

Examining Parental Predictors of Young Children's Problematic Screen Media Use

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by Xinyi Xue

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Supervisors:

Dr Cara Swit, University of Canterbury

Dr Myron Friesen, University of Canterbury

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Abstract

There is a rapid growth in children's media use, which raise parents' concern over time. Nowadays children can access to media at an early stage either actively or passively. Parenting practices behaviours start to intervene children's screen time in early childhood. Therefore, parents play a critical role in guiding young children's healthy media use habits. The present project aims to examine: a) to what extent parenting practices are related to parental media monitoring strategies and the reasons why parents allow children to use media, and b) to what extent parenting practice, parental monitoring strategies, and reasons why parents allow children to use media contribute to children's problematic media use. Ninety-one parents (90.1% mothers; $M_{age} = 34.7$, $SD = 5.8$) with at least one child between the ages of two and five years of age completed a battery of questionnaires assessing the above constructs. Results indicated that authoritarian parenting behaviours were significantly related to using media to calm their child when upset. More restrictive mediation was negatively and significantly associated with using media to calm their child when upset. The results of a hierarchical regression analysis indicated that authoritative parenting practices and less use of media to calm children when upset contribute to fewer problematic media behaviours in young children. This study contributes to our understanding about how parents' thoughts and behaviours are related to children's media use at an early stage. This study also showed potential parental factors to prevent children's problematic media use in early childhood. Therefore, this study can acknowledge and remind parents of certain parental behaviours to reduce children's problematic media use in early childhood. However, future research is needed to investigate the consistency of these relationships. Future interventions are needed to guide parents through modelling and shaping children's healthy media use.

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Chapter One: Introduction

1.1 Background and Context

Researchers have been interested in the effect of media on children's development for a number of decades (e.g., Bailyn, 1959). With modern technologies, media exposure is no longer passive. Children are exposed to screen media in public environments and the home. With the emergence of digital media, children are now exposed to many different forms of media including television, iPads, social media, and video games to name a few. In this project, screen media includes television, computer, playing video games, using digital software applications (apps), using web-based electronic social media, and any other activities that involve screen media use (Rideout et al., 2010).

The American Academy of Paediatrics (AAP) recommends that Children under 24 months should not be exposed to screen media (American Psychological Association, 2020). In New Zealand, the Ministry of Health (2017) recommends that preschool-age (3 to 5 years old) children's screen time should not exceed one hour per day. However, recent research conducted in New Zealand (Stewart et al., 2019) and internationally (American Psychological Association, 2020; Nathan et al., 2021; World Health Organization, 2019) shows that infants' and pre-schoolers' exposure to media is above these recommended guidelines. More specifically, a recent study of children's daily screen time shows that in the United States, infants (0 to 2 years old) and pre-schoolers (3 to 5 years old) spend approximately two or more hours each day watching television and other mobile devices (Chen & Adler, 2019). In Canada, Angus Reid Institute (2019) conducted a more recent study in Canada, revealing that 34% of the participants ($n = 768$) reported that their children spent between one to two hours in front of screens each day. Fifty percentage of the parents concerned that children would be addictive to screen media The extent of pre-schoolers daily screen use has also been reported in India (John et al., 2021), Hong Kong (Lau & Lee, 2020), New Zealand (Stewart et al.,

2019), Australia (Nathan et al., 2021), Norway, Portugal and Japan (Dardanou et al., 2020), with children's screen use averaging between two and four hours per day across these countries. The findings from these studies also indicate that during early childhood, boys participate in gaming activities more often whilst girls are more likely to spend time participating in screen-based creative and learning activities (Angus Reid Institute, 2019). These statistics indicate that screen media is becoming a normative part of young children's daily activities. There is a significant increase use in early childhood, which has drew attention from researchers. Parents and researchers also concern about how young children's media use would critically affect children's physical, social, emotional and cognitive development.

Evidence showed that screen media can have positive benefits on young children's development. For instance, McHarg and Hughe's (2021) longitudinal study of children aged 14 months to 36 months found that children who watch television programmes that promote prosocial behaviours (e.g. Dora the Explorer and Sesame Street) are more likely to develop and use prosocial behaviours such as caring and sharing with their peers. Media can also be a learning tool with educational benefits (Linebarger, 2015; McHarg & Hughes, 2021). For instance, there are applications and online content that help children learn important facts about the world and improve their computer skills and reading ability. Media can also be an effective and efficient way to communicate with distant family, as demonstrated during the coronavirus pandemic (Angus Reid Institute, 2019; Konok et al., 2019). Media use may also impact children's fine motor skill development (Moon et al., 2019). Moon and colleagues (2019) found that three years old children who use mobile devices more frequently were more likely to develop more fine motor skills compared to children who spent less time on mobile devices. This is because the frequent use of the index finger for screen scrolling could promote children's fine motor skills. However, another study found the opposite results

regarding this age group (Martzog & Suggate, 2022). Moreover, this relationship was not evident in five-year-olds.

1.2 Children's problematic media use

When the amount of screen time children have spent on are beyond the recommended guidelines, it is considered as excessive media use. Research showed that excessive media may bring about developmental concerns related to children's physical health, and behavioural and emotional problems (Coyne et al., 2021; Hill et al., 2016; Stewart et al., 2019). In this study, media refers to television, tablets, video games, smart phones and computers (Domoff et al., 2019). When excessive media use are related to psychological and emotional problems such as low self-regulation skills, more aggressive behaviours and poor peer relationships, it may be considered as problematic media use (Domoff et al., 2020). It may be more likely to cause addiction and developmental problems later in adolescence, which includes nine domains: preoccupation with media, withdrawal, tolerance, failure attempts by controlling parents, loss of interest in other activities, escape from negative emotions, dishonest about media use, loss of relationships and psychosocial problems (Domoff et al., 2019).

Despite the potential benefits of some screen media use, problematic media use in early childhood may contribute to negative emotional difficulties such as tantrums and difficult temperaments when children use media as a coping tool (Coyne et al., 2021). Children's increasing use of media in early childhood has become a concern for some parents (Angus Reid Institute, 2019; Cheng et al., 2010). Parents report more sleeping problems when children use screen media before bedtime (Staples et al., 2021). Stewart and colleagues (2019) also found that excessive screen time is associated with a higher risk of diabetes and a lack of social skills. These findings demonstrate that there are positive and negative outcomes associated with young children's screen media use. As will be highlighted in the next section,

parent supervision is critical in maximising the positive impact and minimising the negative impact of screen media on children's development.

1.3 The role of parents in managing young children's media use

Children's first exposure to screen media typically occurs during early childhood, so it is an important opportunity for parents to be positive role models and agents in helping their children develop healthy screen media habits and prevent problematic media use. Parents' adoption of technology and digital media, along with their beliefs about the value of technology for children may impact children's access to, and use of screen media (Nevski & Siibak, 2016; Vaala & Bleakley, 2015). Previous research has found that parents enforce more rules on younger children's media use (Barr, 2019). Additionally, parents with a more positive attitude toward media use report allowing their children to have more screen time (Barr, 2019). They are more likely to use media as an educational tool with their children, and are more likely to co-view media with their children. Barr (2019) also mentioned that parents are becoming increasingly concerned about their children's media use and ways to effectively manage it. General parenting practices would support children's physical play time instead of excessively having screen time (Langer et al., 2014). Thus, the types of general parenting practices such as authoritative, authoritarian, permissive, overprotective and psychological control parenting, parental monitoring strategies, and reasons why parents allow their children to use media may be important predictors of children's healthy and problematic media use, particularly during early childhood when children are first engaging with screen media. The relationships between these parent variables and children's problematic media use will be examined in light of the Interactional Theory of Childhood Problematic Media Use (IT-CPU) (Domoff et al., 2020). This theoretical model includes proximal, maintaining and distal factors that can directly and indirectly impact on young children's problematic media use. This theory hypothesised that distal factors such as

parents' media use and proximal factors such as children's poor emotional regulation skills would contribute to young children's problematic media use. The interactions within each parent, child and environmental factor may shape children's media use at an early stage.

1.4 Research Aims

The first goal of this research project is to examine to what extent parenting practices are associated with parental monitoring of children's media use and the reasons why parents allow their child(ren) to use media in early childhood. The second goal is to examine to what extent authoritative, authoritarian, permissive, overprotective and psychological control parenting, parental monitoring behaviours of children's media use and reasons why parents allow their child(ren) to use media are related to children's problematic media use.

