat to indoor play dominated by electronic media and institutionalized outdoor experiences. All three studies were done around the time when Web 2.0 emerged. To see if a similar preoccupation to indoor electronic pursuits continued, a few years later, Keeton and Kennedy (2009) reviewed the trend in physical activity and sedentary lifestyle among children and found a positive correlation between obesity rate, screen time, and time spent indoors. Because all the studies highlighted how the shift to digital interaction was affecting the health and physical development of children, researchers in the past decade began to investigate if digital interaction was also affecting communication styles (Al-Khaddam, 2013), interpersonal relationships (Mikami, Szwedo, Allen, Evans, & Hare, 2010; Wang, et al., 2014), and conflict resolution skills (Drusell, 2012).

In lieu of lengthy conversations, the digital age generation has been found to engage mostly in quick and frequent communications mediated through social media updates, texts, and picture chats (Drussell, 2012). Developmental psychologists documented that, as children interact and communicate face-to-face with peers and adults, they are developing interpersonal skills, the ability to resolve conflicts, and strategies to regulate their behavior and emotions (Berk, 2012; Dubois & Felner, 1996; Kokkinos, Kakarani, & Kolovou, 2015). However, digitally mediated communication enables users to keep an emotional distance by hiding behind texts, posts, or tweets, and projecting illusory images of their choice. Without access to nonverbal cues, audiences might not be aware of the true feelings and intentions of the users. Because digital interaction lacks the complexity of real life social situations, there is a growing concern that children who spend more time interacting with their peers in the digital realm may not develop the necessary skills and competencies to circumnavigate social situations in real life settings (Turkle, 2011).

Apart from the increase in personal mobile device ownership and preference for short truncated interaction, Keller (2013) postulated that the preference towards mediated communication instead of face-to-face interaction could be attributed to the popularity of SNS. According to the Media Industry Fact Sheet, an estimated 93% of Americans aged 15 or older are active Internet users, and the time spent on SNS in 2010 had increased 277% compared to the 2006 statistics (The Nielsen Company, 2015).

Turkle (2015), a social psychologist and Massachusetts Institute of Technology professor, raised concerns about the vicious cycles of undervaluing human interaction

that parents create when they give young children their own mobile devices. Imagine this scenario: parents are busy on their own phones, so they ignore their children. Because children cannot get their parents' attention, they take refuge in their own devices. Parents use their children's absorption with their devices as permission to have their phones out as much as they wish. Turkle (2015) argued that the submission to digital technology results in the death of family conversation and noted that it is becoming more common to see a family sitting together for dinner in a restaurant but not communicating with each other, because they are too absorbed in their own mobile devices.

Although children go online more, at a younger age, and in more diverse ways, the impact of perceived mobile device usage on the social development and behavior of children is relatively unknown, because this is the first generation of children growing up with mobile devices from birth (Radesky et al., 2015). Even though the developmental progression into adulthood remains the same, the environments in which the socialization processes unfold for children in the digital era are markedly different. Children are growing up in a ubiquitous digital environment with a different set of social conventions and developmental challenges. Consequently, parents, educators, and health professionals are worried about the pervasive use of mobile devices and question the effects of ongoing usage on social development, especially as interaction shifts from face-to-face to the digital domain (Rowan, 2010). Current trends in the extensive use of computers and mobile devices by children warrant the need for continued research into how they are using their personal mobile devices and how spending considerable time in a digital setting impacts different constructs of their psychological well-being, including

competencies (Ohannessian, 2014), socialization (Al-Khaddam, 2013; Kalogeraki & Papadaki, 2010), and dealing with life challenges (Drusell, 2012; Underwood, 2011). This chapter will now delve into how the development of social competency in the digital environment is affected by perceived mobile device usage.

The Development of Social Competency

Over the years, researchers have tried to construct a definition for social competency. Katz and McClellan (1997) defined social competency as the ability to communicate and relate to others, commonly characterized by the knowledge of social norms and conventions, such as eye contact, turn taking behavior, facial expressions, and culturally acceptable behaviors. Instead of focusing on specific characteristics, Bosacki and Astington (1999) took a broader approach and defined social competency as the ability to engage effectively in social interaction, attain relevant social skills to form friendships, and being accepted by peer groups (pp. 238).

There is an ongoing debate in the literature on the construct and developmental progression of social competency. Behavior theorists postulate that social competency is the foundation for efficient social understanding and strong peer communication (Rubin & Rose-Krasnor, 1992). Social competency has been found to correlate positively with emotional regulation, psychological wellbeing, academic achievement, and future job success (Blandon, Calkins, Grimm, Keane, & O'Brien, 2010). Children with good social competency have been reported to collaborate effectively with others, navigate well through social challenges, and were capable of compromising to resolve conflicts (Ladd, 1999). Health professionals allude to social competency as a key component to positive

mental health (Weissberg & Elias, 1993). Social competency was identified as an important predictor of psychological wellbeing and development (Desjarlais & Willoughby, 2010). More recently, cognitive theorists argued that social competency is an advanced form of theory of mind (Astington, 2003). Theory of mind (Premack & Woodruff, 1978) is the ability to understand that other people may have different perspectives, beliefs, and intentions (as cited in Schlinger, 2009). A good indicator that children have fully developed their theory of mind is when they understand complex mental activity that requires the ability to read social context and identify the emotions underlying the situation, such as social faux pas and irony (Bosacki & Astington, 1999). Thus, Astington (2003) postulated that through social interaction, children develop an understanding of the social world and how different people may have different views of a social situation.

In essence, there is a cross-disciplinary agreement that social competency is an important developmental marker, but questions are continuously being asked about its origin and development (Bosacki & Astington, 1999; Ladd, 1999; Weissberg & Elias, 1993). Some of these questions have been answered through empirical research and clinical observations (Astington, 2003; Blandon et al., 2010; Stump, Ratliff, Wu, & Hawley, 2009), but questions on risk and protective factors of social competency are still being explored (Kokkinos et al., 2015).

Quadripartite Model of Social Competency. In the late 90s, following the positive psychology movement, two cognitive behavioral therapists, David Dubois and Robert Felner, developed a theoretical framework to explain social competency. The

quadripartite model of social competency indicated that there are four major components in social competency, namely: (a) interpersonal relationship; (b) social understanding; (c) reciprocal communication; and (d) peer acceptance (Dubois & Felner, 1996). As children interact with peers, adults, family members, and other people in their community, they have an opportunity to develop an understanding of the social world. These interpersonal interactions allow children to learn about effective ways to communicate with others so they become accepted members of the group. By including two additional concepts, namely reciprocal relationship and peer acceptance, into the model, Dubois and Felner (1996) postulated that social competency would only develop when there is a two-way interaction between individuals. It should be noted that the quadripartite model of social competency was developed based on face-to-face social interaction (Dubois & Felber, 1996). As such, the mechanism under which social competency develops in a digital setting is unclear (Vodanovich, Shen, & Sundaram, 2015). There are opposing theoretical viewpoints on whether social competency manifests itself similarly in digital interaction as it does in face-to-face interaction. I will now present two communication and interaction theories to illustrate how digital interaction, through mobile devices, may strengthen or impede the development of social competency.

Social Constructivist Theory. The social constructivist theory was developed by the cognitive psychologist Lev Vygotsky (1978). Key to the theory is the tenet that child development is influenced by environmental factors, such as cultural history, social context, and language (Vygotsky, 1978a). Following the premise of social constructivist theory, Kozulin (2012) postulated that mobile devices and information accessed through

the Internet are part of the sociocultural factors that affect development in the digital age. As such, the use of mobile devices should create opportunities for children to interact with each other more frequently and with more ease, compared to having a physical face-to-face meeting. Email, instant messaging, and group chat allow users to have dialogue and continue conversations at their time of convenience. A person can easily join in a discussion and connect with others in the group by following the conversation thread.

Mobile devices remove geographical and temporal barriers, so children in the digital age grow up with a constant connection to the global Internet village without seeing the distinction between the physical and the digital world (Brown, 2008). Consequently, unlike their predecessors who felt the need to have an online persona, children in the digital age interact with each other in the same manner whether they are online or offline (Bittman, Rutherford, Brown, & Unsworth, 2011). They live their lives publicly and construct their personal identities by sharing their passions and interests in the digital community through SNS (Brown, 2008). In line with the premise that children would develop their personal constructs as they interact with one another in a group situation (Vygotsky, 1978b), social competency should develop naturally, irrespective of whether the interaction is happening in a physical or digital environment. To conclude, based on Vygotsky's theory, when children use their mobile devices for social interaction, social competency should be positively affected.

On a side note, another key idea in social constructivist theory is the concept of zone of proximal development, which states that children would extend their skills and mastery of content with guidance from adults (Vygotsky, 1978b). Adults, such as parents,

teachers, caregivers, mentors, and community leaders, play an active role in facilitating social development by providing good role models and the necessary scaffolding when needed (Kozulin, 2012). Even though mobile devices and the Internet allow children to learn new things and stay connected with friends and family, children still need help to develop skills to navigate the online world (Narvaez, Panksepp, Schore, & Gleason, 2012). Ofcom (2015b) reported that 20% of children aged 8 to 15 accepted the information they found on search engines as true, without double checking its veracity, and 10% believed that information from social media sites was all true. Most disturbingly, only 31% of the older children (age 12 to 15) were able to identify paid-for advertisements and product placements in search engine results. Although more than half of 12 to 15 year olds were aware that the main source of funding in YouTube is advertising, less than half were aware that video bloggers were paid to endorse products or services (Ofcom, 2015b). As such, there is a need to explore the role parents play in scaffolding their children's knowledge of the social norms and conventions in the digital world.

Schramm Model of Communication. The Schramm model of communication was developed by Wilbur Schramm (1971). The basic premise of the model is that communication takes place when a message is transmitted from sender to receiver through a medium, such as face to face, text, picture, or SNS post. There must be exchangeability and feedback between senders and receivers to ensure that the message has been understood correctly. Schramm (1971) contends that a message is interpreted differently by people depending on their past experiences; hence, communicative

feedback is crucial in reducing interference and misunderstanding in the message. Using the communicative feedback loops, people regulate their reactions based on the responses they receive from the social partner they are communicating with (Schramm, 1971).

Social interaction in the digital environment is vastly different from face-to-face interaction because the subtle nuances of interaction, such as facial cues, hand gestures, and body language, which are integral aspects of communication, get lost easily in postings on digital platforms (Drussell, 2012). Schramm (1971) pointed out that missing meaningful elements of communication could potentially lead to a breakdown in the communicative feedback loop. In a digital environment, the breakdown could result in difficulties for senders and receivers to gauge intentions and devise appropriate feedback. There is also a big difference between talking face-to-face and texting on the phone. Texting is a detached form of communication that gives users a sense of control over what, when, and where to send their responses (Ling, 2007). In contrast to texting, face-to-face conversation is a complicated form of communication that requires good interpersonal skills, social understanding, and reciprocal communication skills in devising the most appropriate responses (DuBois & Felner, 1996). Consequently, children growing up in the digital age, who have less opportunity to practice immediate reciprocal interactions, will end up developing poor social competency.

The predilection toward mediated interaction is so dominating that the mere presence of a mobile device in a room has been found to affect human interaction. Przybylski and Weinstein (2013) compared two groups of young adults, in which one group was allowed to bring their mobile phones into the experimental room, and the other

group was barred from bringing in their mobile phones. The results showed that having the phones nearby statistically significantly reduced the quantity and quality of conversations, because participants were distracted by the stream of instant updates and messages they received on their phones (Przybylski & Weinstein, 2013). Mobile device users who are constantly distracted will not be able to develop the four main components of social competency postulated by DuBois and Felner (1996): forming strong relationship with others; developing understanding of social norms; practicing reciprocal communication; and gaining acceptance from their peer groups.

There is also a possibility that children might develop a skewed sense of identity and perception of others if a large proportion of their interactions take place on SNS. Turkle (2011) pointed out that children associated the number of online friends and followers they have on SNS as an indicator of social success. However, in reality, these children might not have the skills necessary for face-to-face interaction (Turkle, 2011). Booth (2010) noted that, although SNS are allowing people to become more social and interactive with others, the personal ties and sense of connectedness is weaker when compared to face-to-face interaction. Drusell (2012) interviewed 22 college freshmen on how they resolved conflicts with their friends and found that adolescents preferred to resolve friendship problems digitally, instead of meeting face-to-face to talk things out. When asked about the best conflict resolution method, all participants acknowledged that it was better to resolve conflicts face-to-face. However, they still resorted to using text messages and SNS in solving their conflicts, because it was easier and less personal (Drussell, 2012). Similarly, Al-Khaddam (2013) investigated how Facebook affects

interpersonal communication skills of college female college students and found that it reduced their desire for personal connections with families and friends. Therefore, even though it may seem like children are making more new friends online, the relationships they forge may not be as strongly grounded as face-to-face relationships.

In conclusion, based on Schramm's model, when children use their mobile devices for social interaction, social competency would be negatively affected because interactions are diluted in a digital environment. The proposition from the Schramm model is in direct opposition to the proposition derived from Vygotsky's theory.

This chapter will now present research relating to the positive and negative effects of continuous mobile device usage on the development of social competency. The social constructivist theory and the Schramm model of communication will be used as the theoretical context to review the empirical findings of the research.

