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## **Activating Parents' Persuasion Knowledge in Children's Advergames: Testing the Effects of Advertising Disclosures and Cognitive Load**

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To the Graduate Council:

I am submitting herewith a dissertation written by Nathaniel Joseph Evans entitled "Activating Parents' Persuasion Knowledge in Children's Advergimes: Testing the Effects of Advertising Disclosures and Cognitive Load." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Communication and Information.

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Activating Parents' Persuasion Knowledge in Children's Advergaming: Testing the Effects of Advertising Disclosures and Cognitive Load

A Dissertation Presented for the  
Doctor of Philosophy  
Degree  
The University of Tennessee, Knoxville

Nathaniel Joseph Evans  
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## ABSTRACT

This study focused on parents of children between the ages of 7 to 11 and their ability to recognize and understand a children's advergaming as advertising. Using the theoretical framework of the Persuasion Knowledge Model (PKM), this study experimentally tested the effects of advertising disclosures and cognitive load on parents' activation of persuasion knowledge in children's advergaming and parents' attitudes toward children's advergaming. In addition, this study examined how parents' individual trait differences in persuasion knowledge and mediation of their children's Internet use potentially influenced their persuasion knowledge in children's advergaming as well as their attitudes toward them. By conducting an online experiment (N = 202), the study revealed that: a) parents exposed to a single modality advertising disclosure reported significantly more selling and persuasion knowledge of children's advergaming compared to parents exposed to an advergaming without an advertising disclosure; b) parents that experienced high(er) levels of cognitive load reported significantly less selling and persuasion knowledge of children's advergaming compared to parents that experienced low(er) levels of cognitive load; c) parents' exposed to the dual modality advertising disclosure condition reported significantly less negative perceptions of children's advergaming compared to parents who were exposed to no advertising disclosure; c) as parents reported higher levels of trait persuasion knowledge, their associated reports of selling and persuasion knowledge within children's advergaming were lower. In addition to implications for prior and future applications of persuasion knowledge theory, managerial and practitioner implications are also provided.

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## CHAPTER I INTRODUCTION

When advertisers make decisions concerning where, how, and to whom to advertise, they have at their disposal a variety of formats from which to choose. Advertising formats include but are not limited to television, radio, print, outdoor, and the Internet. If advertising formats are viewed on a continuum of interactivity, more traditional formats like television, print, and radio lay more so on the non-interactivity portion of the continuum. Relatively newer online advertising formats like advergames, which are “custom-made games specifically designed around a product or service” (Interactive Advertising Bureau, 2007, p. 6) belong firmly on the interactivity portion of the continuum.

Advergames are distinctly different from traditional television advertising, in that the inclusion of program separators, sponsorship disclosures, or jingles, which are present in television advertising (Levin, Petro & Petrella, 1982), are not present in advergames. The inclusion of such program separators in traditional television advertising was based on the FCC’s (1974) ruling that “a clear separation be maintained between the program content and the commercial message so as to aid the child in developing an ability to distinguish between the two” (p. 39401). Advergames are both a form and extension of product placement, which commonly insert or embed products and/or product advertising into already existing media platforms or vehicles (Petty & Andrews, 2008). Unlike the clear separation of the commercial message and program content in traditional television advertising, various forms of product placement, which include in-game advertising and advergaming, minimally delineate between the commercial and program content. While in-game advertising “involves placing real-world marketing into pre-existing console and computer games, commonly in the form of billboards, posters, and sponsor signage in sports and racing games” (Lewis & Porter, 2010, p. 47),

advergames have no delineation between the commercial and program content. With in-game advertising one can feasibly place any number or type of product advertisements in the game's environment or background. However, in advergames the commercial content and entertainment content are inexorably connected. In other words, the game is the brand and the brand is the game.

Tanaka (1994/1999) suggests that product placements are covert advertising strategies that attempt to overcome the "public distrust" of advertisers by preventing the individual from recognizing the manifest content of the advertisement. While this may be a goal of product placement, it is certainly reasonable that consumers may recognize some forms as advertising like billboards in video games. Research indicates that depending on the fit between the advertising theme and the video game environment, players may better remember or recall the advertising (Lewis & Porter, 2010). However, evidence suggests consumers may not give product placement in television a promotional meaning (LaPastina, 2001). Additionally, research suggests that game-players' conversations about in-game advertising reflect an understanding of the promotional effort used therein (Lorenzon & Russell, 2012).

Arguably, the purpose of product placement is to hide the persuasive or commercial nature of the message as well as the advertiser (van Reijmersdal, Jansz, Peters & van Noort, 2010). While in-game advertising and advergames should both be considered interactive forms of advertising, advergames provide a more immersive and interactive brand experience (Grimes & Shade, 2005). Therefore, when viewed on the continuum of interactivity, advergames exist as the more covert and interactive form of product placement. The blurring of commercial and entertainment content in advergames may prevent the individual from recognizing the commercial or persuasive content therein.

## **Research on Children and Advergimes**

A growing body of literature indicates that children have difficulty recognizing advergimes as a form of advertising (An & Stern, 2011; Mallinckrodt & Mizerski, 2007; Owens et al., 2012). When compared to more non-traditional formats like in-game advertising, movies, and advergimes, research indicates that children have a significantly better understanding of advertising in television (Owens et al., 2012). Even when provided with advertising disclosures, children's understanding of the commercial content with an advergime is not enhanced (An & Stern, 2011). Unlike advertising disclosures in traditional formats, which typically disclose product performance claims (FTC, 1984), advertising disclosures within advergimes identify the commercial content of the message and delineate it from entertainment content (An & Stern, 2011). The focus on children's persuasion recognition in advergimes is spurred by their limited cognitive ability and market place experience compared to adults (Friestad & Wright, 1994; John, 1999; Wright, Friestad & Boush, 2005).

Research indicates that advergimes can influence children's brand attitudes (Mallinckrodt & Mizerski, 2007; van Reijmersdal et al., 2010; Redondo, 2009; Waignuy, Nelson & Turlutter, 2012), game attitudes (Bailey, Wise & Bolls, 2009; Hernandez, 2008; van Reijmersdal et al., 2010), and food preferences (Harris, Speers, Schwartz & Brownell, 2012).

## **Advergame Prevalence and Growth**

As evidenced by several content analyses, advergimes are a ubiquitous feature of online marketing practices that target children (Moore, 2006; Moore & Rideout, 2007; Story & French, 2004). One study revealed that advergimes are incorporated in 63% to 85% of company Web sites that feature these designated children's areas (Culp, Bell & Cassady, 2010; Henry & Story, 2009; Moore, 2006; Moore & Rideout, 2007; Weber, Story & Harnack, 2006). Another content

analysis found that over 80% of U.S. based food and beverage Web sites contain advergames (Culp et al., 2010). Furthermore, companies using advergames in designated children's areas did not generally disclose the advertising nature inherent within the advergame (Henry & Story, 2009; Moore, 2006; Moore & Rideout, 2007). Additionally, companies that used child-focused advergames in designated children's areas did not typically incorporate educational material nor did they promote the consumption of healthy foods (Lee, Choi, Quilliam & Cole, 2009).

In addition to the ubiquity of child-focused advergames, the industry has witnessed increased expenditures for and revenue generated by online gaming. In 2009 it was estimated that companies spent approximately \$676 million on the production of advergames (Lee et al., 2009). According to [businessinsider.com](http://businessinsider.com) (2012) revenue for online gaming, which includes advergames, is projected to exceed \$5 billion by 2015. The above estimates do not include the revenue created by advertising and lead generation, which place the projected revenue for online gaming at more than \$1.3 billion for the 2012 fiscal year (EPI.com, 2011). While advergames represent only one form of online gaming, they nonetheless reflect the general industry trends of increased expenditures on game creation and increased revenue garnered through potential customer participation—namely that of game play.

### **Children's Online Presence**

Revenue is not the only area that has seen growth in the online gaming market. Examinations of online population trends and Internet use indicate that younger individuals are getting online more often and staying there longer. Approximately 45% of children under the age of 12 became new Internet users in 2012 and spent nearly two hours online every week (eMarketer.com, 2012). Of the U.S. households with Internet access, 57% of children between the ages of 6-12 say that gaming is their most popular online activity (eMarketer.com, 2012). In

fact, 54% of children in the same age group with access to an Internet-capable mobile device said they used that device to play games (eMarketer.com, 2012). When examining children's household device use trends since 2010, those who are eight or younger have seen use increases in tablets, internet-capable mobile phones, e-readers, gaming, and TV accessories. Only home computers and TVs witnessed slight decreases since 2010 (eMarketer.com, 2012). As author Dan Tapscott notes, "This is the first time in human history where children are an authority on something important...this digital revolution" (Adweek, 2012, p 1).

### **Research on Parents and Advergaming**

With the trend of children favoring online gaming it is no surprise to learn that parents' attitudes towards the use of digital technologies, which include the Internet and Internet-capable devices, are seen as positives for family connectedness (eMarketer.com, 2012). However, as Harris et al. (2012) found, children aren't always with their parents or participating in family enriching activities when online. In their analysis, they found that 1.2 million children ages 2-11 and nearly 1 million adolescents ages 12-17 visited at least one advergence site once a month, sometimes for as long an hour at a time.

Aside from the aforementioned research on children, the majority of advergence research focuses on adults' and adolescents' game attitudes, brand attitudes, and brand recall (e.g. Cauberghe & De Pelsmacker, 2010; Hernandez, 2011; Nelson, Keum & Yaros, 2004). To this researcher's knowledge, no prior studies have empirically investigated whether adults recognize the persuasive intent inherent within (children's) advergaming. Whether parents are aware of advergaming as a marketing practice or fully understand their purpose is a vastly under-explored topic. An extensive literature search resulted in only two studies that specifically investigated parents and advergaming. Bakir and Vitell (2010) asked parents of children in kindergarten

through eighth grade about their ethical judgments of three advertising scenarios, one of which was an advergame. “Parents did not really think the advergames and the use of well-known characters to distribute food company products at schools and child care facilities presented any potential unethical practices. Particularly, advergames are new promotional tools used on the Web to attract adults and children within a branded context” (Bakir & Vitell, 2010, p. 307). More recently, Evans, Carlson, and Hoy (2013) examined parents’ understanding of and experience with child-targeted advergames by giving them screen-captures of an Oreo and SpongeBob advergame as well as definition of advergaming, both of which were qualitatively and quantitatively pretested. Their findings revealed that, even with the screen-captures and advergaming definition, parents not only tended to hold negative attitudes toward child-targeted advergames but also over generalized as to what qualified as an advergame (Evans et al., 2013).

Research on persuasion recognition in advergames, and the resultant focus on children as a population of interest, is fueled by the cognitive discrepancies and variations in marketplace experience that exist between children and adults. While such cognitive discrepancies undoubtedly exist, “research on persuasion recognition in interactive environments assumes that adults, and parents for that matter, have the ability to recognize persuasive intent in advergames” (Evans et al., 2013, p. 237). Unlike children, parents are faced with a multitude of daily ubiquitous tasks (Gilbert & Osborne, 1989), which require cognitive capacity (Lang, 2000). Attending to these everyday tasks while experiencing advertising can influence parents’ ability to recognize persuasion in advergames. Examining and understating parents’ level of persuasion knowledge about children’s advergames is an area that both deserves exploration and is central to this study.

## Parental Concern of Advertising

Parents have historically expressed concern regarding advertising's ability to socialize and influence children (Grossbart & Crosby, 1984) and more recently their children's online activities (Livingstone & Bober, 2006). Children's exposure to online content that is inappropriate (Eagle, 2007; Eagle, Bulmer & de Bruin, 2003; Livingstone & Bober, 2006), violent (Eagle et al., 2003), or intimidating (i.e. cyberbullying) (Eagle, 2007) have been cited as more concerning to parents than online games with merchandising content (Eagle et al., 2003). While parents may more closely supervise their child's online time (Eagle, 2007) and overestimate their control over such activities online (Livingstone & Bober, 2006) "it is unclear how much oversight parents actually give to their children's activities in commercial websites" (Moore & Rideout, 2007, p.213). Even if parents *think* they know and understand what their children are doing online, research indicates that children are spending far more time on such sites than parents really know (Nowak, 2010). As evidenced by parents' inability to accurately identify advergimes even when given examples and a definition, they too may not fully understand this more covert form of advertising (Evans et al., 2013).

If parents are to remain central in socializing and educating their children about non-traditional forms of advertising like advergimes they should provide the necessary commercial information to their children regarding this format (Owens et al., 2012). Yet as noted, parents may not have a sufficient understanding of advergimes to provide such commercial information to their children (Evans et al., 2013). While this lack of understanding may warrant non-traditional media literacy programs aimed at children and adults (Owens et al., 2012), research should first examine whether parents have the ability to recognize persuasion in children's advergimes.



## **Purpose of the Study**

Existing research has demonstrated that children have difficulty understanding the commercial nature of advergames (An & Stern, 2011; Mallinckrodt & Mizerski, 2007; Owens, Lewis, Auty & Buijzen, 2012). However, given the highly convoluted commercial and entertainment content in advergames, Evans et al. (2013) state that “adults’ recognition of and defense against the persuasive intent in these immersive forms of advertising may also be hindered by the integrated and hidden nature therein” (p. 229).

The primary purpose of this study is to examine parents of children between the ages of 7 to 11 and their ability to recognize and understand a children’s advergame as advertising. Specifically, there are three objectives underpinning this study. First, using the theoretical framework of the Persuasion Knowledge Model (PKM) (Friestad & Wright, 1994), this study experimentally tests the effects of advertising disclosures and cognitive load on parents’ activation of persuasion knowledge in children’s advergames. The second objective of this study examines how advertising disclosures and cognitive load affects their associated attitudes toward children’s advergames. The third objective of this study examines whether parents’ individual trait differences in persuasion knowledge and mediation of their children’s Internet use influences their activation of persuasion knowledge in children’s advergames as well as their attitudes toward children’s advergames.

## **The Study’s Importance and Synopsis of Chapters**

Advergames inherently blur the lines between what is recognized as entertainment and what is recognized as commercial. The current state of advergaming research indicates that children have an inability to effectively understand the commercial nature of advergames. Additionally, children’s attitudes toward advergames, their attitudes toward the brands within

advergaming, and their preferences for foods featured in advergaming are affected by the advergaming they play. Research on parents and advergaming is less conclusive and certainly lacking in volume. However, the extant research on parents and advergaming suggests that parents may not be much better than children at comprehending fully the nature of advergaming.

Owens et al. (2012) posits that parents should take a more central role in improving children's non-traditional advertising literacy. Alternatively, the authors suggest the implementation of non-traditional advertising literacy programs aimed at both children and adults. However, before parents are told to improve their children's advergaming literacy, before nation-wide media literacy programs are implemented, it is prudent that an empirical examination of parental advergaming persuasion knowledge be carried out. Given that parents have demonstrated a limited understanding of advergaming and concurrently desire to remain the key socialization agents in their children's lives, it is this study's purpose to understand parents' capacity for understanding the commercial nature and persuasive intent of children's advergaming. Using the theoretical framework of the Persuasion Knowledge Model (PKM) (Friestad & Wright, 1994), this study experimentally tests the effects of advertising disclosures and cognitive load on parents' activation of persuasion knowledge in a children's advergaming.

Consequently, Chapter II begins with an overview of PKM as a theoretical basis. Following a review of the extant literature on persuasion knowledge activation and attitudes, this study presents the relevant literature on advertising disclosures where the first set of hypotheses is then presented. The theoretical concepts of cognitive capacity and cognitive load are presented in the following sections ending with the second set of hypotheses. Chapter II concludes with the third set of interaction hypotheses, the pertinent covariates, and research questions. Chapter III begins with the study design and sample and then proceeds to recruitment, data collection,

procedure, stimuli, pretests, experimental treatments, and concludes with the measures. Chapter IV presents the results of the hypotheses tests and the research questions. Chapter V includes a discussion of the theoretical and practitioner implications. The study concludes with Chapter VI, which includes a presentation of the study's limitations and areas for future research.

## **CHAPTER II**

### **THEORETICAL FRAMEWORK AND LITERATURE REVIEW**

#### **The Persuasion Knowledge Model**

Friestad and Wright's (1994) Persuasion Knowledge Model (PKM), "postulates that consumers (parents) develop knowledge about persuasion and use this knowledge to cope with persuasion episodes" (Campbell & Kirmani, 2000, p. 1). In other words, parents use coping skills in order to decide how to best respond to advertisers' persuasion attempts (Shrum, Liu & Mespoli, 2012). Coping skills development is a function of agent, topic, and persuasion knowledge. Agent knowledge is defined as beliefs about the traits, competencies, and goals of the individual or entity responsible for the persuasion attempt. Topic knowledge is defined as parents' beliefs regarding advertisers' various tactics and strategies. Persuasion knowledge is defined as parents' confidence in their ability to infer that they are the objects of agents' persuasive attempts (Friestad & Wright, 1994).