1.5 Structure of the thesis

This thesis continues with a review of contemporary literature related to authoritative, authoritarian, permissive, overprotective and psychological control parenting practices, parental monitoring strategies, reasons why children use media, and children's problematic media use. The research methodology and results follow the literature review. Finally, the discussion and conclusions are presented.

Chapter two: Literature review

This chapter seeks to define key concepts and provide a review of the relevant theories and literature related to parenting and its impact on children's media use. The gaps in existing literature will be acknowledged, followed by the research aims and questions for the current study. I used PSYCINFO and Google Scholar to find relevant research. The key terms were "early childhood", "problematic media use", "parenting practices", "parental monitoring", "parental mediation", "reasons", "attitude", "children's media use" and "theory". The target population is preschool children. In this study, the independent variable is parenting practices, parental mediation and reasons why children use media. And the dependent variable is children's problematic media use.

2.1 Theories and Key Concepts

2.1.1 Problematic media use of children

With the rapid growth in young children's media use in recent years and the normalization of digital devices in the homes of families from industrialized countries (Dardanou et al., 2020; Nathan et al., 2021; Stewart et al., 2019), excessive use of media may put young children at greater risk of developing problematic media behaviours. Children will be exposed to various sources of media such as television, computer, smartphone and video games (Canadian Paediatric Society, 2003). Without parents' supervision, children have higher chances to view inappropriate content such as violence, sexuality and unhealthy behaviours (alcohol and smoking). So they have a higher chance to imitate similar behaviours. However, media has some benefits on children's development (Canadian Paediatric Society, 2003; Linebarger, 2015). With parents' involvement, it is possible that media is used as an educational tool to teach children about prosocial behaviours and academic knowledge (Canadian Paediatric Society, 2003; Moon et al., 2019). Not only at

home setting, educational settings of different age groups also start to use media as an educational tool (Canadian Paediatric Society, 2003).

Recent research in New Zealand has shown that the amount of time children and adolescents spend on media continues to increase (Meates, 2020). Although there are some benefits of using media, excessive use, or using digital media in ways that disrupt the development of age-appropriate competencies may be considered to be problematic (Domoff et al., 2020; Meates, 2020). Research shows that problematic media use causes psychological problems such as depression and self-harm during middle childhood and adolescences (Meates, 2020). Researchers pay more attention to children's media use and media addiction in adolescence, which they use media as a coping mechanic to regulate difficult emotions (Plante et al., 2019). However, literature reporting the impact of problematic media use in early childhood is limited.

2.1.2 Interactional Theory of Childhood Problematic Media Use

Domoff, Borgen, and Radesky (2020) developed an Interactional Theory of Childhood Problematic Media Use (IT-CPU) that is largely based on Bronfenbrenner's Bioecological Theory (Bronfenbrenner & Morris, 2006). IT-CPU argues that children, parents, peers, family and social environment(s) all contribute to children's use of media and the associated impacts. Multiple factors make up the spheres of children's development of media use (See Figure 1). The IT-CPU incorporates the Process-Person-Context-Time elements from bioecological theory. It positions proximal and maintaining factors as the immediate influences on children's problematic media use. On the other hand, IT-CPU also involves broader factors that establish the context for when and how screen media is engaged. This theoretical model may help us understand the multi-layer of children's systems of developing media use habits and how parenting and environment affect children's media use.

According to the IT-CPU, distal factors (Domoff et al., 2020, p. 346) indirectly impact children's screen media use. They are environmental factors and family situations that are surrounding a child's development and his/her media use. A distal factor is placed at the outer level of a child's development, which may be a potential risk to develop children's problematic media use over time. Examples of distal factors include family chaos, family socio-economic status, and the wider digital environment (e.g., media exposure in the public environment and default settings on social media applications of auto play). For the present study, I will include the parenting style of the caregiver as a distal factor, impacting on children's problematic media behaviours. Parenting practices on children's media use could reflect parents' attitudes and how they interact with their children when dealing with digital devices. Then, these attitudes and interactions may directly have an impact on children's problematic media use. These general patterns of interaction are likely to establish the social and emotional conditions in which children experience screen media within the home.

Parenting styles were first introduced by Baumrind (1967) and have been updated by several other researchers (e.g., Larzelere et al., 2013; Robinson et al., 1995). There are several fundamental elements that describe parenting styles, including the way parents respond to children's behaviours (i.e. level of responsiveness), and parent's expectations of children's behaviours (i.e., degree and quality of control). Traditionally, parenting styles have been categorised as authoritative (i.e. willing to listen to children's thoughts), authoritarian (i.e. over-control children's behaviour and make decisions for children), permissive (i.e. low level of parental control and no strict discipline) and neglectful (low levels of control and responsiveness). Other research has also identified overprotective parenting (i.e. overly get involved in children's activities) as distinct from permissive parenting (Robinson et al., 1995). Parenting styles are not just behavioural expressions, it also contains many emotional involvement and social interactions between parents and their children (Larzelere et al. 2013).

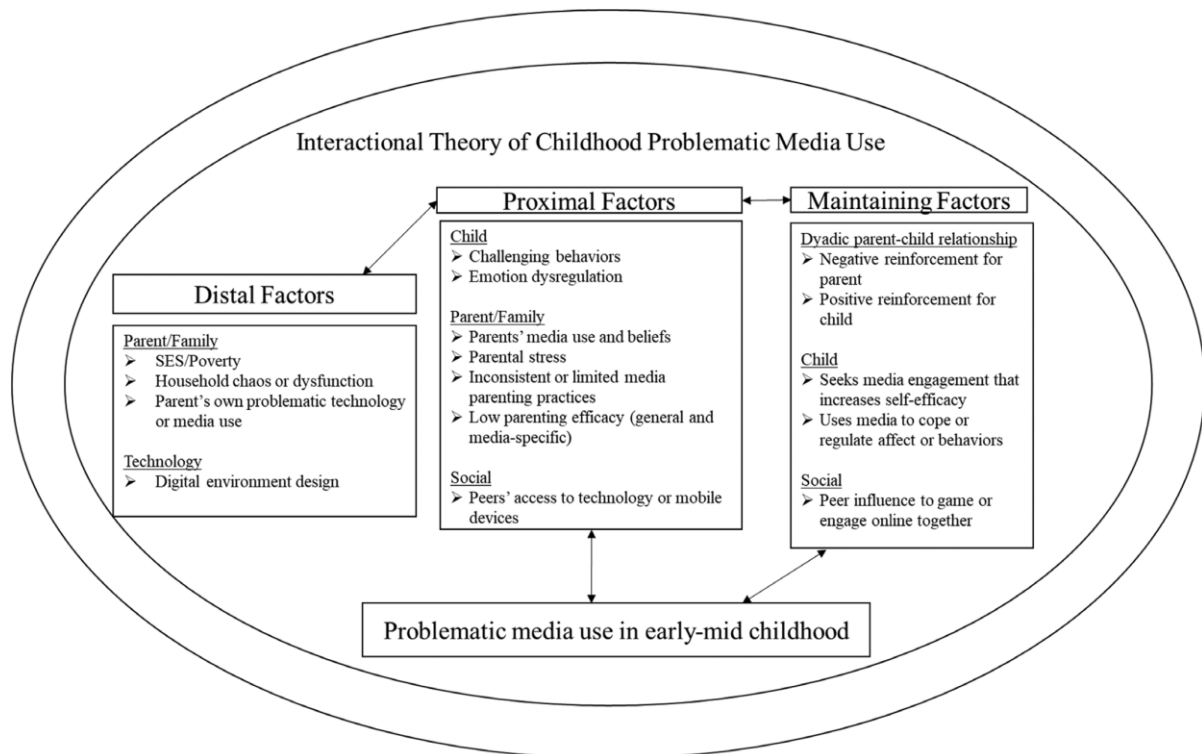
In terms of children's media use, parenting practices may impact children's problematic media use (Schary et al., 2012). For instance, permissive parents may have low control of children's media use and fewer rules about their child's access to media. Thus, the amount of time children spend on media use may exceed the recommendations. Consequently, permissive parenting may be a risk factor for children's problematic media use (Langer et al., 2014).