Positive and Negative Effects of Mobile Device Usage

The educational benefits of using mobile technology to enhance teaching and learning processes in school are well documented (Hoffert & Moon, 2012; Ganesh & Middleton, 2006; Lin, 2012; Sadik, 2008; Wang, Wu, Hsu, & Hua, 2012). However, there are also recognized dangers associated with mobile device overuse, especially because mobile devices have become the primary source of recreational activities for young children (Chaudron, 2015). As was the case with television in the past, mobile devices have now received the negative connotations of being a babysitting or distraction tool (Radesky et al., 2014). A meta-analytical research study on television and video viewing has established that increased screen time negatively affects the development of

language and social skills for young children, because they cannot learn from the television medium as well as they can from real-life interactions (Wilson, 2008). Even though the ubiquity of mobile technology has led to speculations that increased mobile device time would also result in similar effects (Bittman et al., 2011; Haddon & Vincent, 2015; Madden et al., 2013), much remains unknown about the impact that mobile devices have on the development and behavior of children, because the technology has not been around long enough for longitudinal data to be collected.

Empricial Review of Mobile Device Usage

The following section synthesizes the empirical findings from a collection of qualitative and quantitative research studies that highlight the positive and negative effects of continuous mobile device usage on the development of social competency. It should be noted that the limited number of studies that do exist on this topic is dispersed across various age groups and is fragmented around different types of mobile devices (Hasebrink, 2014; Livingstone, 2014; Mascheroni & Cuman, 2014). Moreover, mobile device researchers are also interested in a range of different social outcomes related to social competency; for example, how mobile devices can be used to increase levels of independence (Underwood, 2011), facilitate social interaction (Kalogeraki & Papadaki, 2010), or incite social change (Allen et al., 2013), and how mobile devices can also create distractions (Fox, Rosen & Crawford, 2008; Radesky et al., 2014) or heighten online risks (Ey & Cupit, 2011).

Independence. The Australian Council for Educational Research funded a research project investigating the independent mobility that children have once they own

a mobile phone (Underwood, 2011). Underwood (2011) surveyed 809 children between the ages of 8 and 12 in Victoria and found that three quarters of children who owned a mobile phone were allowed to play outside (70%) and use public transport (61%) without adult supervision, whereas less than half of the children with no mobile phone were allowed to go outside by themselves. In their focus group study on factors that impede or facilitate outdoor play in Bristol, Brockman, Jago, and Fox (2011) noted that parents feel safer in allowing outdoor play when their children bring a mobile phone, because parents can keep in touch with their children at any time, and the children had a means to call for help in case of emergency. In Greece, Kalogeraki and Papadaki (2010) also found a statistically significant correlation between adolescents' mobile phone usage and sense of emancipation ($r = .33$, $p<.01$). Kalogeraki and Papadaki (2010) predicted that having a mobile phone would accelerate the emancipative process from adolescence into adulthood in the digital age, because children are exposed to digital interaction with a wider social network ($\beta = .44$, $p< .001$) and are given more opportunities for independence ($\beta = .25$, $p< .001$) at a much younger age. Therefore, both qualitative and quantitative studies quoted above demonstrate that access to mobile phones increases independent mobility. Following the principle of social constructivist theory, the growing mobility and increased sense of independence would allow mobile phone users to stay connected to and expand their social circles, which further nurtures the development of social competency (Bodrova & Leong, 1996).

Interactions. Even though mobile phones have the potential to widen the opportunities for social interactions and networking in the digital age, a group of

researchers from Keio University, who conducted a series of ethnographic studies looking into mobile phone use among Japanese youth in the last decade, found an opposite outcome (Ito, Okabe, & Matsuda, 2005). Ito (2005) analyzed 24 communication diaries, which documented the way mobile phones were adopted and integrated into the daily life of Japanese high school students, and found that young people in Japan used their mobile phones exclusively with friends within their social circle. From interviewing six groups of university students regarding mobile phone usage publicly vs. privately, Matsuda (2005) corroborated Ito's findings, stating that young people used mobile communication mostly with those whom they already had close personal relationships with. Miyata (2006) looked into the longitudinal effects of mobile device usage on social networking practices in Japan and found that participants who were active in SNS used them to maintain social ties and provide social support for pre-existing friends. Likewise, Geser, Kesia, and Trench (2006), who surveyed young adults in Switzerland, recorded similar findings of restricted mobile interaction ($r = .19$, $p<.05$ for family and $r = .17$, $p<.05$ for friends). A more recent study by Kalogeraki and Papadaki (2010) with Greek adolescents also found that mobile phones are mostly used to stay connected and provide social support to friends ($r = .48$, $p<.01$) and families ($r = .21$, $p<.01$). As such, the positive effects of mobile device usage in promoting social competency, as espoused by the social constructivist theory, may not extend to mobile phone users who limit their digital interaction to close friends and family members only.

Distractions. The prevalence of smartphones has ushered in a new era of distracted parenting (Radesky et al., 2014, Handsley, MacDougall, & Rich, 2015).

According to the Center for Disease Control and Prevention (CDC), parental distractibility due to mobile device usage is to blame for the increase in unintentional childhood injuries (Radesky, Schumacher, & Zuckerman, 2015). Using a nonparticipant observational method, Radesky et al. (2014) observed 55 different groups of parents and young children eating at fast food restaurants in Boston and recorded the frequency of the adults using their smartphones during the meal. They found that 40 out of the 55 caregivers took out their phones or other mobile devices at some point during the meal, and although the majority only used the device briefly, about 40 % of those who took out a device were ignoring their children throughout the entire meal (Radesky et al., 2014).

Using a similar naturalistic approach, Handsley, MacDougall and Rich (2015) observed 50 caregiver-child pairs in New York playgrounds to investigate the level of parental distraction, and found that caregivers were distracted 30% of the time by their smartphones, 33% of the time by talking with other adults, and 11% of the time by other distractions, such as eating, drinking, and reading. Most importantly, Handsley et al. noted that children were more likely to engage in dangerous behaviors, such as throwing sand, walking up a slide, sliding head first and jumping off moving swings, during the time when caregivers were distracted. Unlike Radesky et al (2014) who conducted 10-minute continuous observations of each parent-child dyad, Handsley et al. utilized a 2-minute time sampling in video recording caregiver-child interaction, which increases the internal validity of their study. As pointed out in the social constructivist theory, children develop their understanding of the social world by observing and interacting with others (Vygotsky, 1978). However, if children see that their parents are constantly distracted by

their mobile phones, they will grow up thinking that this fixation with mobile devices is normal behavior and will mimic the behaviors and digital habits of their parents (Handsley et al., 2015).

In looking at how mobile phones can be a source of distractions in a learning environment, Fox, Rosen, and Crawford (2008) compared the reading performances of 161 college students, aged 17 to 20, that were split into two groups. The first group was banned from using their mobile phones, and the second group was allowed to use Instant Messaging (IM) on their phones. Fox et al. found that the IM group took a longer time to read the passage and complete the reading comprehension test (M = 3.82, SD = .05) compared to the non-IM group (M = 3.06, SD = .08), because the streams of instant messages they received on their phones significantly distracted the IM group $F(10, 150) = 4.257$, $p < 0.01$, $R^2 = 0.221$). Additionally, a negative correlation (r = -0.187, $p < .01$) was found between the amount of time spent on IM and the overall reading comprehension scores (Fox et al., 2008). In two studies investigating multitasking and academic performance, Junco and Cotton (2011, 2012) examined a large sample of college students and found that sending text messages and checking Facebook while studying or doing homework significantly interfered with overall Grade Point Average (GPA) scores (F = 12.307, df = 1, 201, $p < .001$). More recently, Lepp, Barkley, and Karpinski (2014) conducted a similar study looking into the effects of calling (N = 496) and texting (N = 490) on the GPA scores of college students. Lepp et al. found that cell phone use and texting were negatively correlated to GPA scores (r =-.203, $p< .001$; r =-.098, $p< .05$ respectively), which confirmed previous research findings that mobile device

usage has a negative effect on academic performance. All the studies above established the distracting power of having a mobile device nearby.

Online Risks. It should be noted that children perceive Internet risks and harm differently. For example, one in eight children got upset when they saw sexual images and received sexual messages online, but they did not report them as harmful, whereas receiving nasty or hurtful messages was less common, but children reported it as harmful (Livingstone et al., 2013). In their qualitative group interview to explore Internet-readiness, Ey and Cupit (2011) found that even though children had an overall understanding of the risks they encountered online, they displayed a degree of naiveté when they were presented with 'real life' Internet scenarios. For example, when asked if they would go to a birthday party or go to the park for a game after being invited by someone they only knew on the Internet, some said 'yes' (Ey & Cupit, 2011, p. 62). In this sense, young children's knowledge about Internet risks may not always result in safe behavior in the digital environment. As proposed by Schramm (1971), the subtle differences between digital and real-life environments could prevent children from correctly identifying and responding to online risks, which would ultimately weaken the development of social competency.

Livingstone (2014) reported that children's concerns about online risks increased extensively from age 9 to 12. Young children are concerned about content risk (violence or pornography), but as they get older, they are more concerned about conduct and contact risk, such as friends taking photos of them without consent and uploading them to inappropriate websites (Livingstone, 2014). In addition, children tend to publish their

private information on their social networking profile without realizing the threats that may come to them from complete strangers who can look at their profiles, because they do not yet have the social understanding or cognitive ability to predict potential future harm (Santisarun & Boonkrong, 2015). Ey and Cupit (2011) further reported that children are unable to identify inappropriate communication, commercialism, and unreliable information on the Internet. In their ethnography research into digital media practices of Australian families, Holloway and Green (2013) confirmed that children are unable to distinguish online commercial content from reliable informational content.

Online risks are very real. However, most children use their mobile devices to access the Internet and social media without being fully aware of its negative effects on physical, social, and mental wellbeing. As pointed out by Vygotsky (1978), adults have the responsibility to guide and scaffold children's understanding of online risks, so parents and teachers need to work together to prepare children for digital harm.

Social Change. Apart from creating new job opportunities, continuous access to mobile devices is also enabling users to create social change without the hindrance of temporal and geographical barriers. Young people from diverse backgrounds use social media and video sharing sites to discover global issues, discuss ideas, analyze past and present solutions, take actions, and critically monitor policy development (Loader et al., 2014). The following study provides a good example of how mobile devices can be used to mobilize political and environmental issues. Allen, Wicks, and Schulte (2013) surveyed 1,096 adolescents, between the ages of 12 and 17, on how they used SNS as a platform to persuade their peers to participate in environmental activism. Allen et al.

discovered that young people who use SNS to raise environmental awareness are those who have personal interests in environmental issues (β =.53, p< .000) and spend time on the Internet reading online news (β =.10, p< .000) to explore ways to help solve environmental problems. However, it should be noted that, because Allen et al. utilized a stratified quota sampling method, the participants came mostly from college-educated, economically affluent, and politically aware White Christian families; thus the results should be interpreted with caution because socially driven and politically active adolescents are more of the exception than the norm.

Past studies have documented that, more often than not, social activists have parents with strong political ideologies who shared their passion with their children and modeled how to mobilize large groups of people to take political action (Bloemraad & Trost, 2008). Similarly, Allen et al. reported that this parent-related variable explained 11% more of the variance in the regression model (ΔR^2 =.105, p =.000**).** In accordance to Vygotsky's (1978) theory and evidence from past studies, the parents in Allen et al's (2013) study were the ones introducing their children to environmental problems, nurturing their environmental awareness, encouraging them to take political stands, and scaffolding their efforts to take environmental actions.

To conclude, empirical reviews of the positive and negative effects of mobile device usage thus far illuminated the need to consider the role parents play in regulating mobile device use, alerting children of potential online risks, and scaffolding children in their effort to develop positive digital habits. This chapter would now explore the

different ways parents can monitor mobile device usage and the barriers that prevent parents from regular monitoring.

Parental Role in Regulating Mobile Device Usage

Empirical review of the literature on mobile device usage indicated an increased awareness of the importance of parental monitoring (O'Keeffe and Clarke-Pearson, 2011). Parental monitoring refers to the diverse practices through which parents try to manage and regulate children's experiences with media and technology (Livingstone, Mascheroni, Dreier, Chaudron, & Lagae, 2015). The European Union Kids Online network identified five mediating strategies that parents can use to manage digital activity and mobile device usage (Livingstone & Helsper, 2008): (a) active mediation, where parents share and discuss their own online activities with their children; (b) safety mediation, where parents advise and guide their children on how to manage online risks; (c) restrictive mediation, where parents use rules to ban inappropriate online activity; (d) technical mediation, where parents use filtering and parental control software; and (e) monitoring, where parents regularly check their children's mobile device content.

Recent research indicated that cross-cultural differences existed in the ways parents monitor and regulate digital activities (Vandoninck, d'Haenens, & Smahel, 2014; Santisarun & Boonkrong, 2015**)**. Clark (2013) reported that American parents preferred having an open discussion with their children. Helsper et al. (2013) found that parents in Ireland and the United Kingdom prefer restrictive mediation, whereas Nordic parents prefer active mediation of Internet use (as cited in Zaman, Nouwen, Vanattenhoven, de Ferrerre & Van Looy, 2016). Vandoninck, d'Haenens, and Smahel (2014) stated that, in

Central Europe, 70% of the parents talk to their children about what they do on the Internet and 58% monitor usage by staying nearby when their child is online.