The PKM proposes that as parents gain more experience with agents' persuasive attempts they will become more knowledgeable of the marketplace, they will be better able to use coping skills, and those coping skills will aid in guiding the most appropriate response to the persuasive episode (Shrum et al., 2012). Coping skills development, which result from increased experience with and increased knowledge of agents, topics, and persuasion tactics, suggest that parents will better know how to respond to advertisers' persuasive attempts (Friestad & Wright, 1994). Over time, the increases in experience and knowledge will aid the parent in identifying how, when, and why marketers and advertisers attempt to influence them (Friestad & Wright, 1994). Ultimately, with such marketplace experience, all aspects of persuasion knowledge become more implicit. The ability to access advertising and persuasion knowledge from memory, recognize the occurrence of persuasive attempts, note specific advertising tactics and goals, formulate and

carry out appropriate coping skills, and store in memory such tactics for future persuasive attempts become automatic and effortless (Wright et al., 2005)

The current study and previous studies utilizing the PKM (e.g. Campbell & Kirmani, 2000; Friestad & Wright, 1994) research the persuasion process from the point of view of the consumer, which refers to those for whom a persuasion attempt is meant. As parents' persuasion coping skills becomes more advanced, they are better able to recognize, analyze, interpret, evaluate, and remember episodes in which they experience persuasion. As a result, they are also better able to select from a set of coping tactics that are appropriate (Friestad & Wright, 1994). Therefore, the persuasion coping process directs parents' attention to salient features of an advertisement, which aids in inferring the reasoning behind the agent's construction of the advertisement (Friestad & Wright, 1994).

### **Parents' Advertising Recognition, Selling Intent, and Persuasive Intent**

While past research has demonstrated that children eight years and above are able to recognize and defend against advertising (Bijmolt, Claassen & Brus 1998; Butter, Popovich, Stackhouse & Garner, 1981; John, 1999; Kunkle et al., 2004; Levin et al., 1982; Palmer & McDowell, 1979; Stephens & Stutts, 1982; Stutts, Vance & Hudleson, 1981), Owens et al. (2012) suggests that this widely held assumption "must be reconsidered in line with children's more limited understanding of increasingly utilized non-traditional techniques (p. 32). Because adults have more experience with the variety and context of advertisers' persuasive attempts, and because adults have more cognitive ability compared to children, it has been assumed that they, more so than children, have better developed persuasion knowledge and are better able to infer the persuasive and selling intent of most forms of advertising (Friestad & Wright, 1994; John, 1999; Wright et al., 2005). As Evans et al. (2013) notes, "parents' ability to recognize the

persuasive intent in advergames...may be just that: an assumption” (p. 237).

Persuasion knowledge “reflects the individual's confidence in his or her ability to understand marketers' tactics and to cope with these tactics” (Bearden, Hardesty & Rose 2001, p. 123). This study conceptualizes persuasion knowledge as parents’ ability to recognize advertising, parents’ understanding of advertising’s selling intent, and parents’ understanding of advertising’s persuasive intent (Friestad & Wright, 1994; Wright et al., 2005). While advertising recognition can be defined as parents’ ability to distinguish advertising content from entertainment content (Gunter & Furham, 1998; Rozendaal, Buijzen & Valkenburg, 2010; Ward, Wackman & Wartella, 1977), parents’ understanding of selling intent (Moses & Baldwin, 2005; Wilson & Weiss, 1992) is defined as the “advertiser’s attempt to influence consumers’ behavior directly, namely to induce them to buy a product” (Rozendaal et al., 2010, p. 80), and parents’ understanding of persuasive intent (Moses & Baldwin, 2005) is defined as the “advertiser’s attempt to influence consumers’ behavior indirectly through changing their mental state...desires and beliefs about a product” (Rozendaal et al., 2010, p. 80).

### **Persuasion Knowledge Activation and Attitudes Toward Advertising**

The recognition of advertisers’ persuasive and selling intent is in large part contingent upon parents’ experience with advertiser tactics and a general understanding of the marketplace (Friestad & Wright 1994; Wright et al., 2005). The more readily accessible or easily recognized an advertiser’s persuasive and selling intent, the more likely it is to lead to persuasion knowledge activation (Campbell & Kirmani, 2000).

The parent may better recognize persuasive and selling intent if they are presented with additional agent, advertiser, or topical information. Research has demonstrated that participants who receive greater amounts of information about agents’ selling or persuasive motives are

better able to recognize and report selling and persuasive intent. For example, Campbell and Kirmani (2000) provided participants with two versions of a script describing a salesperson-consumer interaction at a clothing store and were asked to imagine that they were observing the interaction. One version of the script contained more information about the salesperson's persuasive motivations while the other version had less information about the salesperson's persuasive motivations. Their results indicated that participants who received the script with more information were better able to recognize and report the salesperson's underlying persuasive and selling intent than the participants who received the script with less information (Campbell & Kirmani, 2000). These findings imply that the presence of more obvious persuasive and selling motives lead to persuasion knowledge activation. In other words, understanding and recognizing selling and persuasive intent lead to persuasion knowledge activation (Friestad & Wright, 1994).

While these findings are not in the context of “advertising” and more within the bounds of marketing or selling *per se*, they nonetheless support a central tenet of the PKM: When parents are provided with additional agent information it influences their ability to recognize the presence of underlying selling and persuasive motives. Advertising formats that have more agent, advertiser, or topical information have a greater chance of being recognized as advertising, which leads to an inference of persuasive and selling intent (Friestad & Wright, 1994). Therefore, parents' ability to recognize the selling and persuasive intent within advergames may be hindered by the blurring of entertainment and commercial content and by the lack of additional agent or advertiser information as well.

This additional information, which can help the parent better understand selling intent, persuasive intent, and activate persuasion knowledge, need not specifically pertain to the agent

or advertiser during the persuasion episode (Friestad & Wright, 1994). Additional information can be topical (i.e. based on parents' beliefs regarding advertisers' various tactics and strategies). Research, which examines the relationship between advertising format and adults' persuasion knowledge, indicate that certain forms of advertising differentially affect the activation of persuasion knowledge. For example, Tutaj and van Reijmersdal (2012) examined how online banner and sponsored advertising conditions affected adults' advertising recognition and understanding of selling and persuasive intent. The banner advertising condition contained an informational news article about tablets with no brands mentioned and was accompanied by a banner advertisement for the iPad on the right of the screen (Tutaj & van Reijmersdal, 2012). The sponsored advertising condition contained an informational news article with integrated sponsored content, which featured a tag line mentioning Apple and an accompanying logo. A neutral banner with no brand information took the same position as in the banner advertisement condition (Tutaj & van Reijmersdal, 2012). Their results indicated that participants in the banner advertisement condition, compared to those in the sponsored advertisement condition, were better at distinguishing the advertisement from the rest of the website. In other words, the sponsored advertisement condition was less recognizable as advertising compared to the banner ad condition (Tutaj & van Reijmersdal, 2012). Findings indicated that participants in the banner advertisement condition reported a better understanding of the selling and persuasive intent compared to participants in the sponsored advertisement condition.

Tutaj and van Reijmersdal's (2012) findings suggest that more recognizable advertising formats, like online banner ads in this case, result in a better recognition of advertising and a better understanding of the selling and persuasive intent. Parents who are exposed to a highly



integrated and interactive advergame may have difficulty recognizing it as advertising and may not understand the selling and persuasive motivations therein.

Research that focuses on topical information (i.e. information based on targets' beliefs regarding advertisers' various tactics and strategies) has been manipulated in order to examine and improve recognition and understanding of subtle and covert advertising practices. For example, Wei, Fisher, and Main (2008) conducted a series of experiments that tested how the activation of persuasion knowledge influenced participants' evaluations of embedded brands. Wei et al. (2008) manipulated participants' level of persuasion knowledge and informed them that a radio show, used as stimuli, was sponsored by an advertiser (persuasion knowledge activated condition), whereas participants that were not informed about the radio show's sponsor did not have their persuasion knowledge activated. The results indicated that participants' with activated persuasion knowledge evaluated the brands featured in the radio shows more negatively than participants' that did not have their persuasion knowledge activated (Wei et al., 2008). Their findings support the notion that "consumers will lower brand evaluations when they know that covert marketing is at work" (Wei et al., 2008, p. 42).

In a similar study, Yun (2009) examined how the activation of persuasion knowledge would affect participants' selection of key-word search advertisements. As Wei et al. (2008), Yun (2009) manipulated persuasion knowledge by informing participants that search engine companies were paid for advertising certain key-word search terms. For example, "participants in the primed persuasion knowledge condition were told that search engine companies were paid for placing some results from advertisers, and those results were labeled with sponsored links or sponsored results, and, sometimes highlighted in a search results page" (p. 407). Participants in this condition were also informed that the purpose of these ads was to increase traffic and

encourage click-through rate. Participants in the non-primed condition were given no additional information on key-word search advertising. Yun's (2009) results indicated that participants in the primed persuasion knowledge condition were less likely to click through key-word search ads compared to the non-primed participants.

Parents may better recognize advertising and understand its selling and persuasive intent when provided with additional agent or topic information (Friestad & Wright 1994; Wright et al., 2005). Boerman, van Reijmersdal, and Neijens (2012) manipulated sponsorship disclosure length of a televised product placement. They were interested in the effects disclosure length had on persuasion knowledge activation and how that persuasion knowledge activation affected brand memory and attitudes. The sponsorship disclosure identified the brand and highlighted itself as advertising in the program (Boerman et al., 2012). Sponsorship disclosure length lasted either 3 seconds, 6 seconds, or was not present (control). Results indicated that participants exposed to either the 3 or 6 second disclosure had higher levels of persuasion knowledge, had greater brand memory, and less favorable brand attitudes than participants not exposed to any disclosure.

In general, PKM proposes that persuasion knowledge activation typically leads to more negative evaluation of the ad, product, or brand (Shrum et al., 2012). As evidenced by previous research, persuasion knowledge activation can be differentially affected depending on the advertising format (Tutaj & van Reijmersdal, 2012) and presence of disclosures (Boermen et al., 2012). Furthermore, when persuasion knowledge is activated, such activation tends to negatively affect the desired behavior (Yun, 2009) and brand attitudes (Boermen et al., 2012; Tutaj & van Reijmersdal, 2012; Wei et al., 2008),

Based on the above findings, if parents play an advergaming and are provided with additional agent, advertiser, or topical information by means of disclosures, the extant literature

indicates that parents' resultant persuasion knowledge of advergaming may increase. As a result of this increase in persuasion knowledge, research also indicates that parents' attitudes toward the practice of children's advergaming may be negatively affected.

### **Advertising Disclosures**

The FTC set a legal precedent in the 1970s following their creation and implementation of the "clear and conspicuous standards" (CCS) for advertising disclosures (FTC 1970). The underlying objectives of these standards include advertiser protection from future legal issues, confirmation to specific laws and regulations, and a more informed consumer (Stewart & Martin 2004). CSS guidelines for advertising disclosures include modality (simultaneous audio and video disclosure), sufficient type size, high contrast, a single background, sufficient presentation rate, distraction avoidance (conflicting sounds for audio disclosures), proximity (presentation of the disclosures immediately after the claim), sufficient disclosure duration, and audience consideration (i.e. children and vulnerable populations) (Hoy & Andrews 2004; Hoy & Lwin, 2008; FTC, 1970; FTC, 1984). As Stewart and Martin note, "CCS standards are especially useful ...when there is reason to believe that the presence of disclosures will have the intended consequence of creating more informed consumers" (2004, p. 190).

### **Advertising Disclosures and Advergaming**

Under the FTC's (1984) "Policy Statement on Deception" the role of the FTC has been to ensure that advertising practices are not deceptive. Acts deemed to be deceptive are those that include a representation or omission that is likely to mislead the reasonable consumer and the representation or omission is material (FTC, 1984). The second requirement for deception requires that the FTC examine marketing or advertising practices from the viewpoint of the reasonable consumer (FTC, 1984). The third element in the FTC's deception policy states that

the omission or misrepresentation of information that is likely to affect the reasonable consumer's decision making is "material" (1984). Therefore, the FTC requires that advertisers disclose product or performance claims if such claims are material to or affect the reasonable consumer's decision making (FTC, 1984).

The FTC's Policy Statement on Deception was crafted "largely in the context of misleading product claims" (Petty & Andrews, 2008, p 8). Therefore, while advertisements in traditional formats are subject to existing CCS guidelines and FTC disclosure mandates, forms of product placement like advergimes are not necessarily held to the same standards due to the lack of product claims and brand performance expectations. This lack of regulatory conformity garnered attention from the consumer group Commercial Alert (2003), who "requested that the FTC require advertisers to disclose product placements in a clear and conspicuous manner" (Petty & Andrews, 2008, p. 11). In response, the FTC took action only in regard to misleading objective representations (Commercial Alert, 2005). Furthermore, the FTC took no stance on passive product placements stating a lack of objective claims and a lack of evidence that such claims may mislead consumers as outlined in the FTC's deception policy statement (Petty & Andrews, 2008).

Advergimes make no explicit claims regarding product performance nor do they incur specific expectations regarding such performance. According to this logic, advergimes would not be deemed misleading because they do not create expectations in the reasonable consumer (FTC, 1984). Advergimes would not be misleading because the absence of product information, in combination with the lack of product expectations, has no measurable impact on the reasonable consumer's decision-making process (FTC, 1984). In other words, the lack of non-objective information (i.e. information which is not concerned with the product's performance

or resultant expectation) is not necessarily “material” to the consumer’s decision making (FTC, 1984). Therefore, the FTC’s decision not to take action regarding passive product placements (Commercial Alert, 2003; 2005) is based not only on the lack of objective claims but also on what they view as material to the reasonable consumer. The FTC’s decision in this case assumes that the reasonable consumer would have similar attitudes towards a brand depicted in an advergaming, or an advergaming itself, even if given additional disclosure information designed to improve their understanding and recognition of advergaming’s commercial nature. Recent research concerning this statement have resulted in two pertinent findings: 1) children’s understanding of the commercial nature of advergaming is not improved through the use of advertising disclosures or breaks within the game (An & Stern, 2011) and 2) children’s desire for products in advergaming are not quelled through the use of additional disclosures or ad-breaks (An & Stern, 2011). Currently, no such research exists that examines adults or parents in an advergaming context.

### **Disclosure Prevalence in Advergaming**

Research that has focused on the prevalence of advertising disclosures within children’s advergaming reveals that marketers do not typically disclose or bring attention to the promotional or commercial nature of the advergaming. For example, in a study of the top 40 Web sites representing the top five brands across eight product categories that regularly marketed to children, Weber et al. (2006) found that 63% contained advergaming. Of the sites that contained children’s advergaming, only 22% labeled advergaming as containing advertising content. Moore and Rideout (2006) investigated 96 brands in 2005 that were heavily advertised to children. Of the resulting 77 websites, 73% contained one or more advergaming. Only 18% of these sites disclosed its advertising content. Similarly, in an analysis of 130 food and beverage Web sites

from 2005, Henry and Story (2009) found that 48% had a designated children's area. Of these Web sites with designated children's areas, 85% had advergimes with only one-third offering some form of advertising disclosure.

These individually defined and enforced standards for advergimes are an issue not only for the CFBAI commitments but also for CARU's (2006) guideline revisions. Much like the self-enforced CFBAI commitments, the CARU guidelines simply suggest that advertisers adhere to the "easily understood" principle (CARU, 2006, p. 7). Advertisers are neither required to include additional disclosure information, which bring attention to and help children understand the commercial nature of the advertisement, nor are they held to any specified benchmark of compliance.

Given that children's online presence is continually growing and children are accustomed to operating multiple Internet-capable mobile devices (eMarketer.com, 2012), it should not be surprising that children are considered the experts in the digital arena (Adweek, 2012). Therefore, when children are considered the experts and they have difficulty understanding and recognizing the persuasive intent in advergimes, it appears imprudent to assume that adults and parents, merely by possessing more cognitive ability and more marketplace experience, are able to recognize persuasive intent with advergimes (Evans et al., 2013).

### **Dual Modality Disclosures**

As one of several clear and conspicuous standards (CCS), the FTC (1970, 7569.09) supports the notion that "disclosures should be presented simultaneously in both audio and video portions of the advertisement." Based on Pavio's (1971) dual-code theory, the presentation of material in more than one modality (i.e. audio and visual), predicts better memory of that material compared to information appearing in just one modality. The use of both audio and

video formats in the context of advertising disclosures is known as dual modality and is superior to single modality (i.e. print or audio only) (Andrews, 2011).

Morris, Mazis, and Brinberg (1989) demonstrated that participants had greater risk awareness and knowledge of prescription drug advertising when exposed to dual modality disclosures compared to single modality disclosures. The use of dual modality disclosures for alcohol advertising on television has resulted in better recall than participants exposed to audio warnings alone (Barlow & Wogalter, 1993; Smith, 1990). Additionally, Murray, Manrai, and Manrai (1998) demonstrated that the use of dual modality disclosures is more effective in ensuring information comprehension compared to single modality presentations.

Given the effectiveness of dual modality disclosures in generating awareness, knowledge, and comprehension across a variety of subjects, the following hypotheses are generated to test the effects of advertising disclosures in children's advergames on parents' activation of persuasion knowledge and attitudes toward advergames.