During the early years, parents are role models to influence children's media use behaviours (Domoff, 2020). So, parents are responsible for setting limits, scaffold media use habits for children. Thus, parenting behaviour is an important sphere of influence that can serve to increase or decrease children's problematic media use. Recent research has demonstrated parenting practices can influence how often children access screen media in early childhood (Nevski & Siibak, 2016). For instance, a large study of over 1000 Hungarian families examined the relationships among parenting style, parenting attitudes and children's screen time (Konok et al., 2019). Results showed that authoritative and permissive parenting is related to children's increased use of screen media, whereas authoritarian parenting was related to less screen use by children. Parents with more positive attitudes toward media (i.e. screen media has an educational purpose and can teach children prosocial behaviours) were also more likely to have children who had higher screen media usage. This study has pointed out that parenting practices may distantly influence children's media use by creating positive or negative attitudes. Other studies have shown that parenting styles influence children's screen use habits, and it is a strong predictor of parent's media monitoring plan (Nikken & Schols, 2015; Sanders et al., 2016). Sanders and his colleagues (2016) found that general parenting practices are positively related to specific parenting behaviours of children's media use. For example, in America, parents with low parenting control (e.g. permissive parenting) may use media to comfort their children's negative emotion or keep them quiet. These

children who are in their early and middle childhood years may develop unhealthy media use and may seek media as a self-regulation tool, consequently having long-term impact on their emotional and behavioural development and skills.

Figure 1

Interactional Theory of Childhood Problematic Media Use.



Note. This figure was proposed by Domoff, S. E., Borgen, A. L., & Radesky, J. S. (2020). Interactional theory of childhood problematic media use. *Human behavior and emerging technologies*, 2(4), 343-353. <https://doi.org/10.1002/hbe2.217>. Copyright 2022 by Wiley Online Library

According to IT-CPU, the next group of factors that predict problematic screen media use are proximal factors. They are factors that situated nearer in the immediate level of children's development. Behavioural and emotional problems could be regarded as proximal factors, as they can be early risks on children's problematic media use (Domoff et al., 2020). Proximal factors are divided into child, parent/family and social levels (see Figure 1 above). Examples of proximal factors at the child level include the child's challenging behaviours

and negative emotions. Examples at the parent level include parental stress, parent's media use and beliefs about media, parents' specific behaviours and strategies related to children's media use, and parenting efficacy towards children's digital media use and daily life.

Examples at the social level include peer interactions towards media use, which are also recognized as one of the proximal factors. For example, a child may engage with media use when he/she sees peers using media in the public or educational settings. For this study, I am examining two specific parenting variables that fall under Domoff and colleagues's (2020) proximal factors – parents' media beliefs operationalized as the reasons why parents allow their children to use social media, and media parenting practices operationalized as parental monitoring strategies of screen media use.

The reasons why parents allow their children to use media may be linked to the types of parenting practices they choose to use, ultimately impacting children's screen use habits and screen time (Domoff et al., 2020; Ozturk Eyimaya & Yalçin, 2021). One study found that in America, parents allow their children who are from zero to six years old to watch television because they want their child to be occupied in their own space and to help them fall asleep (Vandewater et al., 2007). Parents also use media to keep children quiet and to soothe children's negative emotions (Domoff et al., 2020). Media also has an educational value such as learning vocabulary and social behaviours (Strouse et al., 2018). Literature illustrated various reasons why parents may allow their child access to screen media. However, to date, few empirical studies have investigated the relationship between parenting practices and the reasons parents allow their children to use screen media.

According to IT-CPU, the next group of variables that predict children's problematic media use are maintaining factors. These factors are psychological and social interactions that would reinforce problematic media use over time. These factors may contribute to children's ongoing problematic media use through certain strategies such as using media as a strategy to

increase self-efficacy, regulate behaviours or avoid parent-child conflict (Domoff et al., 2020). When parents use media as a tool to escape conflicts between parent and child, the child would seek media as a reward. When children are experiencing low self-efficacy in the family or at school, they are more likely to seek positive experiences via digital media to fulfil the feeling of success. Over time, children need more media exposure to achieve the same level of satisfaction over time, potentially becoming a problem in their late childhood and adolescence (Meates, 2020). In this thesis, I will include using media to calm children as a maintaining factor. Overtime, children are more likely to spend more time on media to regulate their negative emotions and behaviours.

2.1.3 Parental Mediation Theory

Parenting practices related to media include parental monitoring of children's media use. Dishion and McMahon (1998) defined parental monitoring as behaviours that involve tracking children's behaviours and emotions. In early childhood, a lack of parental monitoring may increase the opportunity of exposure to developmental inappropriate media content. Children are more likely to view violent and improper media content without parents' monitor. Therefore, children may have more problem behaviours related to media use (Dishion & McMahon, 1998). Extending this definition, parental monitoring of media is defined as behaviours that involve tracking and supervising the types, content, and time of children's screen media access. Parental Mediation Theory describes the different strategies that parents use to interact and communicate with their children (e.g., rules and time limits on media use, discussing the content children watch) to prevent the negative effects of media and promote educational aspects (Clark, 2011). Three strategies are used to describe the ways parents monitor children's media use (Clark, 2011; Warren & Aloia, 2019).

First, active mediation strategies are conversations that parents have with their child about the content they view on media. The purpose of active mediation strategies is to

mitigate potential harm associated with media use and to educate and foster positive outcomes (Gentile et al., 2012). Using active mediation strategies has been shown to help improve children's critical thinking skills and prevent negative behavioural outcomes and unhealthy media habits (Clark, 2012). Active mediation is also a way to approve or disapprove of children's media behaviours and the content they watch (Scott, 2021). More specifically, active mediation involves an ongoing dialogue between the parent and child about what the child (and parent or family) is viewing on media. Through this dialogue, parents educate and socialise their child about acceptable and unacceptable media content. Parents use not only verbal communication but also non-verbal communication such as modelling and showing their own media use behaviours and habits to guide children's media use (Scott, 2021). This scaffolding is likely to promote children's healthy media behaviours and choices as they internalise media rules and expectations. Therefore, parents are encouraged to use active mediation strategies to guide young children's media use habits.

Second, restrictive parental mediation involves parents implementing strict rules and consequences for children's media use, without necessarily discussing the content or its effects (Clark, 2011; Hoffmann, 2019). Parents with young children and first-time parents are more likely to use restrictive parental mediation strategies to prevent problematic media use at an early stage (Hoffmann, 2019). Nevski and Siibak (2016) also found that restrictive parental monitoring and supervision are common parenting practices when infants and toddlers use screen media. Parents restrict children's media use related to time, location and content. They also reduce using media themselves when children are around, so children become less distracted by media devices during meal- and play-time (Hoffmann, 2019; Zaman et al. 2016). These strategies may prevent unhealthy media use habits during children's development. However, research on parents' use of restrictive mediation strategies has shown mixed results. An early study on this mediation strategy showed that firm rules

and behavioural consequences for media use were effective in socialising children to comply and consequently, prevented negative outcomes (Nathanson, 1999). In contrast, Clark (2011) concluded that extremely high or low restrictive parental monitoring may bring other negative outcomes such as aggression in children's later life. When parents use high level of restrictive parental monitoring strategies to control children's media use, younger children would develop less problematic behaviours (Van Petegem et al., 2019). However, as the self autonomy grows through children's development, when parents overly involved in adolescents' media use without appropriate strategies, they tend to have a negative attitude about parents and seek for restrictive content when parents were not around (Clark, 2011).

Outcomes associated with restrictive mediation strategies have also differed across developmental periods. Restriction mediation strategies have been shown to contribute to greater parent-child conflicts (Beyens & Beullens, 2017). When parents use media to comfort and soothe their child, the removal of media may trigger negative emotions (Hoffmann, 2019). In adolescence, restrictive parental mediation can bring more negative attitude towards parents' behaviours and decisions, and more viewing of restricted media content when they are with their peers (Nathanson, 2002). Despite these outcomes, moderate restrictive mediation still seems to be a way to help guide and scaffold appropriate media use and avoid access to unsafe media content under parents' supervision at the early childhood stage.