In the 1990s, researchers concentrated mainly on regulating children's television experiences. However, at present, researchers, policy-makers, and parents have begun to question whether they should be using the same television monitoring strategies to regulate mobile device usage, or whether they need to adopt a more proactive strategy to monitor, limit, and regulate online activities (Livingstone & Helsper, 2008; Clark, 2013). When Haddon and Vincent (2015) compared the differences between monitoring for mobile devices and television, they found that it is harder for parents to manage mobile device usage because of the technological complexity of mobile devices. In the focus group interviews with parents of adolescents, Marais (2012) found three barriers that prevent parents from monitoring children's mobile device usage: (a) the lack of awareness of harmful digital media content; (b) the high cost of third-party monitoring software; and (c) the unfamiliarity with parental control functions in mobile operating systems. Parents also reported feeling outsmarted by their technologically savvy children, who found ways to maneuver around restrictions and monitoring attempts (Mascheroni & Ólafsson, 2014). According to the latest survey by the Office of Communication in the UK, technical mediation using third party software and built-in parental control settings have become more popular and affordable in the past two years, with 30% more parents reporting using them in 2015 compared to 2014 (Ofcom, 2015).

Regular monitoring should not be limited to regulating the frequency and content of mobile device usage. Marais (2012) urged parents to model responsible digital

consumption to children. As pointed out by the social constructivist theory, children construct their understanding of responsible digital habits from observing and emulating adults in their social environment (Kozulin, 2012). As such, children who see their parents constantly use mobile devices will similarly spend more time on their devices (Turkle, 2015). Additionally, because social media use makes up a large portion of screen time, Santisarun and Boonkrong (2015) advised that parents should oversee social networking activities by connecting with their children on these various platforms. By taking an active role in the social networking lives of their children, parents can also monitor trends among their children's peer groups. Parents need to take these proactive measures to protect their children because they might not be developmentally ready to make appropriate social decisions in a digital environment (Supsakova, 2015).

Implications of Past Research on Present Research

Upon reviewing the existing literature on mobile devices and social development, I was able to identify empirical and methodological gaps pertaining to how mobile devices are currently being used and their effects on the development of social competency. This chapter will now present how past studies informed and justified the need for the present study. Table 1 shows all published studies that investigated the relationships between mobile device usage and psychosocial indicators related to social competency, such as interpersonal communication, friendship quality, social wellbeing, and peer relationships. The table was ordered by year of publication. Research variables and demographics of the sample were included to highlight the focus of the study. Other criteria included in the table were whether or not the study considered the role of parents.

Table 1

Previous Studies on the Relationships Between Mobile Device Usage and the Psychosocial Indicators of Social Competency

Author (Date)	**Sample**	**Research Variable**	**Parental Role**	**Significant Findings**
Antheunis, Schouten & Krahmer (2014)	Age 11 to 14 N = 3068 Mixed gender	IV = SNS use DV = friend-ship quality	No	Results showed positive relations between SNS use and friendship quality.
Ohanessian (2014)	Age 16 to 17 N = 1031 Mixed gender	IV = talking, texting, playing video game, listening to music, computer use DV = social,	No	The results of the correlational analysis showed that: • Social competency was positively associated with texting/talking on the phone and listening to music • Social competency was negatively associated with playing video games • Scholastic competency was negatively related to

		scholastic, and athletic competencies		talking/texting • Athletic competency was positively related to playing video games. Path analysis results revealed that mobile device usage had a minimal effect on self-competencies; however, self-competencies consistently predicted mobile device usage.
Vodanovich (2014)	Age 14 to 15 N = 400 Mixed gender	IV = SNS use DV = social competency Moderator = gender and personality	No	Confirmatory factor analysis results showed that the ability to form relationships and express oneself through SNS led to higher social competency. Unlike gender, personality type was a statistically significant moderator of the relationship between SNS use and social competency.
Wang, Jackson,	Age 18 to 22 N = 337	IV = SNS use DV = social	No	Results showed that participants who used SNS for social purposes reported a positive sense of wellbeing and a stronger

Gaskin & Wang (2014)	Mixed gender	wellbeing and friendship quality		quality of friendships, but those who used SNS for entertainment purposes did not reap any positive social benefit.
Al-Khaddam (2013)	Age 19 to 23 N = 296 Female only	IV = SNS use DV = inter-personal communica-tion	No	The results showed that the social use of Facebook statistically significantly affected the behavior of students by reducing the desire for interpersonal communication with other students.
Quinn & Oldmeadow (2013)	Age 9 to 13 N = 443 Mixed gender	IV = SNS use, gender DV = sense of belonging	No	A positive linear relationship was found between the intensity of SNS use and feelings of belonging but only among older boys. The researchers concluded that boys who actively used SNS gained friendship benefits over and above boys who were non-users or low-intensity users. No statistically significant relationships were found for girls.

At present, the literature remains inconclusive regarding how mobile device usage affects social competency. Of the studies that were summarized in Table 1, four researchers found a positive relationship between mobile device usage and social competency (Antheunis et al., 2014; Quinn & Oldmeadow, 2013; Wang et al., 2014; Vodanovich, 2014). However, Ohanessian (2014) and Al-Khaddam (2013) found the opposite effect. It should be noted that the six studies presented in Table 1 investigated different psychosocial indicators of social competency, which made it difficult to do a cross-study comparison. Hence, in this present study, I attended to this empirical gap by examining how perceived mobile device usage affects the development of social competency, by using a unified construct of social competency, namely the quadripartite model of social competency (Dubois & Felner, 1996), which covers: (a) interpersonal relationship; (b) social understanding; (c) reciprocal communication; and (d) peer acceptance.

Furthermore, only one of the studies in Table 1 was conducted with children under the age of 12 (Quinn & Oldmeadow, 2013). To address the lack of research in the early and middle childhood stage, I recruited parents of children between the ages of 5 and 12, as the population of interest. In addition, since none of the researchers in Table 1 considered the role parents play in regulating mobile device usage, I also explored the extent to which parental monitoring moderates the relationship between perceived mobile device usage and social competency.

Summary

To summarize, so far, Chapter 2 outlined the various ways mobile devices are currently being used, followed by a discussion on how mobile device usage affects the

development of social competency and other related social outcomes. Two opposing social interaction theories were used to explain how social competency could potentially unfold in a digital environment. Empirical review of past research indicated that mobile device usage could lead to positive and negative effects on psychosocial outcomes related to social competency. Furthermore, the literature review also highlighted the following empirical and methodological gaps. Firstly, the relationship between mobile device usage and social competency is yet to be determined. Secondly, the early and middle childhood population is currently understudied. Thirdly, the role of parents in assisting or diminishing social competency has not been explored. As such, the purpose of the present study was to examine the extent to which parental perception of mobile device usage affects the social competency of children age 0 to 12 and to explore the role of parental monitoring in moderating the relationship between perceived mobile device usage and social competency. On a theoretical level, the results of the present study would determine whether social competency manifests itself similarly in a digital environment as it does in a face-to-face setting, from corroborating either the social constructivist theory (Vygotsky, 1978) or the communicative feedback model of communication (Schramm, 1971). On a practical level, the results of the present study would address parental concerns on the effects of mobile device usage on social development, promote responsible digital habits and practices, and highlight the importance of parental monitoring in regulating the way children use their mobile devices.

Chapter 3: Research Method

Introduction

The present study had two purposes: (a) to examine the extent to which mobile device usage affects the social competency of children, as perceived by the parents; and (b) to examine whether parental monitoring moderates the relationship between mobile device usage and perceived social competency. As such, Chapter 3 begins with a description of the research design and the rationale for why it is the best method to answer the research questions. Next, the population of interest, sampling method, participant recruitment, and data collection procedure were outlined in details. Following that is a description of the instrument that was used to measure social competency and the operationalization of each research variable. Then, the use of correlation analysis to explore the relationship between parental perception of mobile device usage and level of social competency was discussed. Moderated regression analysis was used to explore the role of parents in moderating the interaction between perceived mobile device usage and social competency. Lastly, ethical considerations that needed to be addressed by the present study were included at the end of the chapter.

Research Design and Rationale

The present research utilized a nonexperimental cross-sectional survey design. An experimental research study requires random assignment to specific conditions so researchers can test the difference between a control group and an experimental group. However, in real life situations, it is not always feasible for researchers to control environmental conditions; thus a nonexperimental approach had to be utilized. The

present research was deemed nonexperimental because it did not involve randomization or any direct manipulation of variables that may affect the outcome of the study.

A cross-sectional design meant that the data were collected, compared, and analyzed at one specific point in time (Cohen, 1988), which was beneficial because: (a) it captured the most current trend of mobile device usage among children; (b) it enabled data to be collected from a large group of parents in a timely and cost-efficient manner, (c) it increased the likelihood of participation because data were collected only once; and (d) it enhanced the internal validity and reliability of the research since there is no need to worry about carry over or maturation effect.

Population

The present study focused on the parents of early and middle childhood children as the population of interest in order to address the limited research with this age group. Because the target population was parents of early and middle childhood children, the sampling unit consisted of parents of children between the ages of 5 to 12 years in North America.

Sampling and Sampling Procedures

The present study utilized a purposeful criterion-based sampling method. It was purposive because the study targeted parents of children who have continuous access to mobile devices. The criterion that parents must meet to participate in the study was that their children must own a personal mobile device. Having this criterion eliminated accidental recruitment of children who share their mobile devices with other family members, because access to mobile devices would affect the frequency and purpose of

usage. To ensure that the collected data are mutually independent from one another, each parent can only fill out the questionnaire for one child only.

The G*Power software was used to calculate the sample size of the present study based on the statistical analysis that would be conducted. The present study ran two different types of statistical analysis: (a) Pearson's product moment correlation was used to determine the strength and direction of the relationships between perceived mobile device usage and social competency, and also to determine the relationships between parental monitoring and social competency; and (b) moderated regression analysis was used to check for the moderation effect of parental monitoring on the relationship between perceived mobile device usage and social competency. The G*Power software used information on effect size, alpha level, statistical power, and number of groups to calculate a required sample size. Past research on online communication, digital media, and social networking have reported a small effect size (Antheunis et al., 2014; Huang, 2010; Valkenburg & Peter, 2007). Thus, the present study calculated the size of the sample based on a small effect size.

For a two-tailed correlational analysis with a small effect size ($r = .20$), an alpha level of .05, and a power of .80, the G*power software calculated that the present study requires a total sample size of 193 participants. For a moderated regression analysis with a small effect size ($f^2 = .02$), an alpha level of .05, and a power of .80 within an overall model with $R^2 = .13$, the G*power software calculated that the present study requires a total sample size of 395 participants for 3 predictor variables. Hence, the present study used the largest sample size ($N = 395$) recommended by the G*Power software to reduce

the possibility of Type II error. Allowing for a 10% participant attrition rate, a total of 435 parents were recruited for the present study.

Procedures for Recruitment, Participation, and Data Collection

The present study followed an ethical research guideline by: (a) explaining the purpose and significance of the research during participant recruitment, (b) being transparent about the type of data that would be collected, (c) seeking direct consent from participants, and (d) ensuring that no coercion, deception, or manipulation was utilized to recruit participants.

Parents were recruited by posting flyers (Appendix G.) in community centers, online parenting forums, and SNS. The flyers contained a link to the Dissertation Research website set up for the present study. The website contained all the information on the professional and academic credentials of the researcher, the objectives of the present study, a clear outline of the risks and benefits of participation, and the electronic consent form. Participation in the study was voluntary and could be withdrawn at any time without questions asked.

The website also contained the link to the online parent questionnaire. The consent form and questionnaire took approximately 20 minutes to complete. A parent could fill out the questionnaire for one child only. If multiple children in a family fulfilled the eligibility criteria and would like to participate in the study, another parent, guardian, or adult who knew the additional child well would have to complete another set of consent form and questionnaire. With permission from the test developer, the instrument to measure parental monitoring (Parental Mediation of Young Children's Internet Use) and social competency (Devereux Student Strength Assessment) were uploaded as a

Google Form to be part of the questionnaire, so parents could fill the rating scale directly online. Embedding the instrument into the questionnaire streamlined the data collection process and eliminated potential error in hand-scoring.

As a token of appreciation, parents received a $5 gift card for participating in the study. Because no intervention or treatment was included as part of the study, no follow-up meetings were scheduled. However, after the study was completed, the results were posted in the Dissertation Research website. A reminder email was sent to all participants and community partners once the results were available for viewing.

Instrumentation and Operationalization of Constructs

Demographics

Some demographic questions were included in the Parent Questionnaire, such as basic information regarding age, gender, and the primary mobile devices the children regularly used. Age and gender of children were used as control variables in the present study. Past studies have indicated that boys and girls use mobile devices differently. Quinn and Oldmeadow (2013) asked 443 English children aged 9 to 13 years about the friendship benefits of using SNS and found that boys and girls have different feelings about their online interaction, with SNS statistically significantly fostering a sense of belonging in boys but not girls. Quinn and Oldmeadow (2013) reasoned that the discrepancy is caused by the difference in the way boys and girls use mobile devices, with boys using technology for entertainment, whereas girls use them more for social interaction. Similar findings were reported in other studies (Devitt & Roker, 2009; Desjarlais & Willoughby, 2010; Jackson, Von Eye, Fitzgerald, Witt, & Zhao, 2011; Vodanovich et al., 2015). To prevent the results from being confounded, gender was

controlled when analyzing the relationships between perceived mobile device usage and social competency in the multiple regression analysis. The following dummy coding was used to distinguish between boys and girls: 0 = girls, 1 = boys. Another variable that was controlled was age, because several studies have established that as children got older, the way they use mobile devices evolved and changed (Chaudron, 2015; Livingstone, 2014; Ofcom, 2015a, 2015c).