- H1:** Parents exposed to a dual modality ad-disclosure treatment will report higher levels of persuasion knowledge than parents exposed to a single modality ad-disclosure treatment.*
- H2:** Parents exposed to a single modality ad-disclosure treatment will report higher levels of persuasion knowledge than parents exposed to a no ad-disclosure treatment.*
- H3:** Parents exposed to a dual modality ad-disclosure treatment will report more negative attitudes toward children's advergames than parents exposed to a single modality ad-disclosure treatment.*
- H4:** Parents exposed to a single modality ad-disclosure treatment will report more negative attitudes toward children's advergames than parents exposed to a no ad-disclosure treatment.*

## **Cognitive Capacity**

Situated in information processing theory, cognitive capacity is defined as the amount of mental resources one can devote to any given stimulus or activity. Lang's (2000) limited cognitive capacity theory states that "one's total cognitive capacity at any one point in time is limited and the capacity being used to perform one task cannot be used to perform another task" (Yun, 2009, p. 405). According to Lang's (2000) limited cognitive capacity theory, multitasking is not possible. While our attention and mental resources can shift very quickly from one task to another, we can never focus simultaneously on two tasks at a given point in time. In other words, cognitive capacity is finite and undividable.

The ability to recognize advertising and understand its persuasive and selling intent requires cognitive capacity (Campbell & Kirmani, 2000; Friestad & Wright, 1994). Our mental resources are constantly shifting from task to task during any given day. When individuals' perform such tasks, no matter how mundane, while simultaneously exposed to a persuasive attempt, their cognitive capacity shifts toward task completion and away from determining the persuasive or selling intent therein (Campbell & Kirmani, 2000; Friestad & Wright, 1994). Gilbert and Osborne (1989) refer to these commonplace tasks as ubiquitous features of everyday life. For example, when a mother is watching her child play an advergaming and the phone rings, her attention is drawn to the task at hand (i.e. answering the phone) and away from the persuasive episode (i.e. the advergaming). The cognitive demands required to answer the phone theoretically detracts from her ability to determine the persuasive and selling intent within a children's advergaming. Campbell and Kirmani (2000) conceive that, "...using persuasion knowledge would seem to require cognitive capacity in most circumstances... persuasion



knowledge is less likely to be used in forming an impression of a salesperson (or advergaming) when the consumer has competing cognitive demands” (p. 71).

### **Cognitive Load**

When individuals perform tasks during simultaneous exposure to an advertising episode they can become cognitively loaded (Yoon, Choi & Song, 2011). Their cognitive capacity is reduced and full mental resources cannot be devoted to determining the persuasive intent of advertising episodes. “Cognitive load (CL) has been defined as the mental load imposed on the cognitive system of the learner by a certain task” (Camp, Paas, Rikers & van Merriënboer, 2001, p. 576). CL has also been defined as the perceived effort invested by an individual during task completion (Yin, Chen, Ruiz & Ambikairajah, 2008). While there exists disagreement on the appropriateness of a single technique, there are four generally agreed upon methods for measuring CL: *rating scale techniques*, *physiological techniques*, *performance-based techniques*, and *analytical techniques*. First, *rating scale techniques* focus on individuals’ self-assessment of their perceived mental effort during task exposure (Paas, Tuovinen, Tabbers & Van Gerven, 2003). Second, *physiological techniques* measure brain activity, heart rate, and pupil dilation and assume that changes in mental functioning are reflected by changes in physical functioning (Paas et al., 2003). Third, *performance-based techniques* estimate CL by measuring reaction time, accuracy, and error rate relative to the given task. Fourth, *analytical techniques* estimate CL through mathematical model generation (Paas et al., 2003).

For the purposes of this study, CL is defined as the relationship between an individual’s perceived mental effort and task performance. Paas and van Merriënboer (1993) refer to this relationship as mental efficiency, where high efficiency is reflected by lower mental effort and better task performance and low efficiency is reflected by higher mental effort and poorer task

performance. CL is operationalized as the inverse of mental efficiency, in that high mental efficiency denotes low CL and low mental efficiency denotes high CL.

### **The Effects of Cognitive Loading on Persuasion Knowledge and Attitudes**

If, as Gilbert and Osborne (1989) suggest, cognitive load is a ubiquitous feature of everyday life, it seems plausible that an increase in cognitive demand can not only affect the ability to recognize persuasion in advertising but can also distort individuals' impression of others. By extending this logic to a sales interaction, Campbell and Kirmani (2000) tested how variations in cognitive load affected perceptions of salespersons' underlying motives. Cognitive load was manipulated through the use of a memory task. Participants that were cognitively loaded were asked to remember a number sequence while reading a scenario describing a salesperson-consumer interaction at a clothing store. Participants who were cognitively unloaded were not given the memory task and asked only to read the interaction. Both groups of participants were then asked to form an impression of the salesperson (Campbell & Kirmani, 2000). The results indicated that cognitively loaded participants rated the salesperson as more sincere when that salesperson's motives were made less obvious in the scenario. The findings imply that the use of persuasion knowledge and the recognition of less obvious persuasion motives require cognitive capacity (Campbell & Kirmani, 2000). In other words, "in situations that are not strongly linked to high-pressure persuasion, the use of persuasion knowledge may be contingent upon the consumer's cognitive capacity" (p. 81). Based on these findings, it is theorized that parents who play an advergame while cognitively loaded are less likely to identify the persuasive and selling intent of the game. Parents' predicted inability is a result of the hidden selling and persuasive intent of the advergame and the increased cognitive demands of task completion.

Research indicates that variations in individuals' cognitive load can differently affect attitudes toward advertising. Yoon et al. (2011) examined the influence of cognitive load on brand attitudes in a well-integrated and intrusive-integrated product placement environment. Participants who were cognitively loaded were asked to remember an eight-digit number sequence while exposed to an advertisement and were asked to recall the same number sequence following ad exposure. Findings indicated that a well-integrated product placement resulted in more negative attitudes toward the ad among cognitively loaded versus unloaded participants. Additionally, an intrusive-integrated product placement resulted in more positive attitudes toward the advertising among cognitively loaded versus unloaded participants (Yoon et al., 2011). "Consumers who have insufficient cognitive resources to allocate to information processing may be forced to rely on the disruptive salience of the placement, where the intrusively-integrated (versus well-integrated)...placement leads to inflated attitude" (p. 70). Following the same logic, because advergames are an immersive, integrated, and entertaining form of advertising, cognitive loading may prevent parents from recognizing the game's persuasive motives and possibly result in more positive attitudes toward advergames.

Research indicates that variations in individuals' cognitive load can differentially affect desired behaviors as well. Yun (2009) examined how task complexity influenced participants' click-through rate of keyword search advertising. Participants in the complex task condition were given a poorly structured story about the need for a new laptop computer, which gave them little information on how, where, and what to search for in a new laptop computer. In the complex task condition, task complexity was linked to increases in cognitive load. Participants in the less-complex task condition were given a story, which had specific information to look for in a new laptop computer. Cognitive load was measured by how much time participants searched for the

information. Manipulation checks revealed that participants in the more complex task were under more cognitive load, as indicated by more time required to complete the task, compared to participants in the less complex search task (Yun, 2009). Results indicated that when participants were made aware of keyword search advertising as a practice, cognitively loaded participants were more likely to click through keyword search ads than those in the less complex task condition (Yun, 2009). These findings suggest that even when persuasion knowledge is activated, the resultant negative attitudes and behavior may be attenuated by increases in cognitive load.

Overall, existing research suggests that increases in CL may make persuasive intent more difficult to recognize (Campbell & Kirmani, 2000) in advergames, increases in CL can positively influence brand attitudes in product placement environments (Yoon et al., 2011) such as advergames, and increases in CL can moderate the effects of persuasion knowledge on desired behavior (Yun, 2009). Given this evidence, the following hypotheses are generated to test the effects of cognitive load on parents' activation of persuasion knowledge and attitudes toward the advergame.

**H5:** *Increases in parents' cognitive loading will be negatively associated with reports of parents' persuasion knowledge.*

**H6:** *Increases in parents' cognitive loading will be positively associated with parents' attitudes toward children's advergames.*

In addition to the above hypotheses, it is predicted that the effects of the ad-disclosure conditions in activating parents' persuasion knowledge will vary across cognitive capacity conditions. Therefore, the following hypotheses are generated to test for these potential interactions.

Interaction effect hypothesis 1 (**H7**): *Cognitive capacity and ad-disclosure treatments will interact such that cognitively unloaded parents will report higher levels of persuasion knowledge when exposed to the single modality ad-disclosure treatment versus the no ad-disclosure (control) treatment.*

Interaction effect hypothesis 2 (**H8**): *Cognitive capacity and ad-disclosure treatments will interact such that cognitively unloaded parents will report higher levels of persuasion knowledge when exposed to the dual modality ad-disclosure treatment versus the single modality ad-disclosure treatment.*

Interaction effect hypothesis 3 (**H9**): *Cognitive capacity and ad-disclosure treatments will interact such that parents exposed to the no ad-disclosure (control) treatment will report higher levels of persuasion knowledge when cognitively unloaded versus cognitively loaded.*

Interaction effect hypothesis 4 (**H10**): *Cognitive capacity and ad-disclosure treatments will interact such that parents exposed to the single modality ad-disclosure treatment will report higher levels of persuasion knowledge when cognitively unloaded versus cognitively loaded.*

Interaction effect hypothesis 5 (**H11**): *Cognitive capacity and ad-disclosure treatments will interact such that parents exposed to the dual modality ad-disclosure treatment will report higher levels of persuasion knowledge when cognitively unloaded versus cognitively loaded.*

### **Trait Differences in Persuasion Knowledge**

According to Friestad and Wright (1994) individuals have varying levels of marketplace persuasion knowledge and that knowledge develops over a lifetime (Wright et al., 2005). Such marketplace persuasion knowledge is informed by the general social discourse regarding advertiser tactics in addition to exposure to the various persuasion episodes across a multitude of advertising contexts. Given this logic, some parents may have more experience with and persuasion knowledge of advertising tactics than others. That knowledge, which is a function of experience, exposure, and social discourse, may very well influence a parent's ability to determine whether an advergame qualifies as a persuasive episode. Furthermore, a parent's existing persuasion knowledge may also influence their attitudes toward an advergame.

Research has demonstrated that preexisting individual level differences affect the ability

to recall brands in a product placement environment. Matthes, Wirth, Schemer, and Kissling (2011) found that individual differences in field independence-dependence (i.e. the ability to recognize brands within product-placement environments) influenced brand recall and liking. Those that were field independent (i.e. better able to separate figures from its surrounding field) were better able to recognize brands in product placement environments. Given these findings, it is possible that preexisting individual differences like persuasion knowledge may also affect parents' ability to recognize the advertising content and persuasive intent within advergames. Furthermore, as demonstrated by Matthes et al. (2011), preexisting individual level differences may also affect attitudes in a product placement environment like child-targeted advergames. The following research question is put forth as a means to explore the influence that preexisting trait differences in persuasion knowledge have on persuasion recognition in children's advergames, parents' attitudes toward them, and their attitudes toward regulating them.

***RQ1:** Do parents' trait differences in persuasion knowledge influence their level of persuasion knowledge of children's advergames and attitudes toward children's advergames?*

### **Parental Mediation of Children's Internet Use**

Research indicates that parents underestimate their children's exposure to inappropriate online content (Livingstone, Haddon, Görzig & Olafsson, 2011; Sorbring & Lundin, 2012), their exposure to online bullying (Cho & Cheon, 2005), and their time spent on various online Web sites (Nowak, 2010). Given this underestimation and lack of awareness, it is not surprising to find that parents' accounts of children's Internet use are often in discord with children's descriptions on what they actually do while online (Livingstone & Bober, 2006). Research demonstrates that parental strategies for mediating and monitoring their children's Internet use come from two main information sources. The first source of information originates from

children's disclosure of their own online activities to parents (Fleming, Greentree, Cocotti-Muller, Elias & Morrison, 2006; Juvonen & Gross, 2008; Stattin & Kerr, 2000). The second information source that allows parents insights into their children's online activities originates from parents active participation in children's Internet activities (Cho & Chen, 2005; Livingstone & Helsper, 2008; Waizenhoffer, Buchanan & Jackson-Newson, 2002).

While it is certainly desirable that children share with their parents their online activities, which could include accounts of inappropriate content exposure or advertising, such disclosure may be based on a child's willingness to share or the trusting nature of the parent-child relationship (Juvonen & Gross, 2008). Therefore, mediation strategies based on active co-viewing and parental participation in children's Internet activities may be more accurate and informative when compared to child disclosure of online activities (Livingstone & Bober, 2006; Livingstone & Helpser, 2008).

It is feasible that some parents are more involved and concerned with their children's online activities. Research demonstrates that some parents may execute more online mediation strategies for younger rather than older children (Livingstone & Helpser 2008). Given that active co-viewing and online mediation expose parents to various online contexts, which may include certain forms of child directed advertising, those who are more active mediators of their children's activities may more aptly recognize and understand children's advergames as a form of advertising. Therefore, it is possible that parents who are more involved with and have more mediation strategies regarding their children's Internet use may have more knowledge of advergames' prevalence and commercial nature. In order to explore this possible relationship the following research question is put forth.

***RQ2:** Do parents' mediation of children's Internet use influence their level of persuasion knowledge and attitudes toward children's advergames?*

## **CHAPTER III METHOD**

### **Design and Sample**

A 3 (advertising disclosures: no disclosure vs. single modality vs. dual modality) X 2 (cognitive load: loaded vs. unloaded) between subjects factorial design was employed to address the study's hypotheses and research questions. Two hundred and seven parents with children between the ages of 7 and 11 were recruited to participate in an online experiment that implements this design. The final sample consisted of 202 parents. Parents of children in this age group were selected because research indicates that children typically develop the ability to recognize and defend against advertising around the age of 8 (John, 1999).

### **Recruitment and Data Collection**

#### *Recruitment*

The principal investigator hired an external market research company (Research Now) to recruit qualifying participants and administer the online experiment. Parents that qualified for participation had at least one child between the ages of 7 to 11 (or approximately 2<sup>nd</sup> through 5<sup>th</sup> grade). Parents that had no children falling within this age range were excluded from participation. It is a possibility that multiple parents of the same child participated in this study. Multiple responses for the same child were not criteria for exclusion. Research Now was instructed by the PI to recruit a geographically diverse sample with an even distribution of mothers and fathers. Pretesting determined that participation in the study was approximately 11.5 minutes.

Research Now recruited potential qualifying participants through already existing panel data. Existing panel members were paid to be on Research Now's panels and to do so they had previously opted-in. As part of Research Now's hiring cost, parents that qualified for



participation were already offered an incentive for being on existing panels. The PI did not directly provide incentives to participants. Only Research Now offered incentives for participation. Qualifying panelists received a cash reward (\$10) for participating.

### *Data Collection*

Research Now's existing panel members were sent an email invitation to take part in the study. The invitation contained key information for panelists in order for them to best understand the commitment required of them. The invitation contained a link to Research Now's privacy policy, an opportunity to unsubscribe from the panel, and a link to a member of Research Now staff for any potential questions or concerns. Research Now's sampling was carried out with highly encrypted links to database servers. It was done without the use of personal information, just demographic information specific to each study. Research Now located qualifying participants, administered the online experiment, administered the post-experimental questionnaire, and compiled the data. The final compiled data was sent to the PI in the form of a SPSS data file. The file had no personally identifying information and was anonymous because it was linked to the panel database with numeric IDs. Therefore, the identity of the end-user (panelist) was protected.

### **Procedure**

Before beginning the online experiment, participants were directed to an informed consent statement (see appendix A). The informed consent statement sheet indicated to participants that they were about to take part in an online experiment, which seeks to understand parents' attitudes toward children's online games.

Participants that consented to take part in the study, by selecting "yes" at the end of the informed consent sheet, were then directed to a separate page containing study directions (see

appendix B) and a randomized URL reflecting one of the six experimental treatments. After reading the directions participants were instructed to “click on the URL to continue”. Research Now randomly assigned one of the six URLs to each participant to ensure that all participants had an equal chance of receiving each experimental treatment combination. The *no ad-disclosure/cognitively loaded* (figure 1), *single modality ad- disclosure/cognitively loaded* (figure 2), and *dual modality ad- disclosure/cognitively loaded* (figure 3) URLs (i.e., any of the three treatment combinations having a cognitive load treatment) once clicked, first directed participants to a screen whereby they were given the memory and recall task (i.e. cognitive load treatment). Following the task, participants were routed directly to the Pop-Tarts® Toasty Turvy advergame Web site. As per the study directions (see appendix B), participants were instructed to read the game’s directions and then play the game, all while simultaneously receiving their respective ad-disclosure treatment.