The third parental mediation strategy is co-viewing, which involves parents being present or passively watching media with their child (Clark, 2011). Unlike active mediation strategies, co-viewing primarily involves non-verbal communication and no explicit rules or educational guidance about media is provided by the parent. Konok and colleagues (2019) found that parents who use co-viewing monitoring strategies showed more warmth towards their children. The reasons why parents allow their child to use media have also been linked to parental mediation strategies. For instance, when parents perceive media as an educational

tool or entertainment, they may also use co-viewing parenting behaviours to guide children's media use (Gentile et al., 2014; Nevski & Siibak, 2016). Literature has also shown that children may not learn effectively or engage in appropriate media use without co-viewing practices from parents (Strouse et al., 2018). Parents not only scaffold children's media use behaviours but also non-digital behaviours (e.g., communication skills and emotional expressions) by using active or co-viewing mediation strategies (Hoffmann, 2019). When parents see media as entertainment, they may use media together with their child during family time (Zaman et al, 2016). This is a way to strengthen parent-child relationship through conversations about the media content and characters (Clark, 2011). Parents who use co-viewing mediation often believe that media is not a tool to keep the child quiet, but a way to have fun together (Zaman et al, 2016). Hence, children can learn some healthy media use habits such as sharing screen time with siblings and parents during digital time. Parents can also actively teach their child how to operate the media device when engaging in co-viewing interactions. Thus, parents should be encouraged to use co-viewing practices with their child because it is a good way to help shape healthy and appropriate media use in young children.

Literature has also demonstrated that positive parenting (i.e. parents who provide warmth and supportive parent-child communication) is significantly related to parental monitoring behaviours of children's screen time during early childhood (Sanders et al., 2016). It was also found that parental attitudes towards media were a strong predictor of their parental monitoring plan (Nikken & Schols, 2015). More specifically, parents who think media has positive impact on children would use more co-viewing and active mediation strategies, whereas parents who think media has a negative impact would use more restrictive rules and supervision on children's media use which, in turn, may influence children's screen time. This is to say that general parenting practices as a distal factor may influence proximal factors like parental monitoring behaviours and reasons why allowing children to use media.

Thus, it is important to examine how various parenting practices relates to reasons why parents allow children to use media and parents' monitoring plans.

In summary, incorporating theory around parenting styles and parental mediation into Domoff and colleagues' (2020) IT-CPU provides a way to understand how parents' behaviours may directly or indirectly impact children's screen media behaviours during early childhood. In light of this, three conceptual models could be tested regarding the key variables in the study. Firstly, parenting practices, parental monitoring behaviours of media, and reasons for allowing children to use media may independently influence children's problematic screen media use. Secondly, parenting practices may impact both reasons for allowing children to use media and parental monitoring behaviours towards children's media use. Last, parents' general parenting style may be directly associated with reasons for allowing children to use media, and those reasons for media use may impact parental monitoring behaviours, which consequently impacts children's problematic media use.

2.2 Addressing Gaps in Existing Knowledge and Relevance of the Current Study

Parents play an important role in children's media use in early childhood from both theoretical and practical perspectives. Parents have shown increased concern about children's media use in early childhood (Angus Reid Institute, 2019). However, research which can help guide parents to understand the factors that promote and prevent (un)healthy screen media behaviours is limited. As the literature suggests, general parenting including showing warmth and controlling behaviours are positively associated with technology-related parenting behaviours, which indirectly influence children's media use in early childhood (Sanders et al., 2016). Therefore, this thesis may help to extend this study by examining the relationship between parenting styles and parental monitoring behaviours towards children's media use as both are related to children's problematic media use. Although there are some empirical studies describing why parents allow children to use media, the influence of parenting styles

on the reasons for children's media use is limited. In this regard, this thesis will help test the associations across some of the distal and proximal factors represented in the IT-CUP and Parental Mediation Theory to determine their impact on children's problematic media use.

Chapter Three: Methods

This chapter describes the research design and methodology that has been used to conduct this study. The research design and ethical consideration will be presented first, followed by the participant's demographics, the procedure, and the measures used in this study. Finally, a description of how the data was analysed will be explained in several steps.

This study employed a cross-sectional design to investigate the relationships between multiple layers of parenting variables (according to IT-PMU) and children's problematic media use. Cross-sectional studies are distinguished by the gathering of relevant information (data) at a certain point of time (Wang & Cheng, 2020). It is easy and inexpensive to assess multiple variables at one time point and establish the evidence in anticipation of future more complex study designs. We also decided to collect quantitative data by using likert-type scales for each variable. The quantitative approach employs empirical data and statistical tools to investigate the research goal of this study (Sukamolson, 2007). Although longitudinal data is superior for predicting the direction of associations (Anstey & Hofer, 2004), prospective data was only available for a small sample of parents. Data was collected from the THRIVE project, a short-term longitudinal study investigating children's social development and relationships in early childhood, led by Dr Cara Swit (School of Health Sciences, University of Canterbury). In an attempt to maximise power for the statistical analyses, individual data was collected over two time periods – March and October 2021. However for the purpose of this study, data collected in March will only be used to examine the research questions. The study protocol was approved by the Educational Research Human Ethics Committee of the University of Canterbury (2020/04/ERHEC).

3.1 Participants

Ninety-one parents (90.1% mothers and 9.9% fathers; $M_{age} = 34.7$ years; $SD = 5.8$ years) with a child between 2-5 years participated in this study. Regarding the ethnicity, the

majority of parents identified as New Zealand European (67.6%) followed by Māori (14.3%), Indian (4.4%), Pacific Islander (3.1%), Asian (3.1%), European (1%), African (1%) and Fijian (1%). Regarding the education levels, 28.6% of parents had completed school qualifications, 28.6% had a diploma or certificate, 36.3% had a bachelor's degree and 6.6% had a Master's degree or higher.

The demographic information showed that fifty-three (58.2%) children were male and thirty-eight (41.8%) were female. The mean age of the children was 45.5 months. Children were enrolled at one of three community-based kindergartens located in three urban, moderate-sized communities in the Canterbury region. In New Zealand, deciles are a measure of calculating a school's rating across the country based on five socioeconomic status (SES) indicators (Ministry of Education, 2021). The decile rating is from one to ten, with decile one indicating the lowest SES and ten indicating the highest. Each Kindergarten participating in this study is connected to a primary school and was therefore given the decile rating of that connected primary school. Regarding the decile for each early childhood centre, 25.3% of the parents had a child enrolled in a decile 3 ECC, 31.9% in a decile 5 ECC, and 42.9% in a decile 8 ECC. This demographic information suggests that the full sample of parents was likely to represent diverse socioeconomic backgrounds.

3.2 Procedure

Parents with children aged between 2 to 5 years old were eligible to participate in this study. Participation in this study was voluntary and parents and their children were free to withdraw from the study at any time, without penalty. All parents signed a consent form before participation and confidentiality was maintained throughout data collection and analysis. Data were collected via a structured interview between the participant and the researcher. Participants' responses to the structured interview questions were recorded in Likert-style and open-ended response formats and stored in the Qualtrics electronic survey

platform. Participants received a koha (i.e., \$30 grocery voucher) for their participation at the completion of the interview. The interview questions examined parent's relationship with teachers and their child, parenting practices, parental self-efficacy, health and wellbeing (e.g., sleep, leisure time, parental burnout), social support, and behaviours and beliefs related to media use. In this study, I am focusing on data from parenting practices, parents' behaviours related to children's media use (i.e., media monitoring and reasons for media use), and children's problematic media use. Each of the specific measures for this study is described below.

3.3 Measures

3.1.1 Parenting Practices

The extent to which parents engage in authoritative, authoritarian, permissive, and overprotective parenting practices was measured using the Parenting Practices Questionnaire (PPQ; Robinson et al., 1995). This measure consists of four subscales: authoritative parenting (13 items e.g. "I am responsive to my child's feelings and needs"), authoritarian parenting (12 items e.g. "When my child asks me why he/she has to do something I tell him/her it is because I said so, I am your parent, or because that is what I want"), permissive parenting (4 items e.g. "I find it difficult to respond to my child's negative behaviour"), and overprotective parenting (4 items e.g. "I tend to be overly involved in my children's activities"). Parental psychological control was also assessed using reliable and well-validated items from previous research (Nelson, Yang, Coyne, Olsen, & Hart, 2013; 11 items e.g. "I tell my child they should be ashamed when he/she misbehaves"). Cronbach alpha for each of the subscales was .73, .76, .45, .57 and .63 respectively. Each item was self-reported on a five-point Likert-type scale from 0 (never) to 4 (always). All items on each subscale were summed, with higher scores indicating the parenting practices that parents use most often.