Independent variables

There were two independent variables in the present study:

1. Parental perception of mobile device usage refers to parental reports of how frequently their children use personal mobile devices for social purposes, academic pursuits, entertainment, and practical daily activities.
2. Level of parental monitoring refers to the extent to which parents supervise and monitor their children's digital activity.

Data on parental perception of mobile device usage were collected as part of the parent questionnaire. The Nielsen Company (2015) in Canada reported that children under the age of 12 years used mobile devices to play downloaded games (77%), for educational purposes (57%), as entertainment while travelling or at a restaurant or event (55%), to watch TV shows or movies (43%), and to communicate with friends and family (15%). Twenty mobile device usage questions were developed based on the Nielsen Report (2015) using a 4-point Likert scale ranging from 0 (never) to 3 (all the time). Some examples of the questions include "My child uses his/her mobile device to make video calls" and "My child uses his/her mobile device to watch movies". Parental

perception of mobile device usage is a continuous variable because the data on frequency of usage were added into a single score for each child.

The second independent variable was the level of parental monitoring. The literature stressed the importance for parents to continuously monitor the digital practices and habits of their children (Marais, 2012; Barr, Moore, Johnson, Merten & Stewart, 2014; Vandoninck et al., 2014; Santisarun & Boonkrong, 2015). No study has investigated whether parental monitoring affects social competency, even though the relationship between the two variables was implied. Children who have parents who regulate their mobile device usage and block inappropriate apps and websites might have different social competency compared to children who are using their mobile devices without boundaries and limitations. However, to date, no study has established any relationship between parental monitoring and social competency. As such, apart from being an independent variable, parental monitoring would also serve as a moderating variable in the present study.

Parental monitoring is a continuous variable that was measured using the Parental Mediation of Young Children's Internet Use (PM-YCIU; Nikken & Jansz, 2014), which was developed to document media guidance strategies parents use with young children. The PM-YCIU was validated against 792 Dutch parents with children between the ages of 2 and 12 years who were active Internet users. Nikken and Jansz (2014) compared their sample against a control sample of parents (N = 287) who indicated that their children were not active online users. The parents in both samples were representative of the wider population of Dutch families and had comparable ages, genders, and levels of education.

The PM-YCIU rating scale contained 20 items to be rated using a 5-point Likert scale ranging from 0 (never) to 4 (very often). Some examples of the items include "I tell my child to protect his/her personal information", "I surf the Internet together with my child because s/he wants to", "I tell my child how long to use the Internet", "I tell my child which movie s/he may download", and "I stay close to help when my child is online". Nikken and Jansz (2014) reported that the Cronbach's alpha for PM-YCIU ranges from .75 to .94 and the relationships in the hierarchical regression analysis paralleled former studies (Livingstone & Helsper, 2008; Nikken & Jansz, 2006), which supported the validity and reliability of the scale. The PM-YCIU has also been used in other research studies with young children in the Netherlands (Nikken & Schols, 2015), school-age children in Korea (Hwang & Jeong, 2015), and adolescents in Northwestern United States (Padilla-Walker, Coyne, & Collier, 2016).

Dependent variable

The dependent variable was the parental report of children's social competency. Social competency is measured using a published and validated instrument called the Devereux Student Strength Assessment (DESSA). The dependent variable is a continuous variable because the DESSA produces a single composite score for each child.

Instrument description. DESSA is a rating scale measuring social-emotional competence in students from kindergarten to grade 8 (Naglieri, LeBuffe, & Ross, 2013). Consisting of 72 items, it should take parents approximately ten minutes to fill out the DESSA form (LeBuffe, Shapiro, & Naglieri, 2009). DESSA provides an overall composite score to indicate the socioemotional competency of children between the ages

of 5 and 12 based on their self awareness, social awareness, self management, goal directed behavior, relationship skills, personal responsibility, decision making skills, and optimistic thinking.

DESSA is norm-referenced and standardized against 2,500 children in the United States, with samples collected from across four regions of the United States: Northeast, South, Midwest, and West (LeBuffe, Shapiro, & Naglieri, 2009). LeBuffe, Shapiro, and Naglieri (2009) reported that the sample was selected to reflect the diversity of the population according to the 2008 race data produced by the U.S. Census Bureau and consisted of Native Americans (2%), Asians (3%), African Americans (22%), Hawaiian or Pacific Islanders (0.6%), and Caucasians (72%).

To ensure that the DESSA will correctly measure the construct of social competency, as defined in Chapter 2, I compared the eight domains covered in DESSA to the Quadripartite Model of Social Competency proposed by DuBois and Felner (1996). Table 2 shows a parallel relationship between the model of social competency and the measuring instrument.

Table 2

A parallel between the quadripartite model of social competency and the socioemotional scales of the Devereux Student Strength Assessment.

Quadripartite model of social competency (DuBois & Felner, 1996)	Socioemotional scales of the Devereux Student Strength Assessment (Naglieri, LeBuffe, & Ross, 2013)
Interpersonal relationships	• self awareness (the understanding of personal strengths and limitations) • self management (the ability to control emotions and behaviors in order to complete a task or succeed in a new or challenging situation) • goal directed behavior (the ability to initiate new task and persist despite varying level of difficulties)
Social understanding	• social awareness (the capacity to interact with others in a way that shows respect for others and uses cooperation and tolerance in social situations • relationship skills (the ability to consistently perform socially acceptable

	behaviors that promote and maintain positive connections with others)
Reciprocal communication	• decision making skills (the approach to problem solving that involves learning from others and previous experiences, using personal values to guide one's action, and accepting responsibility for one's decisions.)
Peer acceptance	• optimistic thinking (the positive attitude in regarding oneself about life situations in the past, present, and future) • personal responsibility (the tendency to be careful and reliable in contributing to group efforts)

Instrument validity. To test the criterion validity of DESSA, LeBuffe, Shapiro, and Naglieri (2009) obtained DESSA scores on two samples of students, i.e. students who had been identified as being emotionally disturbed ($N = 78$) and students in the mainstream classroom ($N = 78$). The students were matched for gender, age, and raters. A multivariate analysis of variance (MANOVA) was conducted to compare the eight scale scores between the two groups. The results showed large effect sizes (Cohen's d ranging from .83 to 1.36) and statistically significant differences ($p < .01$) between the two groups across all scales (LeBuffe et al., 2009). An independent t-test comparing the Social-Emotional Composite scores for the two groups indicated a statistically significant difference between the control group and the emotionally disturbed group, $t\ (155) = 8.12$, $p < .01$, $d = 1.31$ (LeBuffe et al., 2009).

To assess whether the DESSA is a valid instrument in identifying students with low socioemotional competency, Le Buffe, Shapiro, and Naglieri (2009) compared the Social-Emotional Composite (SEC) score of students in the mainstream classroom and students who have been identified as having social and emotional disturbances. The DESSA accurately predicted 68% of the students with social and emotional disturbances as having a low composite score (SEC score < 40) and 76 % of the students in the mainstream classroom as having an average to high composite score (SEC score > 40). The significant chi-square analysis results between the two groups, $X^2\ (4, 156) = 29.8$, $p < .001$, established that the DESSA instrument can be used to accurately predict whether or not a student has socioemotional challenges. The DESSA employed a relatively stringent decision rule to minimize the chances of children being over identified as having social-emotional concerns (Merrell & Gueldner, 2010).

To provide evidence of convergent validity, Nickerson and Fisherman (2009) compared DESSA scores with scores from the Behavioral and Emotional Rating Scale Second Edition (BERS-II; Epstein, 2004) and the Behavior Assessment System for Children Second Edition (BASC-II; Reynolds & Kamphaus, 2004). Nickerson and Fisherman (2009) asked 133 parents and 94 teachers to complete the DESSA and the BERS-II or BASC-II in one session and the results demonstrated strong convergent validity with the total scale scores for both the BERS-2 ($r = .80$, $p < .01$) and the BASC-2 ($r = .92$, $p < .01$).

Instrument reliability. The Cronbach alpha level of the overall Social Emotional Composite score was reported at .98 for parents and .99 for teachers (Merrell, Cohn, & Tom, 2011), which shows that the DESSA is a reliable measure of social emotional competency. To investigate the test-retest reliability of the DESSA, 38 teachers and 54 parents rated the same child on two different occasions separated by an interval of four to eight days (Merrell et al., 2011). The test-retest reliability for each of the scales showed a high correlation coefficient ranging from .79 to .90 for parents and from .86 to .94 for teachers (Merrell et al., 2011), which indicated good test-retest reliability. To check inter-rater reliability, Naglieri, LeBuffe, and Ross (2013) compared ratings obtained from two parents who lived in the same house as the child ($N = 51$) and ratings obtained from two teachers who work with the child ($N = 51$). The results indicated that parents or teachers who saw the children in the same environment at the same time rated the children very similarly, with a correlation coefficient reported highly at .725 for parents and .735 for teachers (Naglieri, LeBuffe & Ross, 2013).

Past research using the instrument. The DESSA rating scale was utilized by educators, social workers, and mental health professionals who worked with children and youth to assess skills related to social-emotional competence, resilience, and academic success (Tsang, Wong, & Lo, 2012). Nickerson and Fishman (2013) used it as a pre and post test to measure outcomes of a socio-emotional intervention programs aimed at promoting mental health and resiliency in children. Lane and Menzies (2011) reported that DESSA was used effectively as a school-wide early screening tool to identify students who needed behavioral supports. Kwon, Kim, and Sheridan (2012) used DESSA to identify behavioral competence of students from kindergarten to grade three and compared it to their academic performance.

Apart from being recognized as a good strength-based instrument to assess psychosocial wellbeing of children and adolescents in the practical field, the DESSA rating scale is also celebrated as a valid and reliable instrument in the research field. Merrell and colleagues conducted a series of studies to check if DESSA was a valid and reliable rating scale for parents and teachers to use in measuring social competence, empathy, and self-regulation. Merrell, Felver-Gant, and Tom (2011) reported that parents found DESSA to be user-friendly. Merrell, Cohn, and Tom (2011) conducted the same study with teachers and found similar results.

A review of the literature has established that the DESSA rating scale is a widely used instrument by both scholars and practitioners; thus, the present study is confident in using the DESSA to measure the social competency of children. The validation study results further corroborated the suitability of using the DESSA rating scale with parents.

Research Question and Data Analysis

The main question the present study hopes to answer is the extent to which social competency is affected by perceived mobile device usage. However, regular parental monitoring had been implied to affect the way children used their mobile devices, so an additional research question was added to explore this idea. A detailed breakdown of the research questions and hypotheses is listed below for review.

Research Question 1: Is there any relationship between parental perception of mobile device usage and parental report of children's social competency?

$H_0$1*:* There is no statistically significant relationship between parental perception of mobile device usage and parental report of children's social competency.

H_a1*:* There is a statistically significant relationship between parental perception of mobile device usage and parental report of children's social competency.

To test the first hypothesis, Pearson's Product Moment correlations was computed to determine the strength and direction of the relationships between parental perception of mobile device usage and parental report of children's level of social competency. The dependent variable was the DESSA score, which is a continuous variable. The independent variable was parental perception of children mobile device usage, which is also a continuous variable.

Research Question 2: Is there any relationship between parental report of children's social competency and parental monitoring?

$H_0$2*:* There is no statistically significant relationship between parental report of children's social competency and parental monitoring

H_a2*:* There is a statistically significant relationship between parental report of

children's social competency and parental monitoring.

To test the second hypothesis, a Pearson Product Moment correlation was computed to examine the relationship between parental monitoring and parental report of children's social competency. The dependent variable was the DESSA score, which is a continuous variable. The independent variable was PM-YCIU score, which is also a continuous variable.

Research Question 3: Does parental monitoring moderate the relationships between parental perception of mobile device usage and parental report of children's social competency?

$H_0$3: Parental monitoring will not statistically significantly moderate the relationships between parental perception of mobile device usage and parental report of children's social competency.

H_a3: Parental monitoring will statistically significantly moderate the relationship between parental perception of mobile device usage and parental report of children's social competency.

To test the third hypothesis, moderated regression analysis was used to check for the moderation effect of parental monitoring on the interaction between parental perception of mobile device usage and parental report of children's social competency. The outcome variable was the DESSA score. There were three predictor variables: (a) parental perception of mobile device usage (usage), (b) parental monitoring (pm), (c) the interaction between parental perception of mobile device usage and parental monitoring (usage*pm). The following regression equation model would be developed to predict children's level of social competency as moderated by the interaction effect between

parental perception of mobile device usage and parental monitoring, i.e. Social Competency$_i$ = a + $b_1$usage + $b_2$pm + $b_3$usage*pm

Analysis Plan

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 21. Data collected in the questionnaire were extracted as an Excel file. The Excel file was then uploaded into PASW for analysis. The dataset was cleaned before any descriptive or inferential statistical analysis was performed on it. The first step in the data cleaning process was to run descriptive statistics and check for outliers (Laureate Education, 2013). Any score more than three standard deviations away from the mean was considered an outlier. If the outliers were less than 5% of the total case, they would be removed or windsorized (Laureate Education, 2013).