In contrast, the *no ad-disclosure/cognitively unloaded* (figure 4), *single modality ad-disclosure/cognitively unloaded* (figure 5), and *dual modality ad- disclosure/cognitively unloaded* (figure 6) URLs (i.e. the other treatment combinations with no cognitive load treatment), directly routed participants to the Pop-Tarts® Toasty Turvy advergame Web site. As per the study directions (see appendix B), participants were instructed to read the game’s directions and then play the game, all while simultaneously receiving their respective ad-disclosure treatment

To ensure participants’ attitudes and persuasion knowledge were not influenced by advergame exposure, Research Now hosted each URL and controlled the amount of time each participant had with the Pop-Tarts® Toasty Turvy advergame. To ensure an equal amount of advergame exposure, once participants were routed to the Pop-Tarts® Toasty Turvy advergame

Web site, they had precisely three minutes to read the game directions and play the game. After the three minutes expired, participants were routed to a questionnaire page containing all dependent measures, induction checks, demographics, and covariates. Parents were instructed to complete the questionnaire with respect to their youngest child between the ages of 7 and 11. This procedure was used because families may be composed of more than one child and, to avoid multiple responses from parents of more than one child, we asked that parents focus their answers only on their youngest child ages 7 to 11 (see Carlson & Grossbart, 1988; Evans et al., 2013).

### **Cognitive Load Pretests**

In order to demonstrate the suitability of a task that induces cognitive load among parents, cognitive load was pretested by creating three short online surveys (hosted on SurveyMonkey) that contained variations of a memory and recall task. Each version of the memory and recall task instructed participants to remember and recall one of three different number sequences (c.f. Campbell & Kirmani, 2000; Yoon et al., 2011). These number sequences were 8 digits (00967852), 11 digits (00967852456), and 13 digits (0096785245610) in length. A convenience sample of 54 college students aged 18 years and above was assigned to one of the three surveys, which were identical except for the number sequence length. The three surveys were distributed via email attachments to the college student sample in introductory advertising and public relations classes at a large Southeastern University. A second convenience sample of non-college students aged 18 years and above was also assigned to one of the three surveys. The three surveys were distributed via an online list serve to the non-college student sample that were employed at or associated with a medium sized Southeastern primary and secondary school. The pretest procedure instructed each participant to remember the shown number sequence (either 8,

11, or 13 digits in length), they were instructed not to write the number sequence down, and they were informed that they would be asked to recall the number sequence at a later point in the survey. After participants were given the number sequence and directions they were directed to a page featuring an ambiguous stimulus (a picture that looked like a rabbit or a squirrel) where they were instructed to “write down what they see”. After participants were presented with the ambiguous stimulus they were then directed to a page that asked if they wrote the number sequence down. Participants that answered yes to this question were excluded from the pretest. On the next page participants were instructed to write down the number sequence they were shown earlier.

In total, the pretest consisted of two samples (college vs. non-college) and three conditions of cognitive load (8 vs. 11 vs. 13). Pretest results for the 8-digit condition indicated that college students (n=17) correctly recalled on average 78.67% of the numbers in sequence and non-college students (n=20) correctly recalled on average 89.37% of the numbers in sequence (combined ave % = 84.46, n= 37). Pretest results for the 11-digit condition indicated that college students (n=17) recalled on average 66.84% of the numbers in sequence and non-college students (n=16) correctly recalled on average 89.76% of the numbers in sequence (combined ave % = 77.12, n= 33). Pretest results for the 13-digit condition indicated that college students (n=20) correctly recalled on average 67.31% of the numbers in sequence and non-college students (n=13) correctly recalled on average 84.84% of the numbers in sequence (combined ave % = 75.28, n= 33). Given the unusually high recall rate for non-college students and the similarity in recall percentage between the 11-digit and 13-digit conditions for college students, further pretesting on a different population was warranted.

Since the non-college sample most approximated the intended sample of parents with children ages 7-11 a different non-student sample was sought for a second round of pretesting. Two more short surveys were created (hosted on SurveyMonkey) using the same procedure outlined in the first round of pretesting. As in the first round of pretesting, participants were asked to remember and recall one of two unique number sequences. These number sequences were either 11 digits (32512260728) or 13 digits (3251226072814) in length and were created using a random number generator. The two surveys (either 11 digit or 13 digit conditions) were distributed on Facebook and sent to 60 Facebook contacts of the principle investigator. All PI Facebook contacts were 18 years or older. Thirty of the 11-digit condition and the 30 of the 13-digit condition surveys were sent to different contacts thus assuring unique responses to both conditions. Both versions of the survey had a response rate of 50%. Participants in the 11-digit condition (n=15) correctly recalled on average 72.72% of the numbers in sequence. Participants in the 13-digit condition (n=15) correctly recalled on average 46.66% of the numbers in sequence.

Taken collectively, the results of the first round of pretesting indicate that the 8-digit number sequence is unsuitable for inducing cognitive load. As evidenced by the average percent of correctly recalled numbers in sequence (n=37, ave %= 84.46) among a combined college student and non-college student sample, it appears that an 8-digit number sequence is both easy to recall and does not require substantial cognitive effort. The second round of pretesting for the 11-digit and 13-digit conditions suggest that a 13-digit number is more difficult to correctly recall than is an 11-digit number. Participants in the 13-digit condition correctly recalled on average only 46.66% of the numbers in sequence compared to 72.72% in the 11-digit condition. Furthermore, fewer participants in the 13-digit condition recalled 100% of the numbers in

sequence than did those in the 11-digit condition. The pretest results indicate that adults expend more cognitive effort to remember and recall 13 digits than is the case with 11 digits. In light of the pretest results, when tasked with recalling a number sequence, it is reasonable to conclude that adults, and presumably parents, will experience more cognitive load when recalling a 13-digit number compared to an 11-digit or 8-digit number. Thus, the recall of a randomly generated 13-digit number serves as the operationalization of cognitive loading for this study

### **Advergame Stimuli**

The advergame for the proposed study was appropriated from an existing child targeted gaming website, <http://www.poptarts.com/games>, which is owned and operated by Kellogg's of North America. The advergame was Pop-Tarts® Toasty-Turvy, which currently has no ad-disclosures. There was no manipulation or changes made to the Pop-Tarts® advergame. All stimuli manipulations were made within an overlaid HTML environment that surrounded the Pop-Tarts® Toasty-Turvy advergame.

### **Experimental Treatments**

#### *Advertising Disclosures*

There were three types of advertising disclosures surrounding the Pop-Tarts® Toasty Turvy advergame. The no ad-disclosure condition (control) featured the game as it was on the Web site (i.e. no advertising disclosures). The single modality (print only) ad-disclosure treatment featured a text "crawl" in a HTML environment below the game-play screen, which stated, "Hi kids! This game is an advertisement" (c.f. WGAW, 2008). The disclosure statement was tested for age readability level, as per the CCS standards (c.f. FTC, 1970), using the Flesch-Kincaid Grade Level test in Microsoft Word. The disclosure statement returned a 4.3 Flesch-



Concept2

REMEMBER THE FOLLOWING NUMBER SEQUENCE  
YOU WILL BE ASKED TO RECALL THIS SEQUENCE AFTER YOU PLAY A GAME  
DO NOT WRITE IT DOWN  
**5746983219412**  
57 seconds

Previous

© [2013]



The screenshot shows the Pop-Tarts website interface. On the left is a navigation menu with the following items: FLAVORS (with a dropdown arrow), LIMITED EDITION, GONE NUTTY™, OATMEAL DELIGHTS®, CHOCOLATE, FRUIT, BAKERY, ICE CREAM, WILD LICIOUS®, POP-TARTS, and MINI CRISPS®. Below the menu are buttons for RECIPES, GAMES (highlighted in red), VIDEOS, SHOP, NUTRITION, and EMAIL SIGN-UP. The main content area features a large advertisement for the game 'TOASTY TURVY'. The ad includes the Pop-Tarts logo, the game title 'Toasty Turvy' in large, colorful letters, an image of a toaster with a Pop-Tart inside, and the text: 'Build a pathway to connect the toasters with their missing Pop-Tarts® before time runs out!'. At the bottom of the ad are three buttons: 'PLAY NOW', 'HOW TO PLAY', and 'LEADERBOARD'.

Figure #1: cognitively loaded/ no ad-disclosure condition



Concept2

REMEMBER THE FOLLOWING NUMBER SEQUENCE  
YOU WILL BE ASKED TO RECALL THIS SEQUENCE AFTER YOU PLAY A GAME  
DO NOT WRITE IT DOWN  
**5746983219412**  
57 seconds

Previous

© [2013]



The screenshot shows a game advertisement for 'Toasty Turvy'. On the left is a vertical menu with categories: GONE NUTTY!, OATMEAL DELIGHTS®, CHOCOLATE, FRUIT, BAKERY, ICE CREAM, WILD/LICIOUS®, POP-TARTS®, and MINI CRISPS®. Below the menu are buttons for RECIPES, GAMES, VIDEOS, SHOP, NUTRITION, and EMAIL SIGN-UP. The main advertisement features a toaster with a Pop-Tart inside, the title 'Toasty Turvy' in large stylized letters, and the text 'Build a pathway to connect the toasters with their missing Pop-Tarts® before time runs out!'. At the bottom of the ad are buttons for 'PLAY NOW', 'HOW TO PLAY', and 'LEADERBOARD'.

Hey Kids! This game's an advertisement.

Figure #2: cognitively loaded/ single modality ad-disclosure condition





Concept2

REMEMBER THE FOLLOWING NUMBER SEQUENCE  
YOU WILL BE ASKED TO RECALL THIS SEQUENCE AFTER YOU PLAY A GAME  
DO NOT WRITE IT DOWN  
**5746983219412**  
57 seconds

Previous

© [2013]



Audio Disclosure

Hey Kids! This game's an advertisement.

Figure #3: cognitively loaded/ dual modality ad-disclosure condition

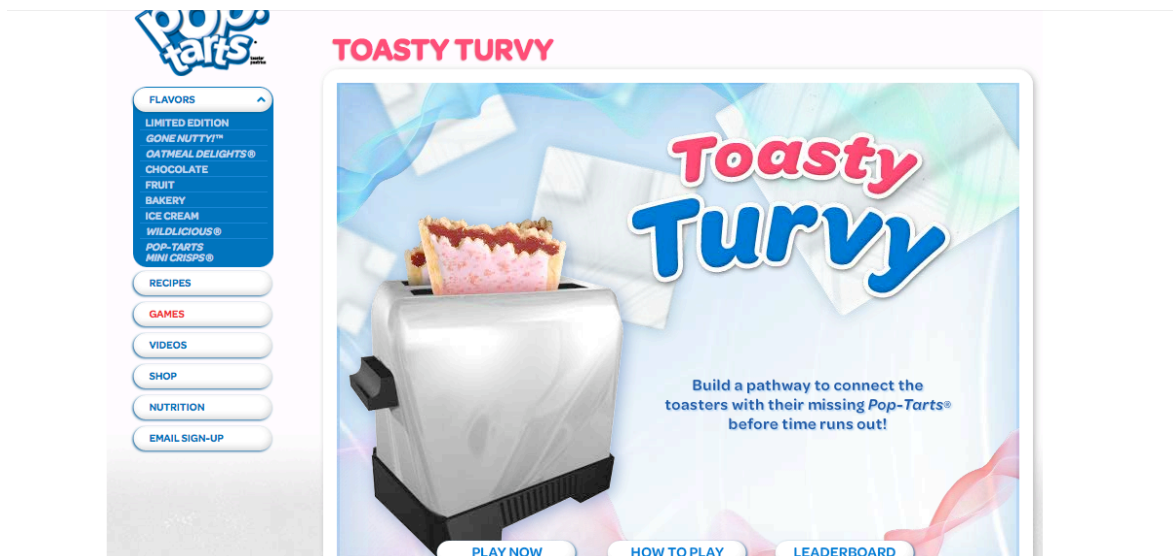


Figure #4: cognitively unloaded/ no ad-disclosure condition

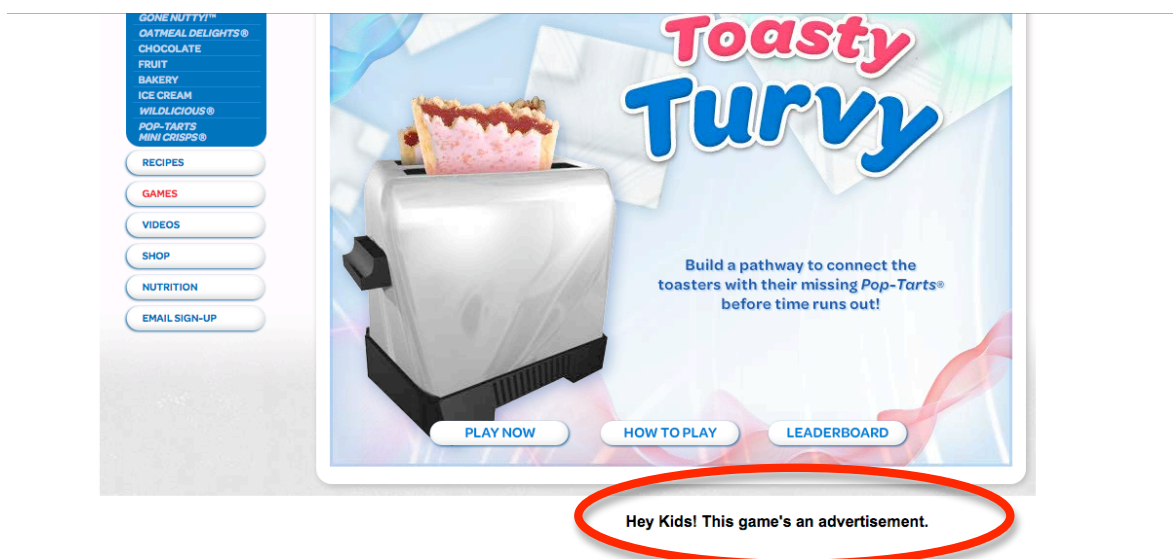
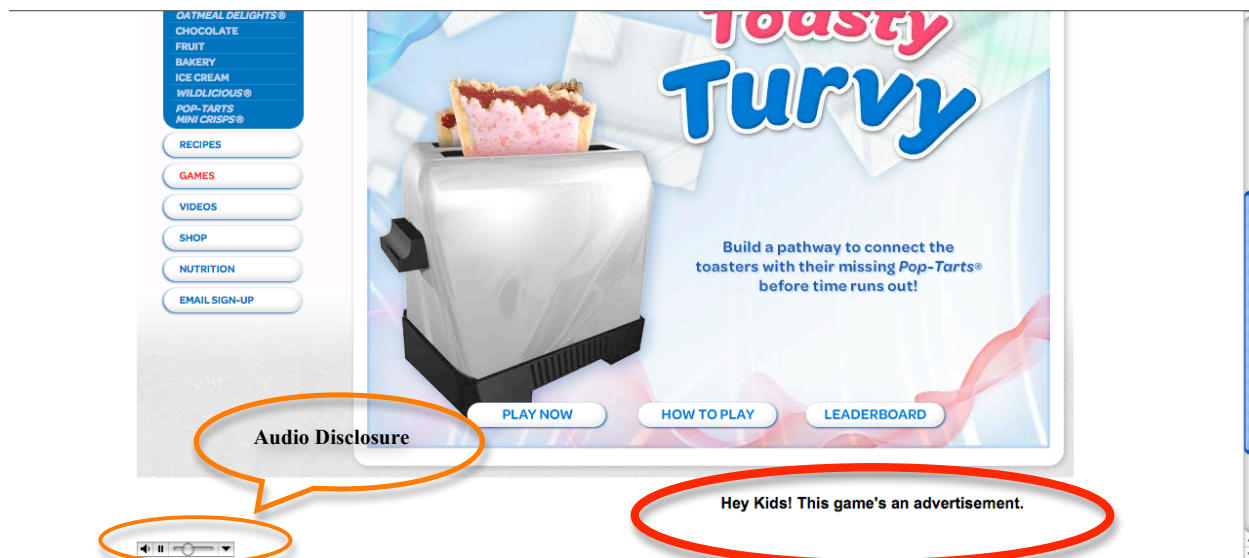


Figure #5: cognitively unloaded/ single modality ad-disclosure condition



**Figure #6: cognitively unloaded/ dual modality ad-disclosure condition**

Kincaid Grade Level score, which indicated a suitable reading level for children between the ages of 7-11. The dual modality (print and audio) ad-disclosure had an audio clip simultaneously restating what appeared in the text crawl. Once the parent linked to the Pop-Tarts® Toasty Turvy advergaming Web site, the audio clip began after four seconds and repeated every 10 seconds until the participant was directed to the questionnaire. This ensures that parents in the advertising dual-modality disclosure condition will have the opportunity to hear the audio disclosure 18 times.

The disclosures were created in the form of an overlay, which was separate from the Pop-Tarts® advergaming found on the website. This HTML environment was created as separate from the Pop-Tarts® advergaming to avoid any conflicting trademark or copyright statutes. Prior to linking to the Pop-Tarts® Toasty Turvy advergaming Web site parents were instructed to keep

their computer volume on in order to ensure the successful induction of this particular experimental treatment.