3.1.2 Reasons for Media Use.

Parents reported the reasons they allow their child(ren) to use screen media using a measure developed by the Comprehensive Assessment of Family Media Exposure (CAFE) Consortium (Barr et al., 2020). The questionnaire consists of four items rated on a seven-point Likert-type scale where 0 = Never, 1 = less than once per week, 2 = about once a week, 3 = two to three times per week, 4 = four to six times per week, 5 = every day, and 6 = several times per day. Reasons for media use include “I use media to educate my child,” “I use media to calm my child down when they are upset,” “I use media to keep my child busy while I get things done,” “I use media to communicate with family and friends” and “I use media because my child enjoys using the device.” Each item is scored individually to examine the various reasons parents allow their child to use screen media.

3.1.3 Media Monitoring Plan.

Parents reported the extent to which they agreed or disagreed with nine statements regarding their behaviours for monitoring their child’s media use, using a four-point Likert scale from 0 (Strongly disagree) to 3 (Strongly agree). This self-report measure was developed by the Comprehensive Assessment of Family Media Exposure (CAFE) Consortium (Barr et al., 2020). This measure comprises three subscales: restrictive mediation (3 items e.g., “I have rules about the time my child spends with the media”), active mediation (2 items e.g., “I discuss with my child the reasons why some media characters do the things they do”), and co-viewing practices (4 items e.g., “I watch television with my child”). Cronbach alpha for each subscale was .67, .89, and .41. Higher scores indicate parental monitoring behaviours that parents use most often.

3.1.4 Problematic media use of children

Parents reported on children’s problematic media use by using the nine-item Problematic Media Use Measure Short Form (PMUM-SF, Domoff et al., 2019). The PMUM-

SF was designed to assess multiple domains of media interference typically associated with addiction or problematic media use in children under 12 years of age. These problematic behaviours include loss of interest in other activities, preoccupation with media, withdrawal, tolerance, deception, and serious problems due to the use of media. Parents answered each item on a five-point Likert-type scale from 0 (Never) to 4 (Always). Example items include “When my child has had a bad day, screen media seems to be the only thing that helps him/her feel better” and “The amount of time my child wants to use screen media keeps increasing.” Items are summed and higher scores are indicative of increased problematic media use by young children. The reliability indicated high internal consistency for this study ($\alpha = .85$)

3.4 Data analysis

All of the data relevant to this study were exported from Qualtrics and imported into SPSS (Version 27) by the lead researcher. There are several steps of analysis. Firstly, data from five participants was removed because some of their data was missing on key study variables. The final sample size was 91. Secondly, the means of subscales and total scores were calculated followed by the computation of descriptive statistics of each subscale such as mean scores, standard deviation, and range of scores (see Table 5.1). Zero-order bivariate correlations were computed to assess the relationship between the key study variables, age, each of the parenting practices subscales, parent monitoring plans of children’s media use, reasons why children use media and children’s problematic media use (see Table 5.2). In addition, One-way Analysis of Variance (ANOVA) was used to test associations between demographic variables (children’s gender and decile group) and children’s problematic media use (see Table 5.3 and Appendix A). Where significant differences were found between demographic variables, they were considered control variables in the hierarchical regression. Finally, a hierarchical regression was conducted (see Table 5.4) to test which variable(s) have

the greatest prediction on children's problematic media use. Variables that have shown significant associations with children's problematic media use in the bivariate correlation table (Table 3.2) were included in the full hierarchical regression model except for the subscales that have been excluded due to Cronbach alpha being below .60 (i.e., permissive parenting, overprotective parenting and co-viewing parental mediation). A Cronbach alpha score of .60 and below is considered to have unacceptable reliability (Ponterotto & Ruckeschel, 2007). Additionally, the numbers of items in each of these subscales are small ($n = 4$) which may have contributed to low reliability (Tavakol & Dennick, 2011). Variables that have a significant relationship with children's problematic media use will be firstly run in the hierarchical regression model to examine how much they contribute to children's problematic media use. Secondly, variables that show significant result in the full regression model will be examined in the parsimonious model. So, it is clearer to show the predictive variable(s) of children's problematic use without the impact of non-significant variables.

Chapter Four: Results

4.1 Descriptive statistics

Table 4.1 shows the mean score, standard deviation, score range and 95% confidential interval for each variable. Results showed that parents reported using authoritative parenting most frequently (more than “usually”) followed by authoritarian parenting practices (only “rarely”) to respond to children’s behaviour. Overall, parents reported that they are less likely to use permissive and overprotecting parenting as the mean scores were all below 2 (between “rarely” and “sometimes”). Psychologically controlling parenting was rated the lowest of all the parenting practices (mean scores ranged between “rarely” and “never”). The range of responses across these parenting subscales was limited, as indicated by the small standard deviations, with the most variability seen in parents’ reports of overprotective parenting.

As shown in Table 4.1, parents reported more frequently using restrictive practices to monitor their children’s media use, followed by active monitoring practices, and co-viewing practices the least. Over 80% of the parents had a mean score over 3 (“agree”) in their use of restrictive practices, such as making rules to limit time, content, and devices whereas 67% had a mean score above 3 for active mediation, and only 12% had a mean score above 3 for co-viewing mediation. In general, there was only modest variability in parents’ responses to these variables as indicated by the low standard deviations. Table 3.1 also shows that parents reported allowing their child to use media because they enjoyed it most frequently, and as a strategy to calm their child the least frequently. Almost two-thirds of parents (65.9%) reported using media 2-3 times a week to keep their child busy, to communicate with their family and friends, and because their child/ren enjoyed using media (all mean scores ranged from “two to three times per week” to “four to six times per week”). Parent reports of the reasons for allowing children to use media showed greater variability than the other variables as all the standard deviations are well above 1.50. However, the mean scores for parents’

reports on children’s problematic media use were very low (Scores ranged from “never” to more than “sometimes”), which means that parents reported minimal problems with children’s problematic media use.

Table 4. 1

Descriptive data for each subscale variable

Variable	Mean	SD	Minimum	Maximum	95% CI
1. Authoritative parenting	3.45	0.31	2.69	4.00	[3.38, 3.51]
2. Authoritarian parenting	1.07	0.51	0.17	2.50	[0.97, 1.18]
3. Permissive parenting	1.41	0.59	0	2.75	[1.28, 1.53]
4. Overprotecting parenting	1.42	0.70	0	3.50	[1.28, 1.57]
5. Psychological control parenting	0.68	0.35	0	1.73	[0.61, 0.75]
6. Restrictive mediation	3.38	0.66	0.33	4	[3.25,3.53]
7. Active mediation	2.85	0.81	0	4	[2.68, 3.02]
8. Co-viewing mediation	2.00	0.79	0	4	[1.83, 2.16]
9. RMU_1 – Education	2.37	1.76	0	6	[2.01, 2.74]
10. RMU_2 – Calm	1.68	1.77	0	6	[1.31, 2.05]
11. RMU_3 – Distraction	3.26	1.58	0	6	[2.93, 3.59]
12. RMU_4 – Connect	3.25	1.80	0	6	[2.88, 3.63]
13. RMU_5 – Enjoyment	3.31	1.72	0	6	[2.95, 3.67]
14. Problematic media use	0.95	0.62	0	2.44	[0.82, 1.08]

Note. N = 91, SD = Standard deviation; RMU = Reasons for Media Use; CI = Confidential Interval

4.2 Bivariate correlations

Table 4.2 shows the zero-order bivariate correlations across all study variables. With regards to parenting practices, authoritative and authoritarian parenting were significantly associated with permissive parenting and psychological control. Lower authoritative parenting and increased authoritarian parenting was associated with increased permissive parenting, with the same pattern evident with psychological control. Of note is the association between authoritarian parenting and psychological control which was moderately strong.