Descriptive statistics were run to provide demographic information on children's age and gender. Next, to determine whether the data were normally distributed, a visual check was conducted by looking at the histogram of the variables. Because Pearson's Product Moment correlations were used to test hypothesis 1 and 2, the following assumptions were checked (Green & Salkind, 2014):

1. the variables must be measured in either interval or ratio
2. the populations must be bivariately normally distributed
3. the cases must be mutually independent of one another

Multiple regression was conducted to test whether parental monitoring moderated the relationship between perceived mobile device usage and parental report of children's social competency. Before regression analysis was run, the following additional assumptions were checked (Field, 2013):

1. linearity between the dependent variable and each of the independent variables
2. independence of residuals
3. the residuals must be normally distributed
4. homoscedasticity between the variables
5. non-multicollinearity

The regression analysis was run in two steps. In step one, perceived mobile device usage and parental monitoring were entered (force entry). In step two, the interaction between parental perception of mobile device usage and parental monitoring, i.e. usage*pm, was entered (stepwise). A comparison between Model 1 and Model 2 revealed what happened to the regression model once the interaction between parental perception of mobile device usage and parental monitoring were included. If parental monitoring was a moderator, then Model 2 would account for greater variance of social competency than Model 1 ($R^2_{\text{Model2}} > R^2_{\text{Model1}}$) and the incremental variance explained (ΔR^2) would be statistically significant.

Threats to Validity

Campbell and Stanley (1963) identified four potential threats to validity in a research study, namely external validity, internal validity, construct validity, and statistical conclusion validity.

Threats to external validity stem from selection interaction effect, risk of reactive arrangement, and/or small sample size (Campbell & Stanley, 1963). Because the present study was non-experimental in nature, there is no risk of interaction effect based on participant selection or treatment. Moreover, parents could fill out the questionnaire online, in a space and time of their choosing, so there should be no risk of reactive

arrangement. A small sample size may threaten the external validity of the present study because the results may not be generalizable to the larger population outside the sample. To address this threat, the largest number of sample size recommended by the G*Power software (i.e. N = 435) was used to recruit participants for the present study. By taking into consideration a 10% attrition rate of participants dropping out, it was assumed that the sample would accurately represent the larger population.

Because the present study utilized a cross-sectional design, history, maturation, and mortality threat were not an issue, since the data were only collected once (Trochim, 2006). For this reason, any threat to internal validity was confined to issues associated with instrumentation, selection maturation interaction, and reporting bias. Data on perceived mobile device usage were collected via parental report, which meant there is a threat of reporting error. To address the reporting error, data would only be collected from parents of children who owned a personal mobile device. Parents who were unsure of their children's mobile device usage could check the archived history of web browsing or view the types of apps that were frequently used on their personal mobile devices. There was also a potential for parents to only report their children's mobile device activities that were considered socially acceptable, known as social desirability bias (Holgraves, 2004). To reduce social desirability bias, data collection was done through an online questionnaire, which parents could complete at their own place and time without the threat of social judgment. Because all parents completed the same questionnaire using the same online format, the risk was minimal for any inconsistency in administering the instrument. Moreover, invitations to participate in the present study were extended to all

parents of children aged 5 to12 years who had their own personal mobile device, so the possibility for selection bias to occur was also minimal.

In addition, the present study used instruments that had undergone numerous validation studies and were published for the general public; hence, the threats to construct validity should be minimal. Statistical conclusion validity was also minimal because the power level was set at .80 with an alpha level of .05, with a 5% chance for Type I or Type II error.

Ethical Considerations

Ethics is a fundamental part of any research practice (Bersoff, 2008). Thus, the present study will now discuss the ethical considerations that needed to be addressed prior to conducting the research. Prior to data collection, appropriate permissions were obtained from: (a) Walden University's Institutional Review Board to conduct the study, (b) the City of Toronto Partnership Office to put up flyers on community centers' boards, and (c) the developer of the DESSA and PM-YCIU instruments that were used to measure social competency.

Measures were also put in place to ensure that participants were recruited ethically, without any coercion, deception, or manipulation. During the participant recruitment and in the consent form, I explained the purpose of the research and was transparent about the type of data that would be collected.

Confidentiality was maintained throughout the research process. When raw data were entered into PASW, each participant was assigned a code. The code maintained the anonymity of participants and ensured there was no way to directly identify specific participants during data analysis. No identifying information was included in the

published dissertation or in the research website. Since a large portion of the data was collected through Google Forms, the information was stored on a flash drive and in the Google Drive with restricted access and regular password updates. All paper and electronic data will be shredded and deleted after five years.

In the event of a confidentiality breach, unanticipated conflict of interest, and risks/benefits re-assessment, I will fill out the Walden Adverse Event Reporting form and will await further direction and guidance from Walden's Institutional Review Board.

Summary

Chapter 3 was an outline of the research design and methodology chosen to address the questions of whether social competency was affected by the way children use their mobile devices, as viewed by the parents. A cross-sectional non-experimental research design was selected to investigate how perceived mobile device usage affects the development of social competency. In addition, the present study also aimed to explore the role of parental monitoring in moderating the relationships between perceived mobile device usage and social competency. Using a criterion-based purposeful sampling strategy, 435 parents of children between the ages of 5 to 12 years were recruited based on whether or not their children owned a personal mobile device.

Information on parental perception of mobile device usage, level of parental monitoring, and children's social competency was collected through the parent questionnaire. It was hypothesized that statistically significant relationships would exist between perceived mobile device usage and social competency. Furthermore, it was hypothesized that parental monitoring would statistically significantly moderate the relationship between perceived mobile device usage and parental report of children's

social competency. Pearson's correlation and moderated linear regression analysis were used to test the hypotheses. The next chapter outlined the results of each statistical analysis, which will be presented in tables, scatterplots, and regression equation.

Chapter 4: Results

Introduction

The purpose of this non experimental cross- sectional quantitative study was: (a) to examine the extent to which mobile device usage affects the social competency of children, as perceived by their parents; and (b) to examine whether parental monitoring moderates the relationship between perceived mobile device usage and social competency. The research questions and hypotheses on the relationships between mobile device usage, parental report of children's social competency, and parental monitoring were addressed and discussed at length in this chapter.

Chapter 4 begins with how data were collected in the present study, followed by a report on the demographic characteristics of the sample. Next, a detailed description of each research question, method of analysis, hypothesis testing, and results were included. Chapter 4 ends with a summary of the descriptive and inferential research findings.

Data Collection

Data were collected over a period of 4 weeks, from 1st to 31st April 2017. Apart from putting up posters about the research in the local community centers, electronic information about the research was posted daily in online parenting forums and SNS. In addition, information about the present research was also posted in the Walden Participant Pool. The poster contained a link to the dissertation website where parents were directed to fill out the consent form and the online questionnaire. There were no discrepancies from the data collection plan outlined in Chapter 3.

The response rate to the parent questionnaire on the first week was less than 5% of the required sample size, so I started actively participating in online parenting forums,

discussing issues and concerns related to mobile device usage and its potential impacts on social development. To start the conversation in the parenting forum, I used a recent article written by a health and science reporter from BBC News on mobile device trends among toddlers (Gallagher, 2017, April 13). The post received numerous instantaneous responses and I was able to share about my research and direct interested parents to fill out my questionnaire. The participant response rate went up 40%. A week later, an education reporter from BBC wrote a follow up article on youth concerns about parental mobile device use and its effect on family life (Burns, 2017, April 23), which triggered another spike in discussions and responses to my questionnaire. Riding on the momentum from the online parenting forum, the response rate increased by another 55% and I achieved my sample size quota of 435 respondents.

Google Forms was used to collect data on each parental report on mobile device usage, parental monitoring and social competency over the four week period. The raw data were extracted from Google Forms in an Excel spreadsheet format and uploaded into SPSS for quantitative data analysis.

Descriptive Statistics

The dataset was cleaned before any inferential statistical analysis was performed on it. Descriptive statistics and scatterplots were run to check the data. Because all the outliers, values outside the normal range, or missing data, were less than 5% of the total number of cases, they were removed from the data set for not representing the target population. The final sample size that was analyzed by the present study was 401 participants.

Demographic data were collected on children's age and gender. The descriptive statistics for the children's demographics are listed in Table 3. The mean age for children was 10.02 (*SD* = 1.05). The mode age for children was age 10 (*N* = 149), which accounted for 37% of the sample. Fifty-four percent of the parents completed the questionnaire for boys (*N* = 217) and forty-six percent for girls (*N* = 184). The participants who completed the questionnaire were representative of the target population, namely parents of early and middle childhood children between the ages of 5 and 12 years. Ninety-eight percent of the participants reported being the mother or father of the child, and 2% reported themselves as the legal guardian. No demographic information was collected on the parents.

Table 3

Demographic Information of Children of the Participants (N = 401)

Variable	*N*	%
Gender		
Boy	217	54.1
Girl	184	45.9
Age		
5	0	0
6	1	0.2
7	2	0.5
8	21	5.2
9	99	24.7

(*table continues*)

Variable	*N*	%
10	149	37.2
11	98	24.4
12	31	7.7

A reliability analysis was carried out on questionnaire items measuring level of parental monitoring and social competency. Cronbach's alpha showed the questionnaire to have high reliability for parental monitoring ($\alpha = 0.91$) and social competency ($\alpha = 0.97$), which matched the reliability coefficient reported by Nikken and Jansz (2014) for PM-YCIU and Merrell, Cohn, and Tom (2011) for DESSA.

Results

Pearson's Product Moment correlations were computed to test the first two hypotheses. To complete the Pearson correlation analysis, the two variables chosen must meet the statistical assumption of independence and bivariate normality. The assumption of independence was met because the participant log list recorded that every parent completed the questionnaire for one child only; hence, it could be concluded that the cases were mutually independent from one another. A visual examination of the data scatterplot (Figure 2) indicated that the variables were bivariately normally distributed. The scatterplot matrix also showed that a linear statistical relationship might exist between parental perception on mobile device usage and parental report of children's social competency.

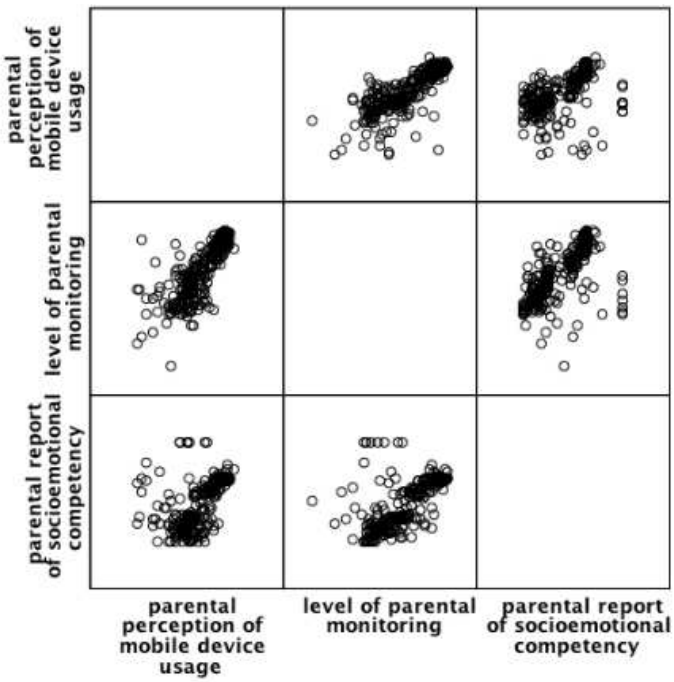

Figure 2. Scatterplot Matrix of Mobile Device Usage, Parental Monitoring, and Social Competency.

First Research Question

Research Question 1: Is there any relationship between parental perception of mobile device usage and parental report of children's social competency?

$H_0$1*:* There is no statistically significant relationship between parental perception of mobile device usage and parental report of children's social competency.

H_a1*:* There is a statistically significant relationship between parental perception of mobile device usage and parental report of children's social competency.

The result showed a statistically significant positive relationship between parental perception of mobile device usage and parental report of children's social competency, r (401) = .661, 95% CI [.572, .756], $p < .01$, two-tailed. The value for Pearson's r is .661, indicating a large effect size, with parental perception of mobile device usage explaining 43.6% of the variation in social competency. These findings support hypothesis H_a1.

Second Research Question

Research Question 2: Is there any relationship between parental report of children's social competency and parental monitoring?

$H_0$2*:* There is no statistically significant relationship between parental report of children's social competency and parental monitoring

H_a2*:* There is a statistically significant relationship between parental report of children's social competency and parental monitoring.

The result showed a statistically significant positive relationship between parental monitoring and social competency, r (401) = .725, 95% CI [.641, .818], $p < .001$, two-tailed. The value for Pearson's r is .725, indicating a large effect size, with parental monitoring explaining 52.5% of the variation in social competency. These findings support hypothesis H_a2.