#### *Advertising Disclosures Induction Check*

Participants were asked the question, “Did the pop tarts game explicitly tell you that it was advertising?” When participants answered yes, an open-ended question then asked, “How did it tell you?”.

#### *Cognitive Load*

Parents who received the cognitive load treatment were assigned the task of remembering and later recalling a randomly generated 13-digit number sequence (5746983219412). This number appeared on a screen for 60 seconds after clicking on their randomly assigned URL (c.f. Rienhard & Sporer, 2008). The cognitive load treatment occurred before participants were routed to the Pop-Tarts® Toasty Turvy advergaming Web site. As indicated by the directions on the screen participants were told to remember the number sequence, they were instructed to not write the number sequence down numbers, and were informed that they would be asked to recall the number sequence after playing a game.

### **Measures**

#### *Cognitive Load*

Based on Paas and van Merriënboer’s (1993) computational measurement of mental efficiency, a multidimensional construct of cognitive load was created by combining measures of perceived mental effort and task recall performance. Perceived mental effort was measured by asking participants “When you were playing, how hard were you concentrating on remembering the number sequence?”, “How difficult was it to remember the number sequence?”, and “How difficult was it to recall the number sequence?”. These questions were measured on a seven-point

likert rating scale ranging from not at all to very. Task recall performance was measured by asking the participant to recall the number sequence. A percentage correct was computed by dividing the number of digits correctly recalled in sequence by the total number of digits.

According to Paas and van Merriënboer's (1993) computational approach, scores for perceived mental effort and task recall performance were standardized. Z scores for each measure were produced having potential range from -3 to +3. Highlighted below in figure 7, is Paas and van Merriënboer's (1993) computational approach, where mental efficiency (E), is the sum of performance (P) minus mental effort (ME), divided by the square root of 2. Figure 8 displays the computational inverse of mental efficiency, which is operationalized as cognitive load.

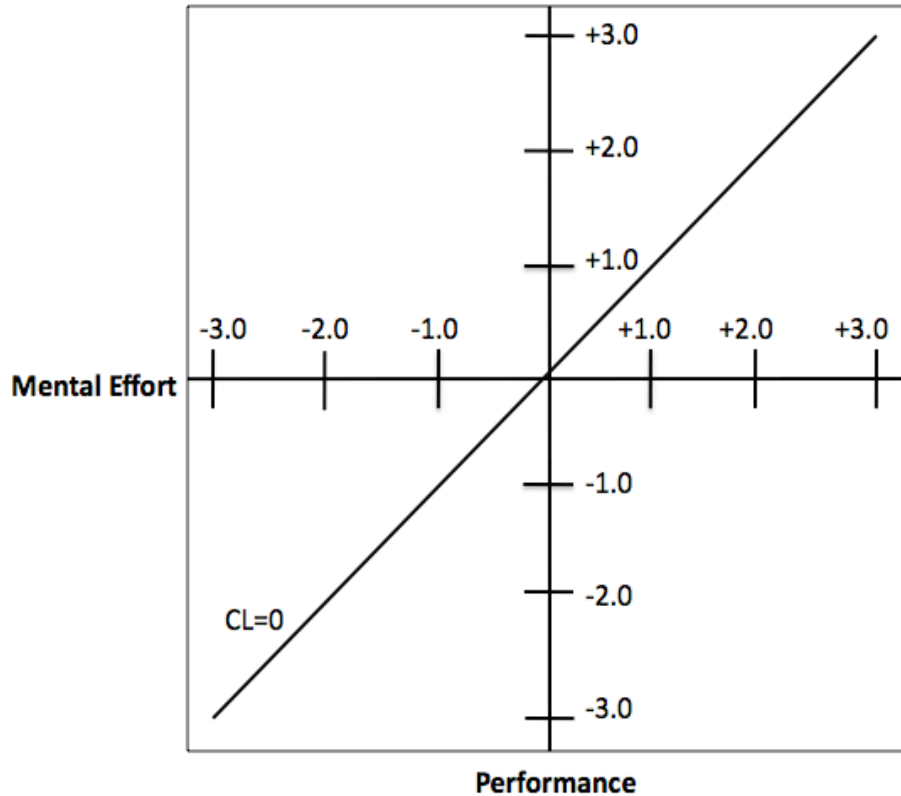
$$E = \frac{z_{Performance} - z_{Mental\ Effort}}{\sqrt{2}}$$

**Figure #7: Paas and van Merriënboer's computational approach for mental efficiency**

$$\left( E = \frac{z_{Performance} - z_{Mental\ Effort}}{\sqrt{2}} \right)^{-1}$$

**Figure #8: Computational approach for cognitive load**

If placed on a Cartesian axis (see Figure 9) ME occupies the horizontal axis and P occupies the opposing vertical axis. When  $E = 0$ , P and ME are in balance. As CL approaches +3, efficiency is low and cognitive load is high. In other words, the task was difficult for the participant and required substantial cognitive effort. However, as CL approaches -3, efficiency is high and cognitive load is low. In this case, the task did not require significant cognitive resources. The computational approach for computing CL resulted in a continuous measure, which represents the inverse of E.



**Figure #9: Cognitive Load: Paas and van Merriënboer's graphical representation of (inverse) mental efficiency**

### *Cognitive Load Assessment*

In total, there were 110 parents that received the CL treatment. Five parents were excluded from subsequent analysis because they reported they wrote the number down resulting in a final CL treatment subgroup of  $N = 105$ . Using the formula indicated in figure 8, a range of CL scores was computed for the CL treatment subgroup. CL scores ranged from -2.59 to +2.24 ( $M = .00$ ,  $SD = 1.18$ ) with median value of .2058.

### **Dependent Variables**

#### *Persuasion Knowledge*

Twelve items were used to measure persuasion knowledge. Six items were adapted from Rozendaal's et al. (2010) persuasion knowledge scale. Items include, "This game is not meant to sell pop tarts" (reverse coded), "This game stimulates the sales of pop tarts", "This game does not influence opinions about pop tarts" (reverse coded), "This game makes people like pop tarts", "This game provides information about pop tarts" and, "This game lets people know more about pop tarts". The first two items measure participants' understanding of the selling intent. The third and fourth items measure participants' understanding of persuasive intent. The fifth and sixth questions are filler items and measure participants' informational knowledge (Tutaj & van Reijmersdal, 2012). This scale has been used in past research, which has examined and compared children's and adults' television advertising competencies and recognition (Rozendaal et al., 2010) and has been used to examine the effects of advertising format on persuasion knowledge activation (Tutaj & van Reijmersdal, 2012). The first four items, which respectively measure selling and persuasive intent, have demonstrated acceptable levels of internal consistency ( $\alpha = .84$ ). Six additional distracter questions, which examined attitudes about the game's entertainment and educational purposes, were used in the scale in order to prevent

response bias (see appendix C). All questions were randomized and measured using a seven-point Likert scale ranging from strongly agree to strongly disagree.

### *Persuasion Knowledge: Assessment and Structure*

In order to test the underlying structure of persuasion knowledge a principle components analysis was performed. Following standard PCA procedures, components with Eigenvalues less than 1.0 were ignored and factor loadings of less than .40 were suppressed. The initial correlation matrix indicated no highly significant relationships ( $r \leq .85$ ). Both the Kaiser-Meyer-Olkin test (.761) and the Bartlett's Test of Sphericity ( $\text{Chi}^2 = 1036.483$ ,  $df = 66$ ,  $p < .000$ ) indicate an adequate sample for factor analysis. Communalities and their extraction were all greater than .50, which indicates the appropriateness of PCA for this sample.

PCA with varimax rotation revealed three components explaining 74.80% of the total variance in persuasion knowledge measures. Component one, *informational knowledge* ( $\alpha = .853$ ;  $M=9.37$ ;  $SD= 4.69$ ), accounted for more than 39 % of the variance and had an Eigenvalue of 3.134. Three items loaded on the *informational knowledge* component with factor loadings ranging from .776 to .908 (see table 1). Component two, *entertainment and educational knowledge* ( $\alpha = .788$ ;  $M=14.63$ ;  $SD= 3.60$ ), accounted for 22.79% of the variance and had an Eigenvalue of 1.823. Three items loaded on the *entertainment and educational knowledge* component with factor loadings ranging from .795 to .851(see table 1). Component three, *selling and persuasion knowledge* ( $\alpha = .586$ ;  $M=8.69$ ;  $SD= 3.22$ ), accounted for 12.73% of the variance and had an Eigenvalue of 1.026. Two items loaded on the *selling and persuasion knowledge* component with factor loadings of .815 and .847(see table 1).



### *Additional Persuasion Knowledge Measures*

Additionally, an open-ended measure of persuasion knowledge, which was adapted from An and Stern (2011) and Mallinckrodt and Mizerski (2007) read as follows: “Why do you think someone would put a game like Pop-Tarts® Toasty-Turvy on the Internet?”. A binary coding procedure was performed. Responses that indicated recognition of the advergame’s advertising, selling, marketing, promotional, or branding purposes were coded as “1”. Those who received a code value of “1” recognized the advergame as a form of advertising. All other responses were coded as “2” and did not recognize the advergame as a form of advertising.

### *Attitudes Toward Advergames*

Six items were adapted from Evans’ et al. (2013) research on parental attitudes toward children’s advergames (c.f. Crosby & Grossbart, 1984; Wolin, Korgaonkar & Lund, 2002) (See appendix C). These items measure parents’ attitudes toward children’s advergames and have strong internal consistency ( $\alpha = .86$ ). Several of these items were reverse coded to counter possible response bias.

### *Attitudes Toward Advergames: Assessment and Structure*

In order to test the underlying structure of attitudes toward advergames a principle components analysis was performed. Following standard PCA procedures, components with Eigenvalues less than 1.0 were ignored and factor loadings of less than .40 were suppressed. The initial correlation matrix indicated no highly significant relationships ( $r \leq .85$ ). Both the Kaiser-Meyer-Olkin test (.805) and the Bartlett’s Test of Sphericity ( $\text{Chi}^2 = 482.438$ ,  $df = 15$ ,  $p < .000$ ) indicate an adequate sample for factor analysis. PCA revealed one component, *negative perceptions of advergames* ( $\alpha = .832$ ;  $M = 23.29$ ;  $SD = 7.05$ ), accounting for 54.90% of variance

in attitude measures with an Eigenvalue of 3.29. All six items loaded on *negative perceptions of advergames* with factor loadings ranging from .542 to .862 (see table 1).

## **Covariates**

### *Trait Differences in Persuasion Knowledge*

To control for individual trait differences in persuasion knowledge, Bearden et al. (2001) six-item measure of persuasion knowledge was adopted. All questions have maintained acceptable levels of internal consistency ( $\alpha = .83$ ) in the past and are measured using a seven-point Likert scale from strongly agree to strongly disagree. Items include, “I know when an offer is too good to be true”, “I can tell when an offer has strings attached”, “I have no trouble understanding the bargaining tactics used by salespersons”, “I know when a marketer is pressuring me to buy”, “I can see through sales gimmicks used to get consumers to buy”, and “I can separate fact from fantasy in advertising”. Several of the items were reverse coded in order to reduce response bias (see appendix C).

### *Trait Differences in Persuasion Knowledge: Assessment and Structure*

In order to test the underlying structure of trait differences in persuasion knowledge a principle components analysis was performed. Following standard PCA procedures, components with Eigenvalues less than 1.0 were ignored and factor loadings of less than .40 were suppressed. The initial correlation matrix indicated no highly significant relationships ( $r \leq .85$ ). Both the Kaiser-Meyer-Olkin test (.773) and the Bartlett’s Test of Sphericity ( $\text{Chi}^2 = 388.971$ ,  $df = 15$ ,  $p < .000$ ) indicate an adequate sample for factor analysis. Communalities and their extraction were all greater than .50, which indicates the appropriateness of PCA for this sample.

PCA revealed one component, *individual trait persuasion knowledge* ( $\alpha = .809$ ;  $M = 9.72$ ;  $SD = 4.27$ ), accounting for 65.82% of variance with an Eigenvalue of 2.63. Four items

**Table #1: Dependent Variables and Covariate Component Factor Loadings**

Items (* = Reverse Coded)	Components and Loadings						$\alpha$
	Info. Know.	Ent. Know.	Sell. and Per. Know.	Neg. Perceptions of Adverggames	Ind. Per. Know.	Parents' Mediation of Int.	
This game provides information about pop tarts	.898						.853
This game makes people like pop tarts	.776						
This game lets people know more about pop tarts	.908						
This game is a good way to pass the time		.795					.788
This game provides entertainment		.851					
This game helps develop cognitive skills		.809					
This game is not meant to sell pop tarts*			.815				.586
This game does not influence my opinions about pop tarts*			.847				
Games like this make children want things they don't really need				.731			.832
Games like this lead children to make unreasonable purchase demands on their parents				.862			
Games like this directed at children lead to family conflict				.676			
Games like this don't take advantage of children*				.751			
There aren't enough games like this directed at children*				.542			
Games like this use tricks and gimmicks to get children to buy their products				.838			
I have trouble telling when an offer is too good to be true*					.770		.809
I have trouble understanding the bargaining tactics used by salespeople*					.794		
I have trouble seeing through the sales gimmicks used to get me to buy*					.811		
I have trouble separating fact from fantasy in advertising*					.866		
I have strict rules about the time my child spends online*						.699	.875
I stay nearby when my child is online						.838	
I watch the screen when my child is online						.852	
I help my child when they use the internet						.775	
I talk to my child about Internet use						.699	
I sit with my child when they are online						.850	

loaded on *individual trait persuasion knowledge* with factor loadings ranging from .770 to .866 (see table 1).

#### *Parental Mediation of Children's Internet Use*

Several questions that measure parents' mediation strategies of their children's Internet use were adopted from Livingstone and Helsper (2008). All questions have maintained strong internal consistency ( $\alpha = .87$ ) in past research are measured using a seven-point Likert scale from strongly agree to strongly disagree. Questions include, "I have strict rules about the time my child spends online", "I stay nearby when my child is online", "I watch the screen when my child is online", "I help my child when they use the Internet", "I talk to my child about Internet use", "I sit with my child when they are online", "My child is allowed to give out personal information", "My child is not allowed to buy anything online", and "My child is allowed to fill out online forms/quizzes".

#### *Parental Mediation of Children's Internet Use: Assessment and Structure*

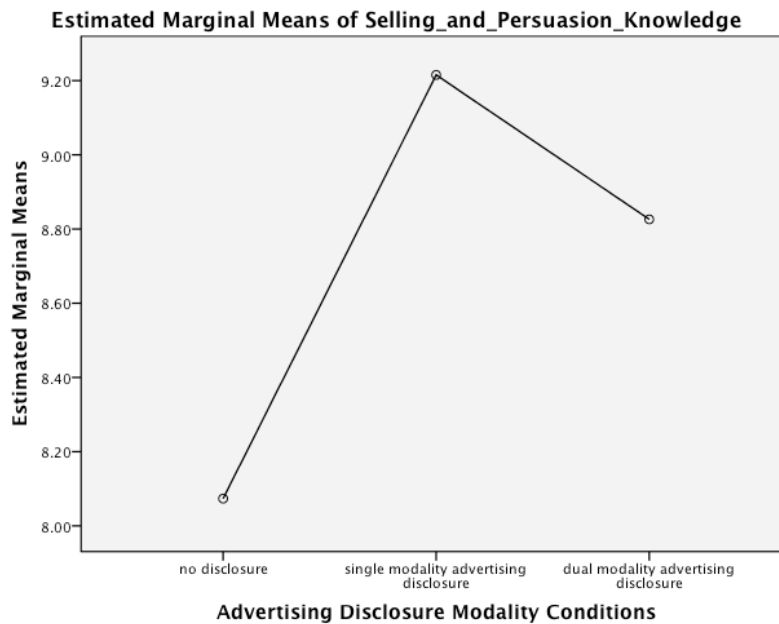
In order to test the underlying structure of parents' mediation of Internet use a principle components analysis was performed. Following standard PCA procedures, components with Eigenvalues less than 1.0 were ignored and factor loadings of less than .40 were suppressed. The initial correlation matrix indicated no highly significant relationships ( $r \leq .85$ ). Both the Kaiser-Meyer-Olkin test (.862) and the Bartlett's Test of Sphericity ( $\text{Chi}^2 = 591.000$ ,  $df = 15$ ,  $p < .000$ ) indicate an adequate sample for factor analysis.

PCA revealed one component, *parental mediation of Internet use* ( $\alpha = .875$ ;  $M = 29.77$ ;  $SD = 6.92$ ), accounting for 62.10% of variance with an Eigenvalue of 3.73. Six items loaded on *parental mediation of Internet use* with factor loadings ranging from .699 to .852 (see table 1).

## CHAPTER IV RESULTS

### Advertising Disclosure Modality Hypotheses Tests

Hypothesis 1 predicted that parents who were exposed to the dual modality advertising disclosure condition would report more persuasion knowledge than parents exposed to the single modality advertising disclosure condition. A one-way ANOVA for selling and persuasion knowledge revealed no statistically significant differences across the three advertising disclosure modality conditions  $F(2, 199) = 2.204, p = .113$  (see Figure 10).