With regards to media mediation, active mediation had a moderately strong correlation with co-viewing mediation behaviours. Thus, when parents explain and communicate with their child while using media, they also report doing other activities such as reading books, using apps and playing video games with their children. With regards to the reasons for children's media use, there were several statistically significant relationships, ranging from small to moderate. When parents report using media as an educational tool (RMU1), they also reported to also use media to calm their child/ren (RMU2), for distraction (RMU3), and because their child/ren enjoys using media (RMU5). No associations were found with using media to connect with friends and family (RMU4). Using media to calm children and because children enjoy it was significantly related to all other reasons.

Results also showed that all three media monitoring behaviours (i.e., restrictive mediation, active mediation, and co-viewing) were significantly negatively related with the five different reasons of children's media use. As parents use more restrictive rules to manage children's media use, they reported using less media to calm their child/ren. When parents explain and discuss the content of media to their child, they reported using less media as a calm or distraction strategy, less use of media as a communication tool, and less use of media because children enjoy it.

4.2.1 Correlations across parenting practices, parental monitoring behaviours, and reasons for children's media use

The first research question of this study was to examine to what extent parenting practices are associated with parental monitoring of children's media use and the reasons why parents allow their child(ren) to use media in early childhood. In this regard, across different groups of variables, the results showed only small marginally significant associations between increased authoritative parenting practices and increased active mediation of children's media, but lower media use to connect with family and friends (see Table 4.2). In contrast, authoritarian and permissive parenting showed stronger and more significant associations with the other variables. Both of these parenting practices were related to decreased use of restrictive media mediation and increased use of media to calm and distract children, and because children enjoyed using media. A negative nonsignificant trend was identified between authoritative parenting and using media to connect with family/friends, while the relationship between authoritarian parenting practices and using media to connect with family/friends was positive and statistically significant. Overprotective parenting was not related to any of the other variables of media monitoring strategies or reasons of media use. In contrast, psychologically controlling parenting practices had a small but significant association with increased use of media as a calming or distraction strategy (RMU_2&3).

4.2.2 Correlations between parenting practices, parental monitoring behaviours and children's problematic media use

The second research question for this study was to examine to what extent parenting practices and parental monitoring of children's media use were related to children's problematic media use. In this regard, the correlations between the independent variables and the dependent variable of children's problematic media use showed significant associations across three of the five parenting practices, but none of the mediation strategies, and three of the five reasons

for media use (see Table 4.2). These significant associations were relatively small (less than .40). Increased use of permissive parenting and psychological controlling parenting have a small to moderately strong significant association with children's problematic media use. Increased use of media as calming or distraction strategy and because children enjoy using media was moderately to strongly related to children's problematic media use, with the most significant relationship being with the use of media as a calming strategy. On the other hand, increased authoritative parenting was strongly associated with lower problematic media use by the child. That means parents who show warmth, care, and appropriate levels of control towards their child, have children who show fewer problematic media behaviours. Thus, parenting practices may help prevent children's problematic media use according to the data. Moreover, using media to calm children has the strongest relationship with problematic media use. Therefore, parents' use of media to calm their child/ren may contribute to the development of children's problematic media use. Finally, the correlation between children's age and active mediation was significantly positive, suggesting that as children get older parents are more likely to discuss media content and the behaviour of media characters with their child/ren.

Table 4. 2*Bivariate correlations between dependent variables and independent variable*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Authoritative parenting															
2. Authoritarian parenting	-.13														
3. Permissive parenting	-.24*	.38**													
4. Overprotecting parenting	.05	.09	.24*												
5. Psychological control parenting	-.19†	.59***	.31*	.21†											
6. Restrictive mediation	.12	-.28**	-.22*	.09	-.04										
7. Active mediation	.19†	-.08	-.06	.06	-.06	.14									
8. Co-viewing mediation	.08	-.01	-.04	.01	-.09	.01	.27**								
9. RMU_1 – Education	-.09	.01	.15	.12	.05	-.13	-.02	.40**							
10. RMU_2 – Calm	-.14	.38***	.31**	.16	.22*	-.42***	-.22*	-.10†	.25*						

11. RMU_3 – Distraction	-.17	.26*	.42***	.14	.30**	-.20†	-.24*	-.14	.27*	.40***				
12. RMU_4 – Connect	-.21†	.21*	.08	.09	-.002	-.01	-.24*	-.01	.14	.21*	.06			
13. RMU_5 – Enjoyment	-.15	.20†	.29*	.02	.12	-.30**	-.29**	-.03	.30**	.45***	.55***	.29**		
14. Problematic media use	-.36***	.14	.29*	.10	.21†	-.05	-.06	-.01	.14	.34***	.24*	.13	.26*	
15. Age	-.01	-.12	-.03	-.13	-.06	-.001	.31**	.14	-.06	-.08	-.07	-.13	-.01	.08

Note. †p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001

4.3 Comparisons of study variables with child gender and age, and early childhood centre decile ranking

The purpose of the following analyses was to examine whether child characteristics of gender and age, and early childhood centre decile ranking are associated with the other study variables, and therefore, may need to be statistically controlled for in the multiple regression analyses. The results of tests of mean differences between male and female groups of children across all variables are presented in Appendix A. There were no statistically significant differences between boys and girls on all of the study variables. In addition, associations among study variables and children's age were examined because of the possibility of parents being stricter with older children (see Table 4.2). However, no statistically significant associations were found with the exception of active mediation as mentioned above.

Table 4.3 shows the differences across the variables based on the decile ranking of the ECC. Overall, there were no statistically significant differences across parenting practices among different decile groups. However, statistically significant differences were noted for media monitoring and problematic media use. Table 4.3 shows that parents with a child enrolled in decile 3 ECC report using significantly more active and co-viewing mediation strategies compared to parents with a child enrolled in decile 5 ECC. Parents from decile 3 ECC reported discussing the content and characters portrayed in media and doing activities such as reading books, playing video games, and using apps together with their children more than those parents from the decile 5 ECC. Also, results showed that parents from the decile 3 ECC reported using media as an educational tool and a way to communicate with friends and family significantly more than parents from the decile 8 ECC. Finally, parents from decile 3 ECC reported significantly greater problematic media use in their children than parents from the decile 8 ECC. In light of these results, only the variable of ECC decile ranking will be

included as a control variable in the hierarchical regression model as it has shown differences across groups.

Table 4. 3

One-way ANOVA analysis of independent variables among different decile groups

Variable	Decile3 M(SD)	Decile5 M(SD)	Decile8 M(SD)	F; 95% CI	Eta squared
Authoritative parenting	3.38 (0.36)	3.49(0.33)	3.46 (0.28)	.88; [.000, .09]	.02
Authoritarian parenting	1.12 (0.48)	1.09(0.60)	1.03 (0.46)	.23; [.000, .05]	.01
Permissive parenting	1.52 (0.60)	1.35(0.58)	1.38 (0.59)	.60; [.000, .08]	.01
Overprotecting parenting	1.60 (0.63)	1.57 (0.69)	1.21 (0.70)	3.29; [.000, .18]	.07
Psychological control parenting	0.69 (0.39)	0.67 (0.34)	0.68 (0.36)	.01; [.000,.000]	< .001
Restrictive mediation	3.38 (0.85)	3.41 (0.67)	3.38(0.53)	.03; [.000, .01]	.001
Active mediation	3.09 (0.63)	2.43 (1.00)	3.03 (0.64)	6.40; [.02, .25]**	.13
Co-viewing mediation	2.42 (0.76)	1.72(0.75)	1.96(0.75)	5.62; [.01, .23]**	.11
RMU_1- Education	3.09 (1.70)	2.66 (1.80)	1.74 (1.59)	5.19; [.01, .22]**	.11
RMU_2 – Calm	2.13 (1.77)	2.00 (2.02)	1.18(1.47)	2.90; [.000, .17]	.06
RMU_3 – Distraction	3.09 (1.83)	3.62 (1.24)	3.10(1.65)	1.08; [.000, .10]	.02
RMU_4 – Connect	4.26 (1.39)	4.10 (1.61)	2.03(1.39)	24.11; [.19, 48]***	.35
RMU_5 – Enjoyment	3.83 (1.30)	3.83 (1.39)	2.62(1.93)	6.19; [.02, .24]**	.12
Problematic media use	1.17 (0.65)	0.92 (0.60)	0.83(0.60)	2.24; [.000, .15]	.05

Note: bold font indicates statistical significance between two groups at the 0.05 level

*p < 0.05, **p<0.01, ***p<0.001

4.4 Hierarchical linear regression

A hierarchical linear regression was conducted to examine which independent variables remained significant predictors of children's problematic media use while controlling for other variables also in the model. Table 4.2 shows that children's problematic media use was significantly correlated with authoritative and permissive parenting practices, using media to calm or distract a child and because children enjoy using media. No statistically significant correlations were found between children's problematic media use and parental media monitoring and therefore, these variables were not included in the hierarchical regression models. Additionally, the parent reports of children's problematic media use were significantly different between families from the decile 3 ECC and the decile 8 ECC. Therefore, ECC decile was included in the hierarchical regression as an additional control variable.