Table 4

Parental Perception of Children's Mobile Device Usage, Parental Monitoring, and Children's Social Competency: Correlations and Descriptive Statistics (N = 401)

Variable	1	2	3
1. Parental Perception of Mobile Device Usage	-		
2. Level of Parental Monitoring	.844**	-	
3. Parental Report of Social Competency	.661**	.725**	-
M	38.78	55.83	48.08
SD	9.119	11.971	10.158

***p*< .01 (2-tailed)

Moderated regression analysis was used to check for the third hypothesis. The outcome variable was the parental report of children's social competency. There were

three predictor variables, namely: (a) parental perception of mobile device usage (usage), (b) parental monitoring (pm), (c) the interaction between parental perception of mobile device usage and parental monitoring (usage*pm). The regression analysis was run in two steps. In step one, perceived mobile device usage and parental monitoring were entered (force entry). In step two, the interactions between parental perception of mobile device usage and parental monitoring, i.e. usage*pm, were entered (stepwise). A comparison between Model 1 and Model 2 revealed what happened to the regression model once the interaction between parental perception of mobile device usage and parental monitoring was included.

A series of statistical assumptions was checked before the multiple regression analysis was run. Since both the dependent and independent variables were continuous, the variable assumptions were met satisfactorily.

Linearity. To assess linearity, two partial scatterplots were plotted (Laerd Statistics, 2015): (a) one for parental perception of mobile device usage against parental report of social competency; and (b) one for parental monitoring against parental report of social competency. Visual inspection of the scatterplot indicated a linear relationship between the variables, so there was no violation on the linearity assumption.

Homoscedasticity. A residual regression scatterplot was used to check the homoscedasticity assumption (Laerd Statistics, 2015). A visual inspection of a plot of standardized residuals versus standardized predicted values showed a randomized pattern, meaning that the homoscedasticity assumption was met.

Normality of residuals. The normality of residuals assumption was checked visually through the histogram and the normal P-P plot (Field, 2013). Residuals were

normally distributed as assessed by visual inspection of a normal probability plot, which meant the normality of residual assumption was met.

Independence of residuals. The independence of residuals assumption was investigated using the Durbin Watson statistic (Field, 2013). The Durbin Watson value was reported at 1.928, which was within of the recommended boundaries specified by Fields (2013), meaning that the residuals are independent of each other.

Multicollinearity. The multicollinearity assumption was checked through the tolerance value reported in the collinearity statistics. Tolerance values above 0.2 and VIF value below 10 indicate non-multicollinearity (Fields, 2013). Tolerance value was reported at .855 and VIF was reported at 1.170. All the variables met the non-multicollinearity assumption, meaning that all the variables were not correlated with one another. This was further demonstrated through the correlation reported in Table 4, which showed that all the predictors have $r < .8$, suggesting that all the variables have no collinearity with each other and are measuring different things.

Third Research Question

Research Question 3: Does parental monitoring moderate the relationships between parental perception of mobile device usage and parental report of children's social competency?

$H_0$3: Parental monitoring will not statistically significantly moderate the relationships between parental perception of mobile device usage and parental report of children's social competency.

H_a3: Parental monitoring will statistically significantly moderate the relationship between parental perception of mobile device usage and parental report of children's social competency.

The regression model showed that parental perception of mobile device usage and parental monitoring combined together (Model 1) explained 53.4% of the variance in the reported level of children's social competency and was a significant fit to the data, $F(2, 398) = 227.749$, $p = .000$. The adjusted $R^2 = .531$ showed no shrinkage from the unadjusted $R^2 = .534$, indicating that Model 1 will generalize well. Adjusted R^2 is also an estimate of the effect size, which at 53.4%, is indicative of a large effect size, according to Cohen's (1988) classification.

When the interactions between parental perception of mobile device usage and parental monitoring (pm*usage) was included into the analysis (Model 2), an additional 5.5% of the variance in social competency was explained, $F(3, 397) = 189.266$, $p = .000$. Model 2 explained 58.9% of the variance in the reported level of children' social competency. The adjusted $R^2 = .585$ showed no shrinkage from the unadjusted $R^2 = .589$, indicating that Model 2 will also generalize well. The adjusted R^2 of 58.9% is indicative of a large effect size, according to Cohen's (1988) classification. Overall, all the independent variables (usage, pm, usage*pm) were significant predictors in the regression model.

Because Model 2 accounted for greater variance of social competency than Model 1 ($R^2_{\text{Model2}} > R^2_{\text{Model1}}$) and the incremental variance explained (ΔR^2) was statistically significant, the findings support hypothesis H_A3, which meant that parental monitoring was a statistically significant moderator in the relationship between mobile device usage

and social competency.

Table 5 showed the coefficients of the regression model and the *b*-values for each of the predictor variables, namely parental perception of mobile device usage (usage), level of parental monitoring (pm), and interaction effect between perceived mobile device usage and parental monitoring (usage*pm).

Table 5

Summary of Moderated Regression Analysis

	b	Std. Error *b*	β	t	Sig.
Constant	45.171	.452		99.924	.000
usage	.284	.067	.223	3.679	.000
pm	.534	.051	.629	10.406	.000
usage*pm	.024	.003	.253	7.273	.000

Based on the *b*-values, the regression equation model could be written as follows:

$$\text{Social Competency}_i = 45.171 + .284*\text{usage} + .534*\text{pm} + .024\text{usage*pm}$$

The regression model showed that social competency was statistically significantly predicted by parental report of mobile device usage, $t(397) = 3.679$, $p < .05$, meaning that, as mobile device usage was reported to increase, the reported level of children's social competency increased. Parental monitoring was another statistically significant predictor of social competency, $t(397) = 10.406$, $p < .05$, which means that, as the level of parental monitoring increases, the reported level of children's social competency will also increase. Lastly, the interaction between parental perception of mobile device usage and parental monitoring was also reported to be a statistically significant predictor of

social competency $t(397) = 7.273$, $p < .05$, which further supports hypothesis H_a3 *and* confirms parental monitoring as a moderator variable.

Summary

The results of the present study showed that social competency was positively correlated to parental perception of mobile device usage and parental monitoring. Both perceived mobile device usage and parental monitoring were significant predictors for parental report of social competency. Parental monitoring was found to be a statistically significant moderator of the relationship between mobile device usage and social competency.

Chapter 5 will begin with a brief review of this research study. The review will be followed by interpretation of the findings, limitations of the study, recommendations, and implications. The chapter will conclude with final thoughts related to the study findings and potential for social change.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

Parents in the digital age have expressed concerns over the extensive use of mobile devices by children and the effects mobile devices have on social development (Rowan, 2010). The current generation is the first generation of children growing up with mobile devices from birth (Radesky et al., 2015); consequently no empirical longitudinal data exist yet on the long term effects of mobile device usage on children's development.

A review of the literature on both mobile devices and social interaction practices indicated that, although mobile communication is becoming more prominent, what was not known was the extent to which social competency is affected by the way mobile devices are being used. Furthermore, parents were reported to play an important role in modeling, monitoring, and regulating mobile device usage to ensure it is done in an appropriately meaningful way. However, research on parental monitoring so far has focused more on strategies parents could use to monitor, limit, and regulate online activities (Clark, 2013; Livingstone & Helsper, 2008), and less on how parental monitoring affects psychosocial outcomes. The purpose of this study was to examine the relationship between mobile device usage and the level of social competency in children as viewed by the parents, especially in relation to parental monitoring.

It was hypothesized that relationships existed between parental perception of mobile device usage, parental monitoring, and social competency. Furthermore, it was hypothesized that parental monitoring would moderate the relationship between parental perception of mobile device usage and parental report of children's social competency. Pearson's correlation and multiple regression analysis were used to test the hypotheses.

The results showed that: (a) a positive correlation exists between parental perception of mobile device usage and parental report of children's social competency, (b) a positive correlation exists between parental monitoring and parental report of children's social competency, and (c) parental monitoring is a statistically significant moderator of the relationship between perceived mobile device usage and social competency.

Chapter 5 begins with an interpretation of the results of the present study, followed by a discussion on the limitations of the present research and recommendations for future research. In addition, theoretical and practical implications of the findings, in light of their application to children in the digital age with personal mobile device ownerships, will be presented. To end, a summary of how the study affects positive social change was included.

Interpretation of the Findings

Consistent with statistics documented by national survey and market research on technology ownership and usage by early and middle childhood children (Grunwald Associates, 2013; Nielsen Company 2014, 2015; Ofcom, 2015a, 2015b, 2015c; Steeves, 2014), participants of the present study reported that 92.2 % of the children owned a smartphone, 73.9 % owned a tablet, and 73.3% owned a laptop. The age of first mobile device ownership also matched prior research findings of age 10.

Hypothesis 1

The results of the present study showed a positive correlation between parental perception of mobile device usage and parental report of children's social competency, which lends support to Vygotsky (1978)'s social constructivist theory. Based on the report from parents of the present study, parental perception of their children's social

competency increased as parental perception of mobile device usage increased. These findings support the notion that: (a) children develop social competency in the digital environment the same way they do in a face-to-face setting (Livingstone & Haddon, 2008), and (b) children do not see the distinction between the physical and the digital world (Livingstone et al., 2013), because they grow up in an environment with constant access to the global Internet village. Children engage in social interaction, imaginative play, experimentation, boundary testing, risk taking, and other social experiences that are fundamental to holistic development and identity construction in the digital world the same way they would in the physical world. The use of mobile devices further expands children's social world and creates opportunities for children to interact with their peers more frequently and easily. Consequently, the more time children spend on their mobile devices, the more their social competencies are positively affected.

The results of the present study refuted Schramm (1971)'s notion that children who grow up interacting primarily in the digital setting will have less opportunity to practice meaningful reciprocal interaction and will end up developing poor social competency because interactions in the digital environment are detached, diluted, and rife with potentials for misunderstanding. In Chapter 2, Clements (2004) and Wridt (2004) reported that children have retreated into a more sedentary lifestyle indoors due to parental concerns of stranger danger, crime rates, possible injury, and safety factors. This risk-averse trend continues to present day society (Byron, 2008; Keeton & Kennedy, 2009). Because children are limited in the time they can pursue their developmental needs to socialize, explore, and experiment in an outdoor physical setting, they turn to an online digital setting to build relationships, engage in social interactions, develop

decision making abilities, and exercise their independence (Lobe, Livingstone, & Haddon, 2007). As such, children have learned to adapt their communication and interaction style in the digital setting to compensate for the lack of facial cues, vocal tone, and body language, using emojis, emoticons, and memes (Bower, 2013). Even though the medium and tool of interaction is different in the digital environment, children still develop the four main components of social competency outlined by Dubois and Felner (1996), namely interpersonal relationship, social understanding, reciprocal communication, and peer acceptance.

Hypothesis 2

The social constructivist theory also highlighted parental role in facilitating social development by providing good role models and scaffolding children's knowledge of the social norms and conventions in the digital world (Kozulin, 2012). Parental monitoring was found to correlate positively with level of social competency in the present study, which implied that parents who actively monitor and regulate mobile device usage have children with high social competency. In fact, the effect size from the correlation analysis indicated that parental monitoring explained 52.5% of the variation in social competency, whereas parental perception of mobile device usage only accounted for 43.6% of the variation. This means that children's level of social competency was affected more by parental monitoring than by parental report of how children used their mobile devices.

Hypothesis 3

In addition, parental monitoring was found to be a significant moderator of the relationship between perceived mobile device usage and social competency. The regression analysis showed that when the interaction between parental perception of

mobile device usage and parental monitoring (usage*pm) was included, the model explained 58.9% of the variance in social competency. These findings confirmed the importance of the parental role in the development of social competency. Even though mobile devices and the Internet allow children to explore new experiences and stay connected with friends and family, children still need help to develop skills to navigate the online world (Narvaez et al., 2012). Scott (2016) argued that it is vital for parents to know children's online activities in order to provide children with the guidance they need to become responsible online users. Although many children are confident online users with the knowledge and skills needed to participate responsibly, they may unintentionally engage in risky online behaviors without fully understanding the implications (Bower, 2013). Mobile devices have become an inherent part of modern society and tools that are deeply embedded in human life, so scientists and researchers are advocating for parents to empower children to keep themselves safe online by educating them on how to accurately identify online risks and build their resilience by modeling how to self-regulate and manage the risks responsibly (Bower, 2013; Livingstone et al., 2013).

Limitations of the Study

There were several limitations in the present study. Firstly, although the reported correlation was found to be statistically significant between perceived mobile device usage and social competency (r = .661), and between parental monitoring and parental report of children's social competency(r = .725), no causal relationships could be ascertained between the dependent and independent variables, because the present study utilized a survey design. Although the survey presented strong and significant statistical information, it was limited in providing an explanation for the reason why and how

parental monitoring moderated the relationship between parental report of mobile device usage and social competency. Similarly, without doing a longitudinal study, there was no way to ascertain that perceived mobile device usage was the only variable affecting social competency, and vice versa, there was no way to establish that children's level of social competency determines the way they use their mobile devices. Other extraneous variables, such as personality, temperament, family background, and cultural values, could also affect children's level of social competency. To minimize the potential effects from confounding variables, age and gender were controlled in the data analysis.