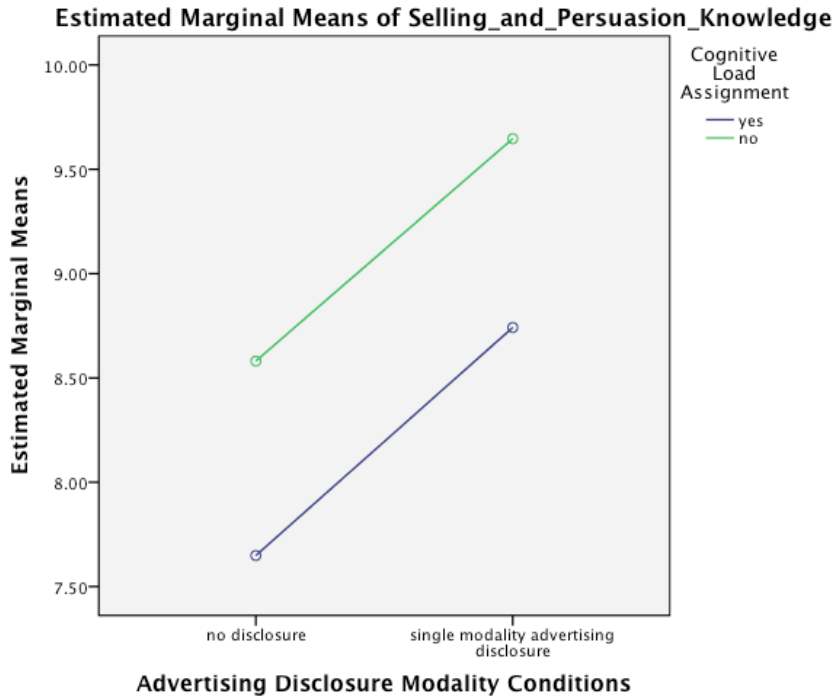
**Figure #10: One-Way ANOVA for Advertising Modality Disclosures**

Additional analyses were carried out for the CL treatment subgroup. A median split was performed on the CL treatment subgroup resulting in a high CL group and low CL group. A 3 x 2 ANOVA was used to examine parents' selling and persuasion knowledge by advertising disclosure modality (none/single/dual) and CL median split (high/low). There was no significant

main effect for advertising disclosure modality ( $F(2, 94) = 2.367, p = .099$ ). LSD post hoc comparisons indicate that parents exposed to the dual modality advertising disclosure ( $M = 9.07$ , 95% CI [8.00, 10.13]) have more selling and persuasion knowledge than parents exposed to no advertising disclosure ( $M = 7.51$ , 95% CI [6.45, 8.57]),  $p = .039$ . Hypothesis 1 is not supported.

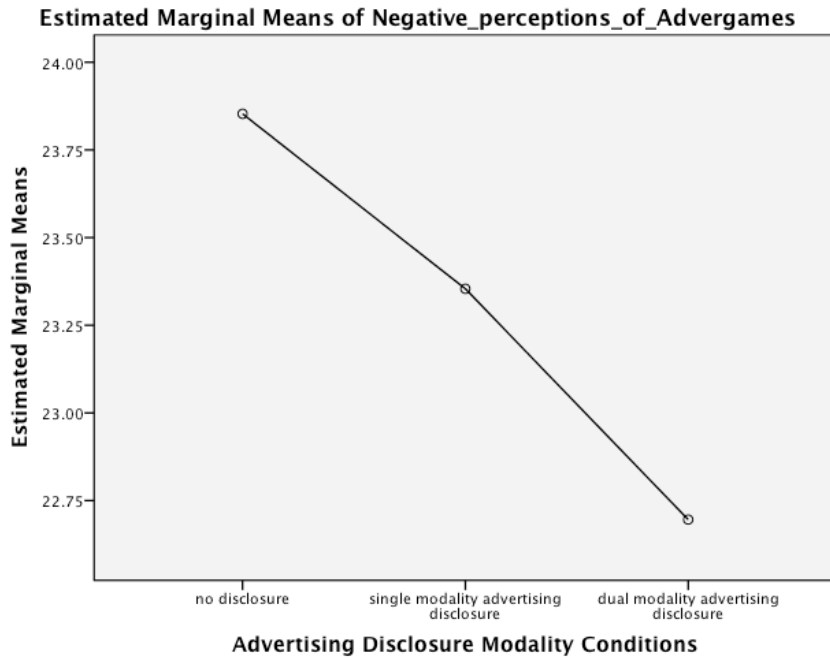
Hypothesis 2 predicted that parents who were exposed to the single modality advertising disclosure condition would report more persuasion knowledge than parents exposed to the no advertising disclosure condition. A one-way ANOVA for selling and persuasion knowledge revealed no statistically significant differences across the three advertising disclosure modality conditions  $F(2, 199) = 2.204, p = .113$ . LSD post hoc comparisons indicate that parents exposed to the single modality advertising disclosure ( $M = 9.22$ , 95% CI [8.43, 9.99]) have more selling and persuasion knowledge than parents exposed to no advertising disclosure ( $M = 8.07$ , 95% CI [7.31, 8.84]),  $p = .041$ . An additional 2 x 2 ANOVA was used to examine parents' selling and persuasion knowledge by advertising disclosure modality (none/single) and CL treatment (yes/no) (see Figure 11). There was a significant main effect for advertising disclosure modality ( $F(1, 129) = 4.05, p = .046$ ). Parents exposed to a single modality advertising disclosure had a higher mean ( $M = 8.11$ ) than did parents exposed to no advertising disclosure ( $M = 9.19$ ). Therefore, hypothesis 2 is supported.

Hypothesis 3 predicted that parents who were exposed to the dual modality advertising disclosure condition would report more negative attitudes toward children's' advergimes than parents exposed to the single modality advertising disclosure condition. Hypothesis 4 predicted that parents who were exposed to the single modality advertising disclosure condition would report more negative attitudes toward children's' advergimes than parents exposed to the no advertising disclosure condition. A one-way ANOVA for negative perceptions of advergimes

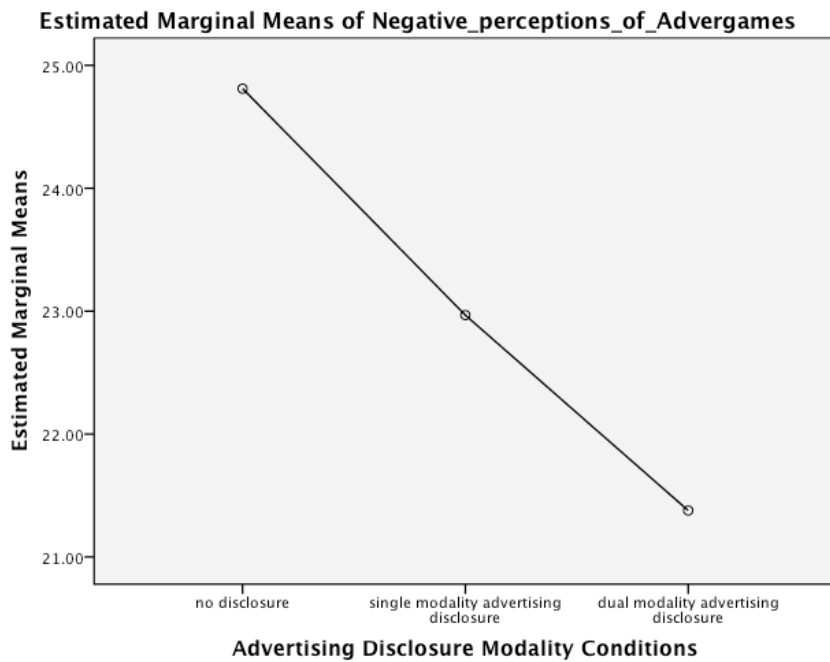


**Figure #11: 2 x 2 ANOVA for advertising disclosure modality and CL treatment (yes/no)**

indicate no statistically significant differences across advertising disclosure conditions  $F(2, 199) = .462, p > .05$  (see Figure 12). Using the CL treatment subgroup ( $N=105$ ) one-way ANOVA for negative perceptions of advergames indicated no significant differences across advertising disclosure conditions  $F(2, 102) = 2.46, p = .091$  (see Figure 13). LSD post hoc comparisons indicate that parents exposed to the dual modality advertising disclosure ( $M = 21.38, 95\% \text{ CI } [19.21, 23.55]$ ) have less negative perceptions of advergames than parents exposed to no advertising disclosure ( $M = 24.81, 95\% \text{ CI } [22.64, 26.99]$ ),  $p = .029$ . While significant differences emerged between disclosure conditions they loaded in the opposite directed as predicted, thus hypotheses 3 and 4 are not supported.



**Figure #12: One-Way ANOVA for Negative Perceptions of Advergimes**



**Figure # 13: One-Way ANOVA for Negative Perceptions of Advergimes CL subgroup**



## Cognitive Load Hypotheses Tests

Hypothesis 5 predicted that increases in parents' cognitive loading would be negatively associated with reports of parents' persuasion knowledge. A bivariate correlation indicates no statistically significant relationship between CL and selling and persuasion knowledge ( $r = -.068$ ,  $n = 105$ ,  $p = .490$ ). In order to further test hypothesis 5, a quartile split was carried out on the CL treatment subgroup. The quartile split created four groups of parents with those in quartile 4 experiencing the least load and those in quartile 1 experiencing the most load. A one-way ANOVA for selling and persuasion knowledge indicate no statistically significant differences across the CL quartiles ( $F(2, 101) = 2.09$ ,  $p = .105$ ). However, LSD post hoc comparisons indicate that parents in quartile 2 ( $M = 7.46$ , 95% CI [6.19, 8.74]) reported less selling and persuasion knowledge than parents in quartile 3 ( $M = 9.65$ , 95% CI [8.43, 10.88]),  $p = .016$  (see Figure 14). These findings partially support hypothesis 5.

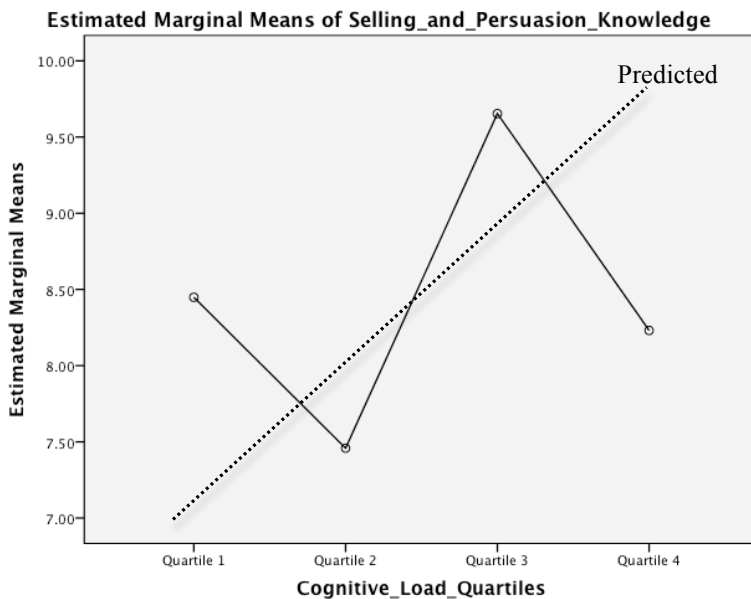
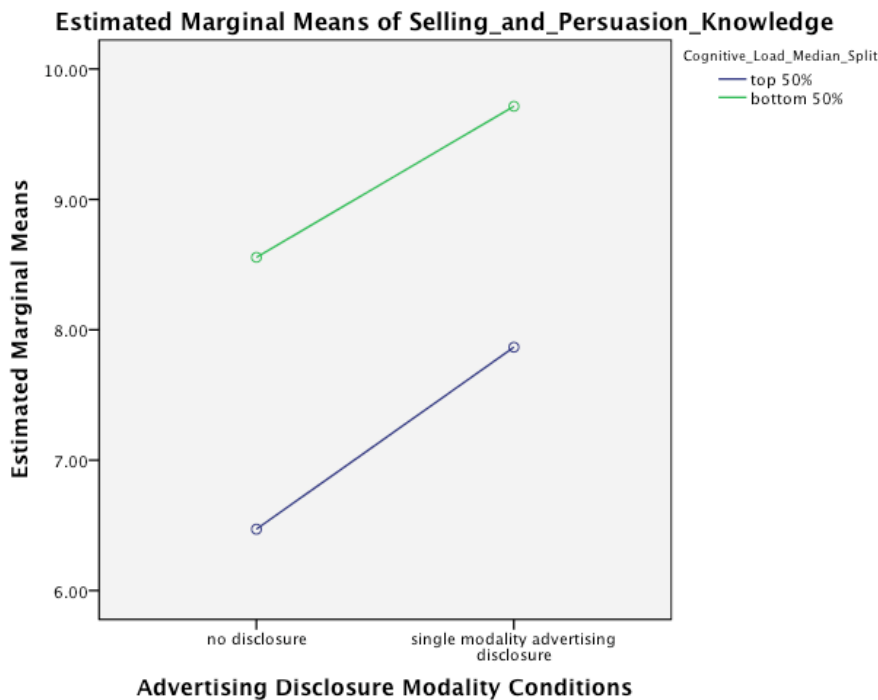
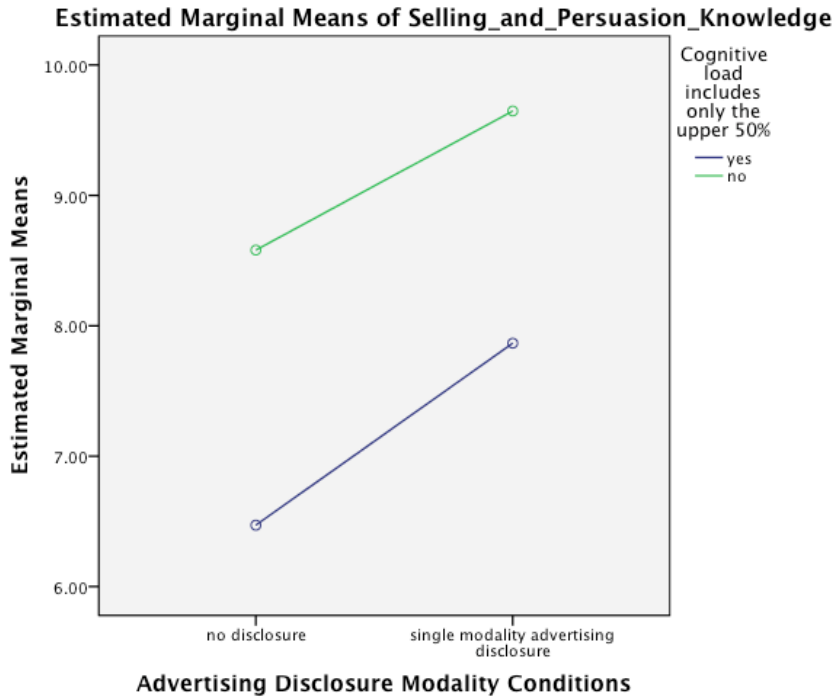


Figure # 14: One-Way ANOVA for CL quartiles

Additional tests of hypothesis 5 used two 2 x 2 ANOVAs. The first was used to examine parents' selling and persuasion knowledge by advertising disclosure modality (none/single) and CL median split (high/low) (see Figure 15). There was a significant main effect for CL median split ( $F(1, 60) = 7.67, p = .007$ ). Parents in the high CL median split group had a lower mean ( $M = 7.13, SD = 2.88$ ) than did parents in the low CL median split group ( $M = 9.06, SD = 2.83$ ). The second 2 x 2 ANOVA was used to examine parents' selling and persuasion knowledge by advertising disclosure modality (none/single) and CL (top 50%/no CL treatment) (see Figure 16). There was a significant main effect for CL ( $F(1, 93) = 8.25, p = .005$ ). Parents who experienced high cognitive load (i.e. those in the top 50%) had a lower mean ( $M = 7.13, SD = 2.88$ ) than did parents who were not assigned to the CL treatment ( $M = 9.14, SD = 3.28$ ). These findings support hypothesis 5.