The results of a three-step full model of hierarchical linear regression are shown in Appendix B. The decile ECC ranking was entered at the first step of the regression model, which contributed a marginally weak significance to the model, $F(1, 89) = 3.88, p = .052$, and accounted for 4.2% of the variance in children's problematic media use. Authoritative parenting was added at step two and accounted for an additional 11.9% of the variance in problematic media use and this change in R^2 was highly significant, $F(1, 88) = 12.50, p < .001$. Finally, parental reasons for allowing children's media use to calm the child, as a distractive tool, and because children enjoy using it were added at the third step and together accounted for an additional 7.3% of the variance in children's problematic media use ($F(3, 85) = 2.70, p < .051$). When all of the independent variables were examined in the full regression model, only authoritative parenting and allowing media use to calm children were significant predictors of children's problematic media use. The predictive power of these two variables on parent reports of children's problematic media use is shown in the parsimonious

model in Table 4.4. This result suggests that greater use of authoritative parenting practices is related to lower levels of children's problematic media use. The greater use of media as a calming tool is related to higher levels of children's problematic use ($F(2,88) = 12.06, p < .001$). A one unit increase in authoritative parenting practices predicts 0.6 unit decrease in children's problematic media use. On the other hand, a one unit increase in using media to calm children predicts a 0.1 unit increase in children's problematic media use.

Table 4. 4

Multiple Regression with the best fit of predictors for parent reports of children's problematic media use

Variable	$R^2 = .22$		
	B(se)	β	p
Authoritative parenting	-.63 (.19)	-.32	.001
RMU_2- Calm	.10 (.03)	.30	.003

Chapter Five: Discussion

There is a rapid growth in children's media use which may contribute to increases in children's problematic media use at an early age. The interactions between parent and child may serve to prevent or exacerbate this risk. In this study, we are interested in parents' behaviours and attitudes towards children's media use and the relationship between these variables. This chapter will discuss the key findings of this study and compare these to previous literature. Limitations and strengths will then be discussed followed by the implications of the findings.

The first research question in this study was to examine to the extent to which parenting practices are related to parental monitoring of children's media use and the reasons why parents allow their child to use media. Findings revealed that authoritative parenting (i.e. parents who usually show high levels of warmth and are willing to listen to children's opinions) had a non-significant but positive association with all three parental mediation strategies. We also found that increased authoritarian parenting (i.e., parents who over control children's behaviours and thoughts) was related to fewer restrictive mediation strategies. More specifically, when parents used strict rules and power assertion strategies in managing children's general behaviours, they tended to have fewer restrictions on children's media use. This may at first appear counterintuitive as it suggests that authoritarian parents do not implement strict rules across all child activities and behaviours and rules may be context, development, or behaviour specific. This is supported by findings reported by the American Academy of Paediatrics (2013) that many parents have few rules regarding the use of media by their children and adolescents. Other researchers (e.g., Nikken & Schols, 2015) have found that rules for media are inconsistently applied by parents, resulting in children being uncertain about the expectations of media use. However, Sanders and colleagues (2016) found the opposite relationship between parenting styles and parental mediation strategies.

Parents who demonstrated low levels of warmth and high levels of demandingness were more likely to use restrictive parental mediation of children's media use. These mixed findings may suggest that other factors may be affecting parents' decisions regarding children's media use such as the familial environment, development stage, and children's capacity of using media devices (Barr, 2019; Clark, 2011).

Additionally, previous research has found that parenting behaviours characterised by low controlling behaviours are related to using media as a tool to calm a child (Radesky et al., 2016). Consistent with previous research, this study also found that authoritarian, as well as permissive parenting had moderate significant associations with using media as a calming tool and as a distraction. These parenting behaviours include low control of children's behaviours but high involvement in children's emotions and feelings. For parents who use these parenting styles, media may be used as an emotional regulation tool to help the child calm down or to distract their negative emotions and behaviours. A possible explanation for these findings is that parents might be unsure about the appropriate strategies to teach or scaffold self-regulation when their child is upset or frustrated and this may be especially the case for first-time parents (Domoff et al., 2020). Further, parents may be busy or tired from work, so they use media to calm or distract children at home. In this case, parents may miss the opportunity to model and demonstrate appropriate self-regulation behaviours in front of their children. Consequently, children may rely on technology to soothe themselves rather than using more appropriate self-regulatory behaviours such as playing with toys, deep breathing and refocusing on other tasks (Cole et al., 2019). This is of concern given that poor self-regulation may lead to negative behaviours in the classroom and interactions with peers at preschool (Williford et al., 2013). The over-reliance on technology for self-regulation may put these children at risk for developing unhealthy media habits, consequently leading to problematic media use behaviours.

The second research question examined to what extent parenting practices and parental monitoring behaviours of children's media use were related to children's problematic media use. Significant associations were found between parenting practices, reasons why parents allow children to use media and children's problematic use. More specifically, authoritative parenting was associated with fewer problematic media behaviours in the child. In contrast, permissive parenting behaviours, allowing the child to use media as a calming strategy, for distraction, or because they enjoy using it, were all associated with greater problematic media behaviours in the child in the bivariate analyses. Parental mediation was not associated with children's problematic media use.

In light of the IT-CPU (Domoff et al., 2020), this finding is not surprising because parent's intentional use of verbal and technical strategies (e.g., activities, content, time spent using media) that direct young children's media use likely contribute to children developing healthy media habits and are likely to reduce children's unhealthy media use habits and help prevent problematic media use. IT-CPU integrates social learning theory and reinforcement principles to help explain how proximal and maintaining factors interact to contribute to and maintain children's problematic media use. The current finding that giving media to calm the child is associated with problematic media use may be supported through the principle of positive reinforcement whereby media calms the child and makes them feel good. So media is regarded as a reward when children throw negative emotions. Meanwhile, using media to calm the child is regarded as a negative reinforcement (Domoff et al., 2020). So that unpleasant experiences such as children's crying and tantrum could be removed. Unfortunately, with the ongoing use of such a strategy, children may need more use and longer use of the device to achieve the same level of reinforcement/regulation. It may have a long-lasting effect on children's coping strategies with stress and other life difficulties (Domoff et al., 2020). Children will rely on digital devices more than themselves to regulate

difficult emotions and problems. This is a core behavioural characteristic of problematic media use (Domoff et al., 2020).

Upon further examination of the variables in the hierarchical regression model, authoritative parenting practices and using media as to calm children were the only predictors of children's problematic use when all the significant variables from the bivariate analyses were considered together. Parents who use more authoritative parenting behaviours such as explaining the content and rationale of media content may protect children from developing problematic media habits. On the other hand, parents who use media to calm their child may be putting their child at greater risk of developing problematic media behaviours. Previous research has provided evidence to support the associations between using media as a tool to calm children and children's problematic use (Radesky et al., 2016). Over time these children are more likely to develop more social emotional difficulties such as poorer self-regulation skills. Besides, parents' attitudes and rationale behind their parental mediation behaviours are important factors to guide children's media use (Nikken & Schols, 2015). However, the finding of this study partially support the IT-CPU theory. The reasons why parents allow children to use media are proximal factors that can directly predict children's problematic media use which support the direction of the theoretical model (Domoff et al., 2020). It is surprising that authoritative parenting as a distal factor can directly predict children's problematic media use, which does not align with the IT-CPU theory. The distal factors are considered as risk factors regarding children's problematic media use according to IT-CPU theory (Domoff et al., 2020). However authoritative parenting practices is a positive factor that may help reduce children's problematic media use. It is possible that when parents show warmth and open conversations with children at home setting, they may help shape healthy habits during daily life regardless media use. Therefore, it is possible that distal factors at family/parent level can directly impact children's problematic media use. These findings

highlight the role of parenting practices and reasons why parents allow their children to use media as significant explanatory factors accounting for children's problematic media use. Since this is the first study to demonstrate these relationships in preschool-age children, further research can investigate the consistency of these relationships based on a longer period of time.