Secondly, data on children's mobile device usage and social competency were reported by parents. Past research has documented that parents can over or under estimate the amount of time children spend on their mobile devices (Gentile, Nathanson, Rasmussen, Reimer, & Walsh, 2012) and that children do not always truthfully disclose their digital activities to their parents (Livingstone et al., 2013). To minimize parental bias and error in reporting their children's mobile device activity, parents could skip questions they were not sure of, or check the browser history in their children's mobile devices. To reduce social desirability bias, data collection was done using an online questionnaire that parents could complete at the time and place that were convenient for them.

Thirdly, although the present study was found to have a high reliability coefficient (Cronbach $\alpha = 0.91$ for parental monitoring and Cronbach $\alpha = 0.97$ for social competency), the findings could not be generalized beyond parents of children between the ages of 5 and 12 living in a suburban area of a multicultural city. A final limitation in the present study was the lack of demographic information on the parents who completed

the questionnaires. Parental age and familiarity with mobile devices could have affected their perception of children's mobile device usage, and led parents to attribute their personal experiences with mobile devices to their children's experiences. To minimize attribution bias, future study should collect demographical information on the age of parents and the types of mobile devices parents are using.

Recommendations

This section outlines recommendations for future research based on the strengths and limitations identified by the present research. Based on the limitation to the internal validity documented for a survey study, it is recommended that future research investigating the effect of mobile device usage on social development should design a longitudinal study. Livingston and Haddon (2008) acknowledged the challenge of conducting a longitudinal research study with children, especially in regards to their digital habits and practices. Parents might be reluctant to have their children's digital activities documented across several years, and young children who assented to do the study might pull out as they reach adolescence and start to put a high value on their privacy. Demographic statistics of the present study concurred with past research, which reported that the age of first personal mobile device ownership occurs around 10, so future research could focus the sampling unit to preadolescents between the ages of 10 and 12. The possibility also exists that the intrusive nature of the research might not outweigh the benefit of the research. Nevertheless, longitudinal research is needed in order to: (a) document how social competency develops and progresses in a digital setting, (b) understand how mobile device usage affects social development, and (c)

explain why parental monitoring moderates the relationship between mobile device usage and social competency.

Another recommendation is to collect data of children's own perception and experience of how they use their mobile devices and the effects they may have on their social development. Data from the present study were collected from parental reports; thus it might not represent an overall picture of children's mobile device usage and digital activity. Dockett and Perry (2007) recommended using a piloting process to get a reliable account from children in a social science research study. Conducting research with young children who may not fully understand the purpose of the research or the research questions comes with great challenge. Doing a pilot study will enable researchers to assess the suitability of the method and design in meeting the research purpose, and highlight potential ambiguity in the questions and confusion that may arise from the wording or terminology used in the questionnaire. From the pilot study, researchers can revise the questions to ensure clarity and relevancy of each question in measuring the outcome variable (Greene & Hogan, 2005). Future researchers may also be interested in doing a comparative analysis study with adolescents, to investigate whether parental report of children's social competency remains positively correlated with parental perception of mobile device usage, as Nikken and Jansz (2014) reported that the frequency and intensity of parental supervision decreases as children get older.

The third recommendation is to use a mixed-method approach to develop a greater depth and understanding around the issue surrounding social development of children in the digital age, especially in relation to parental monitoring. The main strength of the present study was its exploration of the role of parental monitoring in the

relationship between perceived mobile device usage and social competency. The role of parents should not be undervalued and needs to be investigated further. Future research can start the data collection by sending out an initial quantitative survey to children and parents, followed by a qualitative parent-child dyad interview. The present study asked parents about the different ways they monitor and regulate children's mobile device usage. However, instead of questioning parents on whether or not they employed parental monitoring strategies, Zaman and Nouwen (2016) advised researchers to focus on the when and how parents use parental monitoring strategies and examine the effectiveness of each strategy. Hwang and Jeong (2015) noted that parents do not only employ the use of one single strategy, choosing instead to mix or combine different monitoring strategies depending on the situation. By explicitly focusing on the processes and dynamics between the various types of parental monitoring strategies, a full picture of the complexity underlining the role of parents will begin to emerge.

Turkle (2015) cautioned parents about being absorbed in and distracted by their mobile devices to the point of ignoring their children and sacrificing valuable family interaction. Radesky et al. (2014) coined the term 'distracted parenting' to explain this phenomenon. In the social constructivist theory, Vygotsky (1978) pointed out that children develop their understanding of the social world by observing and interacting with others. By seeing that their parents are constantly distracted by their mobile phones, children grow up imitating the digital habits of their parents (Handsley et al., 2015). In their research investigating parental mediation behaviors in Korea, Hwang and Jeong (2015) found that parents addicted to their smartphones tend to restrict their children's digital activity without explaining the reason or discussing responsible mobile device

usage. The final recommendation for future research is to explore the digital habits of parents who do not regulate their mobile device usage and examine the effects of distracted parenting on children's social development.

Implications

The results of the present study have a number of positive social change implications for parents in the digital age and the way they manage and regulate children's mobile device usage. On a theoretical level, the results of the present study corroborated Vygotsky (1978)'s social constructivist Theory, which postulates that social competency manifests itself similarly in a digital environment as it does in a face-to-face setting. So, the concerns that parents have of children not developing the necessary skills and competencies to navigate social situations in real-world settings, if the majority of their interactions take place in the digital world, was discredited in the present study. A major methodological implication from the present study is the need for a well-designed longitudinal mixed-method study in the field of mobile device research and child development. Data need to be collected from both children and their parents in order to capture the full picture of children's digital activities and to understand the complex relationships between the parental roles in moderating the effects of mobile device usage and the development of social competency.

On an individual level, the results of the present study have addressed parental concerns that online interaction will prevent children from developing strong personal ties and meaningful relationships that are usually cultivated through face-to-face interaction. Bower (2013) noted that children in the digital age do not see the distinction between the online and offline worlds. Consequently, they view online interactions and

relationships the same way they view them in the physical world. They transitioned seamlessly from one world to another and presented their true selves in both worlds. Contrary to parental beliefs that children would use SNS to interact with strangers or potential child predators, researchers from around the world have documented repeatedly that children interacted online exclusively with friends within their social circle and with those whom they already had close personal relationships with (Geser et al., 2006; Ito et al., 2005; Kalogeraki & Papadaki, 2010; Lobe et al., 2007; Matsuda, 2005; Miyata, 2006). The positive correlation between parental perception of mobile device usage and parental report of children's social competency in the present study is mitigating the misconceptions parents have regarding the nature of social interactions in the digital realm and bringing parents another step closer to that transformative understanding.

On a societal level, questions have been asked regarding children's abilities to regulate their own digital habits and responsible use of their personal mobile devices. Research in brain development has shown that the prefrontal cortex, which controls inhibition, does not fully mature until late adolescence or early adulthood (Berk, 2012), yet children as young as 10 have been given their own personal mobile device. Health and educational professionals have voiced concerns that children in the early and middle childhood stage might make impulsive choices and engage in risky online behaviors, such as viewing and posting inappropriate content (Livingstone, 2014), sending and receiving hurtful messages (Livingstone et al., 2013), publishing private information on social networking pages (Santisarun & Boonkrong, 2015), and trusting unreliable information on the Internet without checking other sources (Ey & Cupit, 2011). Vygotsky (1978) pointed out that parents have the responsibility to scaffold children's

understanding of risky online behaviors and actively help children to identify and manage risks they will encounter in the digital world. The results of the present study highlighted the positive relationships between parental monitoring and social competency, which consequently contribute to positive social change by promoting the important role parents have in raising digitally responsible children through active monitoring and regulation of mobile device usage.

Zaman and Nouwen (2016) advocated for parental monitoring strategies that focus beyond protecting children from online risks or harm and extend more towards helping children build resiliency to cope with the harm and risks they may encounter online. Currently, most parents use restrictive rules and supervision to let children know of the expected online behavior (Len-Ríos, Hughes, McKee, & Young, 2015). However, these enforced measures prevent children from developing autonomy, decision making, and problem solving skills. In real life settings, parents would not limit the amount of play dates 5 to 12 years old children have to one hour a day or watch over their shoulder while children are playing with their friends; yet parents would restrict online time and hover around while their children are on the Internet. Restrictive practices can also affect family dynamics and lead to children lying about their mobile device usage and preventing children from discussing negative online experiences with their parents. The American Academy of Pediatrics is moving away from advising parents to restrict limits and are advocating for co-use and a joint engagement approach, where parents talk about and show children how they manage online risks (Brown, Shifrin, & Hill, 2015). The participatory learning approach (Clark, 2013) between parents and children encourages open communication and discussion of online risky behavior in order to develop a better

understanding of responsible mobile device usage. The findings from the present study can be used to bring about positive social change by modifying parental monitoring strategies from restrictive methods to more collaborative approaches.

Conclusion

Past research has implied that mobile device usage has an effect on the development of social competency (Antheunis et al., 2014; Quinn & Oldmeadow, 2013; Wang et al., 2014; Vodanovich, 2014). The purpose of the present study was to examine the extent to which perceived mobile device usage affects the social competency of children, and to explore whether parental monitoring moderates the relationship between perceived mobile device usage and social competency. Results from this study showed a statistically significant positive relationship between parental perception of mobile device usage and parental report of children's social competency, as well as between parental monitoring and parental report of children's social competency. Moreover, parental monitoring was found to be a statistically significant moderator of the relationship between mobile device usage and social competency. Using information gained from the present study, future research can design a longitudinal mixed method study and collect data from both parents and children in order to fully understand the complex relationships between the parental role in moderating the effect of mobile device usage and the development of social competency. Future research can also explore the digital habits of parents who do not regulate their mobile device usage and examine the effects of distracted parenting on children's social development. The present study has strong theoretical and practical implications that can affect positive social change. Theoretically, the results of the present study corroborated Vygotsky's theory and transformed parental

misconceptions of the nature of social interaction and the development of social competency in the digital world. On a practical level, the present study promoted the important role parents play in raising socially competent and digitally responsible children. Moving forward, the present study advocated for a more collaborative monitoring strategy, which includes both parents and their children, instead of the restrictive approaches that are currently being utilized. The take home messages that parents can derive from the present study are: (a) social competency develops similarly in the digital world, as it is in the real world; (b) parents play an important role in monitoring and regulating mobile device usage; and (c) parental monitoring strategy needs to be a collaboration between parents and children.

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Appendix A: IRB Approval Letter

Dear Ms. Topper,

This email is to notify you that the Institutional Review Board (IRB) has approved your application for the study entitled, "An Examination of the Relationships Between Mobile Device Usage and Social Competency in Preadolescence," conditional upon the approval of the research partner, as documented in the partner's signed letter of cooperation, which will need to be submitted to the Walden IRB when obtained. The researcher may not commence the study until the Walden IRB confirms receipt of that letter of cooperation.

Your approval # is 10-05-16-0456470. You will need to reference this number in your dissertation and in any future funding or publication submissions. Also attached to this e-mail is the IRB approved consent form. Please note, if this is already in an on-line format, you will need to update that consent document to include the IRB approval number and expiration date.

Your IRB approval expires on October 4, 2017. One month before this expiration date, you will be sent a Continuing Review Form, which must be submitted if you wish to collect data beyond the approval expiration date.

Please note that this letter indicates that the IRB has approved your research. You may **NOT** begin the research phase of your doctoral study, however, until you have received official notification from the IRB to do so. Once you have received this notification by email, you may begin your data collection. Your IRB approval is contingent upon your adherence to the exact procedures described in the final version of the IRB application materials that have been submitted as of this date. This includes maintaining your current status with the university. Your IRB approval is only valid while you are an actively enrolled student at Walden University. If you need to take a leave of absence or are otherwise unable to remain actively enrolled, your IRB approval is suspended. Absolutely NO participant recruitment or data collection may occur while a student is not actively enrolled.

If you need to make any changes to your research staff or procedures, you must obtain IRB approval by submitting the IRB Request for Change in Procedures Form. You will receive confirmation with a status update of the request within 1 week of submitting the change request form and are not permitted to implement changes prior to receiving approval. Please note that Walden University does not accept responsibility or liability for research activities conducted without the IRB's approval, and the University will not accept or grant credit for student work that fails to comply with the policies and procedures related to ethical standards in research.

When you submitted your IRB application, you a made commitment to communicate both discrete adverse events and general problems to the IRB within 1 week of their occurrence/realization. Failure to do so may result in invalidation of data, loss of academic credit, and/or loss of legal protections otherwise available to the researcher.

Both the Adverse Event Reporting form and Request for Change in Procedures form can be obtained at the IRB section of the Walden website:
http://academicguides.waldenu.edu/researchcenter/orec

Researchers are expected to keep detailed records of their research activities (i.e., participant log sheets, completed consent forms, etc.) for the same period of time they retain the original data. If, in the future, you require copies of the originally submitted IRB materials, you may request them from Institutional Review Board.

Both students and faculty are invited to provide feedback on this IRB experience at the link below:

http://www.surveymonkey.com/s.aspx?sm=qHBJzkJMUx43pZegKlmdiQ_3d_3d

Sincerely,
Libby Munson
Research Ethics Support Specialist
Office of Research Ethics and Compliance
irb@waldenu.edu
Fax: 626-605-0472
Phone: 612-312-1283

Office address for Walden University:
100 Washington Avenue South, Suite 900
Minneapolis, MN 55401

Information about the Walden University Institutional Review Board, including instructions for application, may be found at this link:
http://academicguides.waldenu.edu/researchcenter/orec

Appendix B1: Permission to use Devereux Student Strength Assessment

From: Paul LeBuffe <PLEBUFFE@devereux.org>
Date: Fri, Jan 8, 2016 at 10:28 PM
Subject: RE: Permission to use DESSA for dissertation research
To: Christin Topper <christin.topper@waldenu.edu>

Hi Christin,
Thanks for your interest in using the DESSA in your dissertation. Are you aware that there is an online (web-based) version of the DESSA? It might be an easier alternative than building your own google form. The online DESSA already has all of the scoring and reporting features. Let me know if you are interested in learning more about the online DESSA and we'll move forward from there. Thanks.