**Figure #15: 2 x 2 ANOVA for advertising disclosure modality and CL median split**



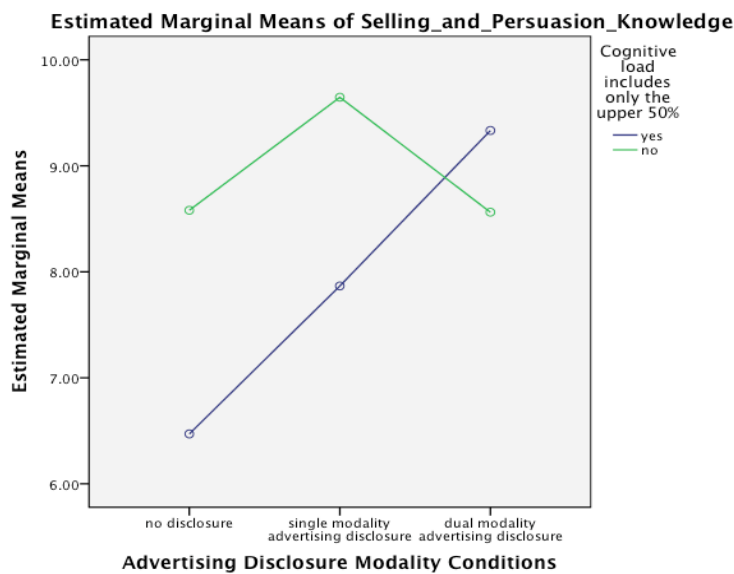
**Figure #16: 2 x 2 ANOVA for ad disclosure (none/single) modality and CL (top 50%/no CL treatment)**

Hypothesis 6 predicted that that increases in parents’ cognitive loading would be positively associated with parents’ attitudes toward children’s advergmes. A bivariate correlation indicates no statistically significant relationship between CL and negative perceptions of advergmes ( $r = -.028, n = 105, p = .775$ ). A one-way ANOVA for negative perceptions of advergmes indicate no statistically significant differences across CL quartiles ( $F(3, 101) = .099, p > .05$ ). Hypothesis 6 is not supported.

**Interaction Hypotheses Tests: H7-H11**

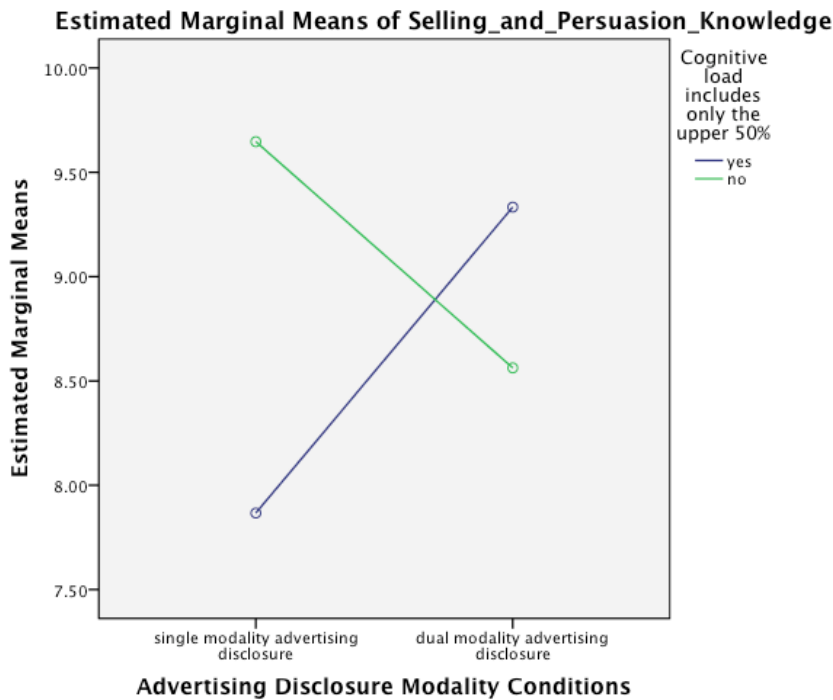
To test hypotheses 7 through 11, a 3 x 2 ANOVA was used to examine parents’ selling and persuasion knowledge by advertising disclosure modality (none/single/dual) and CL treatment (yes/no). There was no significant interaction between advertising disclosure modality

and CL treatment ( $F(2, 196) = 1.10, p = .335$ ). An additional 3 x 2 ANOVA was used to examine parents' selling and persuasion knowledge by advertising disclosure modality (none/single/dual) and CL (top 50%/no CL treatment) (see Figure 17). No significant interaction was found between advertising disclosure modality and CL (top 50%/no CL treatment) ( $F(2, 144) = 2.90, p = .058$ ). The main effect of CL ( $F(1, 144) = 3.57, p = .061$ ) and advertising disclosure modality ( $F(2, 144) = 2.64, p = .075$ ) on selling and persuasion knowledge were not significant. While not significant at the .05 level, parents who did not receive the CL treatment reported more selling and persuasion knowledge in the no advertising disclosure condition and the single modality advertising disclosure condition compared to high CL parents (i.e. those in the top 50%). Additionally, among parents who did not receive the CL treatment, those in the single modality advertising disclosure condition reported more selling and persuasion knowledge compared to those in the no advertising disclosure condition. However, these findings do not support hypotheses 7, 9, and 10.



**Figure #17: 3 x 2 ANOVA for ad disclosure modality and CL (top 50%/no CL treatment)**

An additional 2 x 2 ANOVA revealed a significant crossover interaction between advertising disclosure modality (single/dual) and CL (top 50%/no CL treatment) ( $F(1, 98) = 3.90, p = .05$ ) (see Figure 18). Parents that did not receive the CL treatment reported less selling and persuasion knowledge when exposed to the dual modality advertising disclosure compared to the single modality advertising disclosure. Among parents that received the dual modality advertising disclosure treatment, those who experienced high CL (i.e. those in the top 50%) reported more selling and persuasion knowledge compared to parents that did not receive the CL treatment. While the former pattern contradicts hypothesis 8, the latter pattern contradicts hypothesis 11. Hypothesis 8 and 11 are not supported.



**Figure #18: 2 x 2 ANOVA for ad disclosure (single/dual) modality and CL (top 50%/no CL treatment)**

## Research Questions 1 and 2

Research question 1 asked whether parents' individual differences in trait persuasion knowledge influenced their persuasion knowledge regarding children's advergames as well as their attitudes toward them. The relationship among parents' individual trait persuasion knowledge, their persuasion knowledge of children's advergames, and their attitudes toward them was explored using bivariate correlation analysis. Results indicate a significant yet negative relationship between parents' individual trait persuasion knowledge and their reported selling and persuasion knowledge ( $r = -.189$ ,  $n = 202$ ,  $p = .007$ ). However, there was no significant relationship between parents' individual trait persuasion knowledge and negative perceptions of advergames ( $r = -.031$ ,  $n = 202$ ,  $p = .664$ ).

Research question 2 asked whether parental mediation of Internet use influenced parents' persuasion knowledge regarding children's advergames as well as their attitudes toward them. The relationship among parental mediation of Internet use, their persuasion knowledge of children's advergames, and their attitudes toward them was explored using correlation analyses. Results indicate a significant relationship between parental mediation of Internet use and their negative perceptions of advergames ( $r = .226$ ,  $n = 202$ ,  $p = .001$ ). Results also indicate a significant relationship between parental mediation of Internet use and their reported selling and persuasion knowledge ( $r = .167$ ,  $n = 202$ ,  $p = .017$ ).

In order to further investigate research questions 1 and 2, a series of hierarchical multiple regression analyses were performed. Prior to assessing the predictive power of parents' individual trait persuasion knowledge and parental mediation of Internet use, a set of covariates such as parents' age, child's age, child gender, parent gender, income, education, personal Internet time, work Internet time, and online gaming experience were entered as step 1. In step 2

parents' individual trait persuasion knowledge was entered. In step 3 parental mediation of Internet use was entered. The results of the hierarchical regression predicting selling and persuasion knowledge from covariates, parents' individual trait persuasion knowledge, and parental mediation of Internet use are reported in Table 2. The results of step one indicated that the variance accounted for ( $R^2$ ) with the first six predictors equaled .07 (adjusted  $R^2$  = .025), which was not significantly different from zero ( $F(9, 192) = 1.57, p = .125$ ). In step two, parents' individual trait persuasion knowledge scores were entered into the regression equation. The change in variance accounted for ( $\Delta R^2$ ) was equal to .03, which was a statistically significant increase in variance accounted for over the step one model ( $\Delta F(1, 191) = 6.26, p = .013$ ). In step three, parental mediation of Internet use was entered into the regression equation. The change in variance accounted for ( $\Delta R^2$ ) was equal to .01, which was not a statistically significant increase in variance accounted above the variability contributed by the previous predictor variables entered in step two ( $\Delta F(1, 190) = 2.80, p = .096$ ).

Overall, parents' individual trait persuasion knowledge contributed significantly to the prediction of selling and persuasion knowledge. Parental mediation of Internet use was not a significant predictor of selling and persuasion knowledge.

The results of the hierarchical regression predicting negative perceptions of advergames from covariates, parents' individual trait persuasion knowledge, and parental mediation of Internet use are reported in Table 3. The results of step one indicated that the variance accounted for ( $R^2$ ) with the first six predictors equaled .11 (adjusted  $R^2$  = .07), which was significantly different from zero ( $F(9, 192) = 2.66, p = .006$ ). Next, parents' individual trait persuasion knowledge scores were entered into the regression equation. The change in variance accounted for ( $\Delta R^2$ ) was equal to .00, which was not a statistically significant increase in variance

Table 2: Hierarchical Regression on Selling and Persuasion Knowledge

Measures	R	R <sup>2</sup>	$\Delta R^2$	$\Delta F$	df	$\beta$
Step 1						
Demographic	.26	.07	.07	1.57	9, 192	
Parent age						-.150
Child age						-.164*
Parent gender						-.005
Child gender						-.051
Income						-.034
Education						.001
Personal Internet Use						.043
Work Internet Use						-.040
Online Gaming Exp						-.129
Step 2						
Individual Trait Persuasion Knowledge	.31	.10	.03	6.27*	1, 191	-.174*
Step 3						
Parental Mediation of Internet Use	.33	.11	.01	2.80	1, 190	.096

Note: \* $p < .05$  (two-tailed). (N = 202)

accounted for over the step one model ( $\Delta F(1, 191) = .002, p = .961$ ). In step three, parental mediation of Internet use was entered into the regression equation. The change in variance accounted for ( $\Delta R^2$ ) was equal to .05, which was a statistically significant increase in variance accounted above the variability contributed by the previous predictor variables entered in step two ( $\Delta F(1, 190) = 10.24, p = .002$ ).

Overall, parental mediation of Internet use contributed significantly to the prediction of negative perceptions of advergaming. Parents' individual trait persuasion knowledge was not a significant predictor of negative perceptions of advergaming.



Table 3: Hierarchical Regression on Negative Perceptions of Advergimes

Measures	R	R <sup>2</sup>	$\Delta R^2$	$\Delta F$	df	$\beta$
<b>Step 1</b>						
Demographic	.33	.11	.11	2.66**	9, 192	
Parent age						-.054
Child age						-.142*
Parent gender						-.047
Child gender						-.092
Income						.099
Education						.210**
Personal Internet Use						-.018
Work Internet Use						-.058
Online Gaming Exp						-.118
<b>Step 2</b>						
Individual Trait Persuasion Knowledge	.33	.11	.00	.002	1, 191	.003
<b>Step 3</b>						
Parental Mediation of Internet Use	.39	.16	.11	10.24**	1, 190	.221**

Note: \* $p < .05$  (two-tailed), \*\* $p < .01$  (two-tailed). (N = 202)

### Summary of Findings

The results indicate strong support for hypotheses 2 and 5. In support of hypothesis 2, parents exposed to a single modality advertising disclosure reported significantly more selling and persuasion knowledge of children’s advergimes compared to parents exposed to an advergame without an advertising disclosure. In support of hypothesis 5, parents that experienced high(er) levels of cognitive load reported significantly less selling and persuasion knowledge of children’s advergimes compared to parents that experienced low(er) levels of cognitive load or did not receive the cognitive load treatment.

In contrast to the patterns predicted by hypotheses 3 and 4, significant differences emerged for parents’ attitudes toward children’s advergimes across advertising disclosure conditions in the opposite direction. Parents’ exposed to the dual modality advertising disclosure

condition reported significantly less negative perceptions of children's advergimes compared to parents who were exposed to no advertising disclosure.

The results did not support the patterns predicted by hypothesis 8 and 11. A significant crossover interaction effect occurred between advertising disclosure modality and cognitive load. Parents who did not receive the cognitive load treatment reported less selling and persuasion knowledge when exposed to the dual modality advertising disclosure compared to the single modality advertising disclosure (hypothesis 8). Among parents who received the dual modality advertising disclosure treatment, those who experienced high cognitive load (i.e. those in the top 50%) reported more selling and persuasion knowledge compared to parents who did not receive the cognitive load treatment (hypothesis 11).

A significant negative relationship emerged between parents' individual trait persuasion knowledge and selling and persuasion knowledge of children's advergimes. As parents reported higher levels of trait persuasion knowledge, their associated reports of selling and persuasion knowledge within children's advergimes were lower. In addition, a significant positive relationship emerged between parents' mediation of Internet use and negative perceptions of children's advergimes. As parents reported more mediation of their children's Internet use, they tended to have more negative perceptions of children's advergimes.

Hypothesis 1 was not supported. Parents who were exposed to a dual modality advertising disclosure maintained less selling and persuasion knowledge of children's advergimes compared to parents who were exposed to the single modality advertising disclosure. While, selling and persuasion knowledge reports resulting from dual modality advertising disclosure were higher than those resulting from no advertising disclosure, single modality was still superior in this regard.

Tests of interaction effects for parents' cognitive loading and advertising disclosure conditions on selling and persuasion knowledge of children's advergames did not support hypotheses 7, 9, or 10. While significant main effects emerged for cognitive load (see hypotheses 5), there were no interaction effects for cognitive loading and advertising modality treatments on parents' selling and persuasion knowledge of children's advergames.

## **CHAPTER V DISCUSSION AND IMPLICATIONS**

This study focused on parents of children between the ages of 7 to 11 and their ability to recognize and understand a children's advergame as advertising. Specifically, the main objective of this study was to experimentally test the effects of advertising disclosure modality and cognitive load on parents' persuasion knowledge of children's advergames. The second objective of this study empirically tested the influence of advertising disclosure modality and cognitive load on parents' attitudes toward children's advergames. The third objective of this study examined how parents' individual trait differences in persuasion knowledge and mediation of their children's Internet use potentially influenced their persuasion knowledge in children's advergames as well as their attitudes toward them. This chapter addresses theoretical implications for advergame persuasion knowledge, implications of cognitive load for advergame persuasion knowledge, PKM applicability for adult populations in other immersive contexts, and managerial and practitioner implications.

### **Theoretical Implications for Advergame Persuasion Knowledge**

#### *The Influence of Existing Persuasion Knowledge on Advergame Persuasion Knowledge*

According to PKM, marketplace experience and exposure to various advertiser tactics and strategies positively influence the development of persuasion knowledge (Friestad & Wright, 1994; Wright et al., 2005). Theoretically speaking, as individuals age and become more knowledgeable of various advertiser tactics and strategies they become more adept at recognizing selling and persuasive intent in various advertising formats. Therefore, it is assumed that adults, and parents for that matter, by reason of their age, cognitive ability, and marketplace experience have more persuasion knowledge and are more adept than children at recognizing selling and persuasive intent within advergames. While recent research supports the contention

that adults do in fact exhibit more persuasion knowledge compared to children, this finding is in the context of television advertising (Rozendaal et al., 2010) and not advergimes.

The current study revealed that the relationship between parents' individual trait persuasion knowledge and their selling and persuasion knowledge of children's advergimes was negative. In other words, as parents' individual trait persuasion knowledge scores increased they exerted a negative influence on selling and persuasion knowledge of children's advergimes ( $\beta = -.174, p < .05$ ). This implies that *parents' current understanding of the marketplace by means of their individual trait persuasion knowledge is actually misinforming their understanding of advergimes' selling and persuasive intent*. In a similar vein, past research has found that parents have a tendency to over-generalize when asked to identify a children's advergime (Evans et al., 2013). The current research expands upon Evans' et al. (2013) findings and suggests that the marketplace knowledge parents garner through experience and traditional or non-immersive advertising exposure may do more to hurt than help their understanding of advergimes as advertising. PKM purports that marketplace experience and knowledge can influence recognition of selling and persuasive intent in traditional advertising contexts. However, this study's findings challenge this premise of PKM within the context of immersive advertising formats like advergimes. The more entrenched a parent is in their understanding of traditional advertising practices aimed at children, the more negatively that understanding may influence their ability to see that children's advergimes are advertising.

PKM also suggests that other factors such as age and potential exposure to advergimes via increased time spent online, can theoretically improve a parent's ability to recognize selling and persuasive intent. When variables such as parents' age ( $\beta = -.150, p > .05$ ), education ( $\beta = .001, p > .05$ ), online gaming experience ( $\beta = -.129, p > .05$ ), personal time spent online ( $\beta = -$

.043,  $p > .05$ ), and work time spent online ( $\beta = .040, p > .05$ ) were analyzed they exerted no significant influence on parents' selling and persuasion of knowledge of children's advergames. Therefore, in contrast to what PKM suggests, the ability to recognize the selling and persuasive intent within children's advergames is in this case not positively influenced by age, intelligence, and experience with Internet use or online gaming. To reiterate, when parents are exposed to immersive advertising formats like advergames, a reliance on *a priori* knowledge based on marketplace experience and potential advertising exposure may not be adequate for developing an accurate understanding of the selling and persuasive intent therein.