Besides the Parental Mediation theory (Clark, 2011) has introduced three mediation strategies to help manage children's media use. The results of this study suggest that parents use more restrictive mediation such as restricting rules, time and content on children's media use than other mediation strategies. However, literature has provided potential negative outcomes if parents use restrictive mediation for a long time. Children may develop aggressive behaviours and bring parent-child conflicts in their later life (Beyens & Beullens, 2017; Clark, 2011). Children usually do not have their own devices like smartphones or tablets. So there will be some conflicts when children have to take turns of using a shared devices. Older children can quickly learn how to use a device especially tablets, which may interrupt other activities such as family meals and preparation for bedtime. Therefore, parents have to set strict rules about children's use of media in these cases, which are more likely to bring parent-child conflicts. However, parents' thoughts of media use may change when children grow up as they show their autonomy and independency of their life. Thus, parental mediation is not fixed term regarding children's media use, it may change over time.

According to our findings, co-viewing parental mediation had a significant association with using media as an educational tool, which aligns with a previous study that parents' modelling behaviours of presenting relevant verbal and body languages when using media may increase young children's ability to learn words through their interactions with media (Strouse et al., 2018). Our results also suggest that parents use more active mediation behaviours such as explaining and discussing media content with older children. This may be

the case because older children have greater verbal communication and understanding that may help facilitate the discussion between parent and child.

5.1 Strengths and Limitations of the study

This study may be the first study to examine the relationship between parenting behaviours, reasons why parents allow children to use media and children's problematic media use in a sample of parents and preschool-age children in New Zealand. Our sample represents a diverse demographic including kindergartens within lower, middle, and high socioeconomic communities. The findings of the study have provided us an understanding of how parents use a wide variety of behaviours to guide their children's media use. The data was collected via Qualtrics electronic survey platform, which can minimize the error when we stored the data. These results have built on the existing evidence of parenting behaviours and thoughts about children's media use. The data contributes to a clearer understanding of the relationships between parenting behaviours and children's problematic media use. Additionally, the study was focused on early childhood; a critical period of development when children are learning healthy and unhealthy media habits. By focusing on early childhood, we can understand factors to prevent problematic media use.

Despite the strengths of this study, the limitations should also be acknowledged. Regarding the methodology choice, a cross-sectional method may not be the best option to examine the relationship between parenting practices regarding children's media use and children's problematic media use over time. Parenting practice and parental mediations may change over the development of children's media use and with older children. A longitudinal study would be better suited to explore the interactions between parenting practice, parental mediation, reasons for children's media use and children's problematic media use. Additionally, most of the parents were mothers. Future studies should recruit more fathers to examine if the results are consistent because previous research has shown that parenting

practices are different between mothers and fathers (Biswas & Sharma, 2019). The measures used to assess each construct were based based on parent self-report and may not be an accurate representation of their parenting behaviours in real life. A lack of variance in parenting practices may limit the extent to which comparisons between parenting practices and reasons for media use and media monitoring plans can be examined. Besides, there are four parenting behaviours subscales and scales for reasons why children are allowed to use media having low reliability due to few items for each scale. The results related to permissive parenting and psychologically controlling parenting and reasons for allowing children to use media need to be treated with caution as the reliability of these parenting subscales were low in this study. Future research should continue to explore reliable measures of parenting practices as well as media-related measures that reduce or prevent socially desirable responses. For instance, ecological momentary assessments are a potential way to examine parents' behaviours to minimise social desirable responses and recall bias (Shiffman et al., 2008). This assessment relies on written diaries of participants' behaviours in real time and can be applied to clinical and naturalistic environments.

5.2 Implications

Children passively interact with media in family settings (Vandewater et al., 2007). It is possible that parents use media as a convenient tool to distract or calm children although parents did not use it often according to our study results. This study contributes to the literature on media-related parenting behaviours in early childhood. Future research should focus on how parenting practices and parental monitoring behaviours can influence children's problematic use over time. And on the other hand, how the trend of children's problematic media use may impact on parenting behaviours. The results also suggest that authoritative parenting reduce the likelihood of children's problematic media use, whereas using media to calm children has a negative impact. Although parents are aware of reducing children's

media use according to the recommend hours (Domoff et al., 2020), there is a lack of education for parents to guide how they manage their children's media use and avoid using media as a self-regulation tool. There are interventions, counselling, and individual educational sessions for school-aged children, however education of media use on preschool children and their parents is limited (Schmidt et al., 2012). Thus, prevention and intervention to educate parents on appropriate parenting behaviours that contribute to children's healthy media behaviours is warranted. Early childhood is an early stage of children's social and emotional development, which may be the best time to help children establish healthy and adaptive media use habits. Parenting programmes can start to focus on teaching proper parenting skills of positive management of children's media use. They can also advise parents how to help children develop adaptive self-regulation skills. At school settings, teachers can set several rules while using media to help children develop healthy media use habits.

5.3 Conclusion

The aim of this research is to find out what parenting factors would predict children's problematic media use in early childhood. Results showed that parents reported using authoritative parenting practices most frequently among all kinds of parenting practices. Authoritarian parenting practices had a statistically significant negative association with restrictive mediation, but a positive association with using media to calm children. Permissive parenting practices was statistically significant related to using media to calm and distract children. Among all the variables, more authoritative parenting practices could significantly reduce children's problematic media use, while more usage of media to calm children could increase children's problematic media use. Authoritative parenting practices as a distal factor could directly impact on children's problematic media use, which did not support the theoretical model IT-CPU. It is critical to keep investigating this relationship in the future research.

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Appendix A

One -way ANOVA between male and female groups of children in examining group differences across parenting practices, media monitoring behaviours, reasons for children's media use and children's problematic media use.

	Male Mean	Female Mean	F; p	95% CI	Eta squared
Authoritative parenting	3.44	3.46	0.06; .81	[.000, .04]	.001
Authoritarian parenting	1.07	1.08	0.01; .91	[.000, .03]	<.001
Permissive parenting	1.45	1.34	0.78; .38	[.000, .08]	.01
Overprotectin g parenting	1.50	1.31	1.54; .22	[.000, .10]	.02
Psychological control parenting	0.68	0.69	0.02; .90	[.000, .03]	<.001
Restrictive mediation	3.41	3.36	0.12; .73	[.000, .05]	.001
Active mediation	2.91	2.78	0.56; .46	[.000, .07]	.01
Co-viewing mediation	2.09	1.88	1.59; .21	[.000, .10]	.02
RMU_1 - Education	2.34	2.42	0.05; .83	[.000, .04]	.001
RMU_2 - Calm	1.58	1.82	0.37; .54	[.000, .07]	.004
RMU_3 - Distraction	3.08	3.53	1.81; .18	[.000, .11]	.02
RMU_4 - Connection	3.34	3.13	0.29; .59	[.000, .06]	.003
RMU_5 - Enjoyment	3.23	3.42	0.28 .60	[.000, .60]	.003
Problematic media use	0.95	0.94	0.02; .89	[.000, .03]	<.001

Note. $\eta^2 = 0.01$ indicates a small effect; $\eta^2 = 0.06$ indicates a medium effect; $\eta^2 = 0.14$ indicates a large effect.

Appendix B

Full model of hierarchical linear regression for predicting problematic media use

Variable	Model 1			Model 2			Model 3		
	R ² = .04			R ² = .16			R ² = .23		
	B(se)	β	p	B(se)		p	B(se)	β	p
Decile	.06(.03)	-.20	.05	-.05(.03)	-.17	.08	-.03(.03)	-.11	.29
ECC									
Ranking									
Authoritative parenting				-.68 (.19)	.35	<.001	-.60 (.19)	-.30	.002
RMU_2 - Calm							.08 (.04)	.22	.05
RMU_3 - Distracting							.03(.05)	.07	.56
RMU_5 - Enjoyment							.01 (.05)	.04	.77

Note. Bold font indicates statistical significance at the 0.05 level