From: Christin Topper <christin.topper@waldenu.edu>
Date: Sat, Jan 9, 2016 at 5:30 PM
Subject: Re: Permission to use DESSA for dissertation research
To: Paul LeBuffe <PLEBUFFE@devereux.org>

Dear Dr. LeBuffe,
Yes, I am aware of the online version. However, I am hoping to collect some demographic and short qualitative questions, so instead of getting my participants to fill out the questionnaire and the DESSA rating scale separately, I thought it is best to embed the DESSA into the questionnaire directly. I realized that means I will have to calculate the composite score manually, but my priority is the convenience for my participants. Thank you for the suggestion.

Kind regards,
Christin Topper, A00456470
Student, Ph.D in Educational Psychology
christin.topper@waldenu.edu
topperchristin@gmail.com
1-852-61840284
Hong Kong, Universal Standard Time + 8

Appendix B2: Permission to use Parental Mediation of Young Children's Internet Use

On Sun, Jun 12, 2016 at 10:31 PM, Nikken, Peter <P.Nikken@nji.nl> wrote:

Dear Christin,
Use of our scale won't be a problem. Enclosed you'll find all items that we used in the survey; i.e. also the items that did not fit the factor analysis.
Good luck with your study. Hope to hear something about it sometime.

Kind regards,

Prof. Dr. Peter Nikken

Specialist media, children, and parents – Netherlands Youth Institute
Professor in media, children, and parents – Erasmus University Rotterdam, ESHCC
Assistent professor – Windesheim University for applied science, dep. Pedagogy

Working days: Tuesday - Thursday NJi (and EUR); Monday, Friday Windesheim

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mobi: m.nji.nl

Appendix C: Parent Information Sheet

Dear Parents,

My name is Christin Topper. I am a PhD student at Walden University. For my dissertation, I am doing a research study to determine whether mobile device usage, as viewed by the parents, will support or hinder social development in children. I would like to invite you to participate in this study because you have children between the ages of 0 to 12 years who have their own personal mobile devices, for example mobile phone, smartphone, tablet, laptop, e-book reader, and/or portable gaming device.

Background Information: The purpose of this study is to examine the extent to which social skill is affected by the way you view your child's mobile device usage.

Procedures: If you would like to participate in this study, please visit my Dissertation Research website (https://sites.google.com/a/waldenu.edu/christin-topper-dissertation-research/). You will be required to fill out a Parent Consent Form and a Parent Questionnaire, which includes:

(a) a survey on how your children use their mobile devices;
(b) the Devereux Student Strength Assessment (DESSA), a behavior rating scale designed specifically for children from kindergarten to grade 8; and
(c) the Parental Monitoring of Young Children Internet Use (PM-YCIU), a rating scale to measure the level of parental monitoring.

A parent can fill out the questionnaire for one child only. If more than one child in a family meets the eligibility criteria and would like to participate in the study, another parent, guardian, or adult who knows the additional child well will have to complete another set of consent form and questionnaire. It will take approximately 20 minutes to complete the consent form and questionnaire.

Confidentiality: Any information you provide will be kept confidential. The results of this research will be published in my PhD Thesis and may also be included in published journal articles and conference proceedings. No identifying details of participants will be included. All data collected will be stored securely on my password protected laptop and Google Drive. Paper and electronic files will be destroyed after five years.

Voluntary Nature of the Study: Participation in this research is voluntary and you may decline to take part or withdraw from the study at any time without giving a reason, simply by emailing me. You are not waiving any legal rights in the event of research-related harm.

Risks and Benefits of being in the Study: There are no physical, social, legal, or economical risks associated with participating in the study. However, you may feel unsure about answering some questions about your child's mobile device usage. You can decline to answer particular questions and still remain in the study. As a token of appreciation for your time, you will receive a $5 gift card for participating in the study.

Thank you very much for your time and help in making this study possible. If you have any questions or wish to know more please phone me on 1-647-879-2070 or email me at christin.topper@waldenu.edu.

Please contact the Director of Institutional Review Board at Walden University for any questions regarding participant's rights or privacy:

Dr. Leilani Endicott
Office of Research Ethics and Compliance
Walden University
Minneapolis, MN 55401
Phone: 1-612-312 1210
Email: IRB@waldenu.edu

Appendix D: Parent Questionnaire

Dear parents,

Thank you for participating in this research. The information you provided in the questionnaire will give an indication on your child's mobile device usage and level of social competency. A few demographics questions are included to determine the influence of psychosocial factors that may affect the results of this study. Please be assured that your record will remain confidential and no identifying information will be included in any publication reports.

Section 1: My Child's Information

Child's name: _____
Person completing this form: _____
Relationship to child: _____
Child's Gender: ____ Male _____ Female
Child's Age: ___ 5 ___ 6 ___ 7___ 8___9___ 10___11 ___ 12
My child owns his/her own:
_____ Smartphone (Android phone, iPhone, Windows phone)
_____ Laptop (Macbook, Netbook, Chromebook)
_____ Tablet (iPad, iPod touch, PDA, Galaxy Tab, Nexus)
_____ E-reader (Kindle, Kobo, Nook)
_____ Handheld game console (Nintendo DS, PSP, Shield)
_____ Portable media player (MP3/4 players, iPod Nano)
_____Wearable device (smart watch, Google glass, virtual reality glasses)
_____ Other, please specify _____

Section 2: Mobile Device Usage

My child uses his/her mobile device for:	**1 Never**	**2 Some time**	**3 Most of the time**	**4 All the time**
Video calling (Skype, Facetime, Google Hangout)				
Texting or picture chatting				
Watching movies or videos				
Telling time				
Working on school assignments or projects				
Browsing or doing Internet search				
Making phonecalls				
Playing games				
Blogging				
Listening to music				
Checking daily weather				
Visiting social networking sites, such as Facebook, Instagram, Snapchat, Twitter				
Reading news or current events				
Using the calendar				

Taking pictures or videos				
Setting up alarms				
Making movies or music videos				
Emailing				
Making a list of things to do				
Other. Please list				

Section 3: Parental Monitoring

How often do you…?	1 Never	2 Seldom	3 Some times	4 Often	5 Very Often
Tell your child what to do about online strangers					
Tell your child to protect personal information					
Say what to do if they are bullied or harassed					
Talk to your child about what rules of conduct to follow					
Explain how to behave on social networking sites					
Explain to your child what he may do on Instant Messaging websites					
Explain to your child how to use webmail					
Surf together, because the child wants to					
Surf together, because you want to					
Talk with your child about what is fun on the internet					
Say that online games are unsuitable					
Say which online game genres are allowed					
Tell your child when/how long to use internet					
Say which films may be downloaded					

Say which products may be bought online	☐	☐	☐	☐	☐
Say what kind of avatar is allowed	☐	☐	☐	☐	☐
Say what music may be listened to/downloaded	☐	☐	☐	☐	☐
Keep an eye on the child and the computer	☐	☐	☐	☐	☐
Allow the child to web surf only when you are present	☐	☐	☐	☐	☐
Stay close to the computer to help if necessary	☐	☐	☐	☐	☐

Section 4: DESSA Rating Scale

Item #	*During the past 4 weeks, how often did the child…*	Never	Rarely	Occasionally	Frequently	Very Frequently
1	remember important information?	☐	☐	☐	☐	☐
2	carry herself/himself with confidence?	☐	☐	☐	☐	☐
3	keep trying when unsuccessful?	☐	☐	☐	☐	☐
4	handle his/her belongings with care?	☐	☐	☐	☐	☐
5	say good things about herself/himself?	☐	☐	☐	☐	☐
6	serve an important role at home or school?	☐	☐	☐	☐	☐
7	speak about positive things?	☐	☐	☐	☐	☐
8	cope well with insults and mean comments?	☐	☐	☐	☐	☐
9	take steps to achieve goals?	☐	☐	☐	☐	☐
10	look forward to classes or activities at school?	☐	☐	☐	☐	☐
11	get along with different types of people?	☐	☐	☐	☐	☐
12	try to do her/his best?	☐	☐	☐	☐	☐
13	seek out additional knowledge or information?	☐	☐	☐	☐	☐
14	take an active role in learning?	☐	☐	☐	☐	☐
15	do things independently?	☐	☐	☐	☐	☐

16	say good things about his/her classmates?	☐	☐	☐	☐	☐
17	act respectfully in a game or competition?	☐	☐	☐	☐	☐
18	ask to take on additional work or responsibilities?	☐	☐	☐	☐	☐
19	respect another person's opinion?	☐	☐	☐	☐	☐
20	encourage positive behavior in others?	☐	☐	☐	☐	☐
21	prepare for school, activities, or upcoming events?	☐	☐	☐	☐	☐
22	contribute to group efforts?	☐	☐	☐	☐	☐
23	do routine tasks or chores without being reminded?	☐	☐	☐	☐	☐
24	act as a leader in a peer group?	☐	☐	☐	☐	☐
25	resolve a disagreement?	☐	☐	☐	☐	☐
26	show creativity in completing a task?	☐	☐	☐	☐	☐
27	share with others?	☐	☐	☐	☐	☐
28	get things done in a timely fashion?	☐	☐	☐	☐	☐
29	seek out challenging tasks?	☐	☐	☐	☐	☐
30	say good things about the future?	☐	☐	☐	☐	☐
31	cooperate with peers or siblings?	☐	☐	☐	☐	☐
32	show care when doing a project or school work?	☐	☐	☐	☐	☐
33	work hard on projects?	☐	☐	☐	☐	☐
34	forgive somebody who hurt or upset her/him?	☐	☐	☐	☐	☐
35	follow rules?	☐	☐	☐	☐	☐
36	express high expectations for himself/herself?	☐	☐	☐	☐	☐
37	follow the example of a positive role model?	☐	☐	☐	☐	☐
38	compliment or congratulate somebody?	☐	☐	☐	☐	☐
39	accept responsibility for what she/he did?	☐	☐	☐	☐	☐
40	do something nice for somebody?	☐	☐	☐	☐	☐
41	make accurate statements about events in her/his life?	☐	☐	☐	☐	☐
42	show good judgment?	☐	☐	☐	☐	☐
43	pay attention?	☐	☐	☐	☐	☐
44	wait for her/his turn?	☐	☐	☐	☐	☐
45	show appreciation of others?	☐	☐	☐	☐	☐
46	focus on a task despite a problem or distraction?	☐	☐	☐	☐	☐
47	greet a person in a polite way?	☐	☐	☐	☐	☐
48	act comfortable in a new situation?	☐	☐	☐	☐	☐
49	teach another person to do something?	☐	☐	☐	☐	☐
50	attract positive attention from peers?	☐	☐	☐	☐	☐
51	perform the steps of a task in order?	☐	☐	☐	☐	☐
52	seek advice?	☐	☐	☐	☐	☐
53	think before he/she acted?	☐	☐	☐	☐	☐
54	pass up something he/she wanted, or do something he/she did not like, to get something better in the future?	☐	☐	☐	☐	☐
55	express concern for another person?	☐	☐	☐	☐	☐
56	accept another choice when his/her first choice was unavailable?	☐	☐	☐	☐	☐
57	ask questions to clarify what he/she did not understand?	☐	☐	☐	☐	☐

58	show an awareness of her/his personal strengths?	☐	☐	☐	☐	☐
59	ask somebody for feedback?	☐	☐	☐	☐	☐
60	stay calm when faced with a challenge?	☐	☐	☐	☐	☐
61	attract positive attention from adults?	☐	☐	☐	☐	☐
62	describe how he/she was feeling?	☐	☐	☐	☐	☐
63	give an opinion when asked?	☐	☐	☐	☐	☐
64	make a suggestion or request in a polite way?	☐	☐	☐	☐	☐
65	learn from experience?	☐	☐	☐	☐	☐
66	follow the advice of a trusted adult?	☐	☐	☐	☐	☐
67	adjust well to changes in plans?	☐	☐	☐	☐	☐
68	show the ability to decide between right and wrong?	☐	☐	☐	☐	☐
69	use available resources (people or objects) to solve a problem?	☐	☐	☐	☐	☐
70	offer to help somebody?	☐	☐	☐	☐	☐
71	respond to another person's feelings?	☐	☐	☐	☐	☐
72	adjust well when going from one setting to another?	☐	☐	☐	☐	☐

Appendix E: Flyers

Parental Perception of Mobile Device Usage in Children and its Effect on Social Competency

by Christin Topper

Doctoral candidate, PhD in Educational Psychology

Can mobile devices affect children's social skill?

Get a free GIFT CARD

Are you a parent of children between the ages of 5 to 12?

Do your children have their own devices (smartphone, tablet, or laptops)?

Join this research study and get a free $5 gift card.

For more information, visit https://goo.gl/zQl4me