The current study found a negative relationship between parents' current marketplace understanding and their ability to recognize selling and persuasive intent with children's advergames. In addition, several variables guided by PKM literature thought to exert an influence on selling and persuasion knowledge had no influence. These findings imply that 1) advergames, as an immersive and interactive form of advertising, are distinctly different from more traditional forms of advertising and 2) the application of prior persuasion knowledge theory should be reconsidered in light of advergames' immersive and interactive nature. Based on the evidence provided by this study, it appears as though the theoretical assumptions of PKM need to be revisited, questioned, and further tested on immersive advertising formats.

#### *The Influence of Advertising Disclosure Modality on Advergame Persuasion Knowledge*

This study's findings indicate that parents, much like children, do in fact have difficulty reporting the selling and persuasive intent within children's advergames (Evans et al., 2013; Nairn & Fine, 2008; van Reijmersdal et al., 2010). Even though the overall mean score of selling and persuasion knowledge was above the midpoint on that construct, the presence of an advertising disclosure, whether single or dual modality, promoted a higher level of selling and

persuasion knowledge of children's advergimes compared to parents not given an advertising disclosure.

Because the overall mean of selling and persuasion knowledge is higher than the construct midpoint, it could be argued that parents understand the selling and persuasive intent of children's advergimes. If significant differences *did not* emerge across advertising disclosure modality conditions it may have been correct to conclude that parents have an accurate understanding of the selling and persuasive intent within children's advergimes. However, as indicated by hypothesis tests, compared to parents that played the Pop-Tarts advergime as it appears online (i.e. with no advertising disclosure), parents' selling and persuasion knowledge can be significantly increased as a result of additional advertising information in the form of single or dual modality advertising disclosures compared to the absence of a disclosure. Therefore, it is incorrect to conclude that parents' overall selling and persuasion knowledge mean score represents an accurate and adequate understanding of selling and persuasive intent of children's advergimes when their understanding of such intent can be improved through the use of additional advertising disclosures.

Parents exposed to advertising disclosures reported higher levels of selling and persuasion knowledge. This finding supports a main theoretical contention of PKM; parents better recognize and report an advertiser's selling and persuasive intent as a result of additional advertiser, agent, or topical information (Campbell & Kirmani, 2000; Friestad & Wright, 1994). In this study's case, by providing parents with additional topical information (i.e. advertising disclosures that highlighted the advergime as an advertising strategy/tactic), their resulting selling and persuasion knowledge regarding children's advergimes was in fact higher.

While both single and dual modality advertising disclosures are more effective at

promoting selling and persuasion knowledge compared to the no-disclosure condition, there appears to be a limit on the amount of additional topical information needed to produce higher selling and persuasion knowledge scores. While the single modality advertising disclosure was significantly more effective than the no-ad disclosure, the dual modality advertising disclosure was actually less effective than the single modality advertising disclosure at promoting selling and persuasion knowledge.

This study's findings contrast previous disclosure research that found dual modality disclosures were more effective than single modality disclosures in promoting greater awareness, knowledge (Morris et al., 1989), recall (Barlow & Wogalter, 1993; Smith, 1990), and comprehension (Murray et al., 1998). While previous studies examined the effectiveness of single and dual modality advertising disclosures in traditional advertising formats, the current study examined the effectiveness of advertising disclosure modality within an immersive advertising environment. The relative ineffectiveness of dual modality advertising disclosures in promoting selling and persuasion knowledge of a children's advergaming may be a result of the advergaming's immersive and covert format.

Advergaming has two distinguishing features: their concealment of commercial information (Tanaka 1994/1999) and their immersive format (Evans et al., 2013). By concealing commercial information, advergaming limit the associated advertiser, agent, and topical information a parent might use to activate their selling and persuasion knowledge. More traditional advertising formats can result in a better recognition of advertising and a better understanding of selling and persuasive intent (Tutaj & van Reijmersdal, 2012). It is probable that the covert and immersive format of advergaming, which delineate them from more traditional formats, prevented parents from accurately reporting the selling and persuasive intent of the Pop-



Tarts advergame (Evans et al., 2013). The study results suggest that parents exposed to children's advergames have trouble comprehending the selling and persuasive intent within them without the aid of additional advertising information – namely advertising disclosures or “ad-breaks” (An and Stern, 2011) that indicate the commercial nature of the advergame.

However, the ineffectiveness of a dual modality advertising disclosure, compared to a single modality advertising disclosure, in promoting selling and persuasion knowledge may be the result of information overload. In other words, it is possible that too much information or that which takes an auditory and visual form (i.e. dual modality) can detract from an accurate inference of selling and persuasive intent within immersive and interactive advertising formats (i.e. advergames). Given that the particular Pop-Tart advergame used in this study contained various sound effects and musical components, the introduction of the additional audio disclosure could have detracted from parents' selling and persuasion knowledge. The competing auditory information from the advergame and the advertising disclosure (in audio form) may have prompted parents to attend to the advergame rather than the information provided in the audio disclosure. For example, 19 (67.9%) parents in the single modality advertising disclosure condition reported that the game explicitly told them it was advertising through a text disclosure, whereas nine (20.9%) parents in the dual modality advertising disclosure condition reported that the game explicitly told them it was advertising through an audio and text disclosure. While 43 (62.3%) parents in the dual modality advertising disclosure condition reported that the game explicitly said it was advertising, only 28 (43.1%) parents in the single modality advertising disclosure condition said the same. It is possible that the dual modality condition promoted better advertising recognition compared to the single modality condition by means of additional topical information. It is also possible that the additional information provided by a dual modality

disclosure, in combination with the immersive advergame format, somehow detracted from parents' selling and persuasion knowledge. Therefore, in contrast to a central theoretical premise of PKM, advertising recognition in advergames does not necessarily translate into increased selling and persuasion knowledge of advergames, a finding previously echoed in children's persuasion knowledge research (Rozendaal et al., 2010).

Within immersive and covert advertising formats like advergames, disclosures have the potential to aid in and detract from an accurate understanding of the selling and persuasive intent. Prior disclosure literature suggests that disclosures should be presented in dual modality (FTC, 1970). This particular standard is designed in mind to create more informed parents (Hoy & Andrews, 2004). PKM suggests that more informed parents might better recognize when they experience an advertising episode, and that recognition will guide parents' persuasion knowledge activation. The assumptions put forth by extant disclosure literature and applications of prior persuasion knowledge theory should be questioned and tested in light of the evidence put forth by this study. It is possible that the demands of immersive and covert advertising formats preclude the need for dual modality disclosures because the additional modality, whether auditory or visual, may compete with mental resources required to successfully navigate the immersive environment.

### **The Influence of Everyday Task Ubiquity on Advergame Persuasion Knowledge**

The use of a memory and recall task according to cognitive capacity theory (Lang, 2000) is a proxy for one of the many ubiquitous features of everyday life (Gilbert & Osborne, 1989). Such everyday tasks are numerous, mundane, and can detract from one's ability to activate persuasion knowledge during an advertising episode (Campbell & Kirmani, 2000). If a memory and recall task like the one used in this study can produce enough cognitive load such that selling

and persuasion knowledge is influenced, then what is to prevent other numerous and mundane tasks of everyday life from inducing similar cognitive load among parents or adults that play an advergame? While PKM puts forth a combination of conceptual elements such as agent knowledge, topic knowledge, and persuasion knowledge, everyday task ubiquity is absent. In other words, given the prevalence and support of multitasking on persuasion knowledge (e.g. Campbell and Kirmani, 2000), PKM's lack of emphasis for simultaneous task exposure and completion during an advertisement should be questioned. This study's findings indicate that, among parents that have lower than average levels of cognitive capacity, simultaneous task exposure and completion during an advergaming context reduce the likelihood of inferring selling and persuasive intent of that advergame.

An assumption of PKM suggests that adults, due to their increased cognitive ability or capacity, are better able to infer the selling and persuasive intent within all forms of advertising compared to children (Friestad & Wright, 1994; John, 1999; Wright et al., 2005). While there was no direct test of selling and persuasion knowledge between parents and children, this study did examine parents' ability to recognize the selling and persuasive intent in an interactive and immersive advertising context, i.e., a children's advergame. Findings support the premise that parents' selling and persuasion knowledge is in part determined by their cognitive capacity.

This study operationalized cognitive load as the inverse of mental efficiency. Parents that reported high levels of concentration for the memory and recall task, in combination with low levels of task performance (i.e. number sequence recall), were mentally inefficient and thus cognitively loaded. On the other hand, parents that reported low levels of concentration for the memory and recall task, in combination with high levels of task performance, were mentally efficient and thus cognitively unloaded. Arguably, if there exists a scale that directly measures

parents' cognitive capacity, those parents who are cognitively unloaded and mentally efficient may maintain more cognitive capacity compared to parents that experience cognitive load and mental inefficiency. While research has demonstrated that adults are in fact better able to infer selling and persuasive intent compared to children, such results are based on exposure to television advertising (Rozendaal et al., 2010) and not advergimes. Even if adults and parents maintain an increased ability for selling and persuasion recognition in advertising, the cognitive capacity that determines their capability for such recognition is most certainly normally distributed among the population. Therefore, it is incorrect to assume that parents, by virtue of their increased cognitive capacity compared to children, are better able to recognize selling and persuasion intent in all forms of advertising including advergimes. This study's findings suggest that *some* parents, by virtue of their increased cognitive capacity (i.e. those that experienced less cognitive load), have an improved ability to recognize the selling and persuasive intent in children's advergimes compared to parents that experience more cognitive load.

This study posits that the concepts of cognitive capacity and cognitive load have implications for PKM. First, the results indicate the increased importance of cognitive capacity for determining selling and persuasive intent in advergimes. In traditional advertising formats, where selling and persuasive elements are more prominent (Levin et al., 1982), the relative need for cognitive capacity among parents and adults is perhaps less paramount. However, in more covert advertising formats like advergimes, where the advertising and entertainment content are intertwined, increased cognitive capacity among parents and adults may translate into a better ability to see past the entertainment content and recognize the advertising therein.

The above implication should be interpreted with some degree of caution as parents who experienced either very high or very low levels of cognitive load (see Figure 14) reported selling

and persuasion knowledge scores that gravitated toward the mean. While speculative and untested, the reversion to the mean among parents on the ends of the cognitive load spectrum suggests that they are perhaps unmotivated or unable to process the potential advertising information within the advergaming. It is possible that parents on the high end of the cognitive load spectrum experienced elevated challenge and parents on the low end experienced motivational deficits. Parents' relative challenge or motivation may influence how they process information, which may in turn influence their reports of selling and persuasion knowledge within children's advergaming.

The significant crossover interaction effect, as indicated in figure 18, may further explain how motivation and challenge can affect parents' information processing and their selling and persuasion knowledge in children's advergaming. It appears that the dual modality advertising disclosure had a negative effect on selling and persuasion knowledge compared to the single modality advertising disclosure (see Figure 10). This effect was present among parents that did not receive the cognitive load treatment yet reversed among parents that experienced high levels of cognitive load (i.e. those in the top 50% of the distribution). It is possible that the highly loaded parents experienced more challenge in determining the selling and persuasive intent of the advergaming in the single modality condition compared to parents not receiving the cognitive load treatment. It is also possible that these same parents, because they were so challenged by the cognitive load treatment, were better able at determining selling and persuasive intent of the advergaming only when given a substantial amount of advertising information by means of a dual modality advertising disclosure.

## **PKM Applicability: Implications for Advergimes and Multiple Populations**

Prior applications of persuasion knowledge theory have focused on children due to their limited cognitive ability and market place experience compared to adults (Friestad & Wright, 1994; John, 1999; Wright et al., 2005). Children have demonstrated an inadequate understanding of the selling and persuasive intent within advergimes (An & Stern, 2011; Mallinckrodt & Mizerski, 2007; Owens et al., 2012). Because adults have more experience with the variety of advertisers' persuasive attempts, and because adults have more cognitive ability compared to children, it has been assumed that they are better able to infer selling and persuasive intent in most forms of advertising (Friestad & Wright, 1994; John, 1999; Wright et al., 2005).

This study found that parents' selling and persuasion knowledge of children's advergimes are negatively influenced by increased cognitive load. While this finding supports a theoretical premise of PKM—the ability to infer selling and persuasive intent requires cognitive ability, parents' individual trait persuasion knowledge, online experience, and gaming experience did not explain variations in selling and persuasion knowledge as expected by PKM. An additional theoretical premise of PKM suggests that the presence of additional topical information within an advertisement should facilitate adults' ability to not only recognize the advertising but infer its selling and persuasive intent as well. However, this study's findings indicate that additional topical information, in the form of a dual modality advertising disclosure, actually reduces parents' ability to infer selling and persuasive intent within advergimes.

This study's findings are unexpected and in contrast to what PKM predicts. While children's lack of marketplace experience certainly influences their inability to infer selling and persuasive intent in advergimes, the lack of parents' selling and persuasion knowledge may be driven by another theoretical component not accounted for by PKM. Nonetheless, the findings of

the current study indicate that even adult populations do not conform to the predictions laid out by PKM when applied to advergames. Such findings imply that we question the theoretical assumptions of PKM. Whether the application of PKM to advergames accurately gauges persuasion knowledge among *any adult population* is a question worth exploring.

### **PKM Applicability: Implications for Immersive and Experiential Contexts**

Prior applications of PKM to traditional advertising formats (Boerman et al., 2012; Rozendaal et al., 2010; Wei et al., 2008), personal selling formats (Campbell & Kirmani, 2000), and online advertising formats (Tutaj & van Reijmersdal, 2012; Yun, 2009) typically conform to predictions based on the theoretical premises of PKM. To this researcher's knowledge, the current study is the first to examine parents' persuasion knowledge of an immersive and covert advertising format, i.e. advergames. This study's findings indicate that parents, much like children, are not necessarily adept at identifying the selling and persuasive intent of advergames. While parents' selling and persuasion knowledge of advergames is increased through the use of disclosures, the reducing effect of dual modality advertising disclosures on selling and persuasion knowledge may be attributed to advergames immersive and covert format.

In contrast to previous applications of PKM, the current findings for parents' persuasion knowledge activation in children's advergames indicate that advergames are distinctly different from traditional forms of advertising. Advergames' immersive and covert nature may require more mental resources for successful navigation compared to traditional advertising. As a result, the presence of additional topical information may detract from an understanding of the selling and persuasive intent of advergames – a finding that contrasts previous PKM research.

Advergames are just one of several forms of immersive marketing. For example, in-store experiences like the one provided at Build-A-Bear, invite parents and children to build a

personalized teddy bear and bring it to life. Likewise, the in-store experience at Apple is designed to invite parents and children to interact and play with a variety of digital devices. In addition, American Girl stores offer a vast array of in store experiences with their products, which include but are not limited to, dining, parties, cooking classes, hair salons, and photo shoots. While these are only a few examples, many stores like these offer immersive product experiences. In light of this study's findings that parents' selling and persuasion knowledge of advergames do not adhere to some of the theoretical premises of PKM, we should question whether parents and children view immersive in-store experiences as persuasive episodes. Given the trend toward immersive advertising and marketing experiences, the theoretical assumptions of PKM and its applicability to different immersive marketing formats should be questioned and tested.

### **Managerial and Practitioner Implications**

This study's findings have several important implications for advertising and marketing practitioners who seek to use advergames. First, the use of advertising disclosures, whether single or dual modality, exert a positive influence on parents' selling and persuasion knowledge of children's advergames. However, practitioners seeking to utilize such disclosures within their advergames should note that dual modality advertising disclosures are less effective at promoting selling and persuasion knowledge compared to single modality advertising disclosures. This study's evidence supports the use of a single modality advertising disclosure at promoting significantly more selling and persuasion knowledge of children's advergames compared to no advertising disclosure at all.

A second implication for advertisers seeking to use advergames pertains directly to the attitudes resulting from exposure to the single and dual modality advertising disclosures. In



general, PKM proposes that persuasion knowledge activation typically leads to more negative evaluations of the ad (Shrum et al., 2012). In contrast to prior persuasion knowledge theory, the current study's findings indicated that both single and dual modality advertising disclosures resulted in less negative attitudes compared to no advertising disclosure at all. Therefore, practitioners that are hesitant to use advertising disclosures within advergames should take note that parents' attitudes toward such advergames are actually improved through the use of disclosures. In fact, results indicate that the dual modality advertising disclosure resulted in the least negative attitudes toward the Pop-Tarts advergame.

Previous research by Evans et al. (2013) found that parents' attitudes toward children's advergames were generally negative. While the current study manipulated the presence and modality of the advertising disclosure within a Pop-Tarts advergames, Evans' et al. (2013) prior work used screen shots of existing SpongeBob and Oreo advergames as stimuli (i.e. without disclosures). It is possible that the presence of such disclosures in the current study reduced parents' general negative leanings toward children's advergames as a practice. Given the highly correlated nature of attitudes toward the ad and attitudes toward the brand (Spears & Singh, 2004), practitioners who are considering the use of advergames should seriously consider the insertion of disclosures not only to improve parents' attitudes toward children's advergames but to potentially improve their attitudes towards the brand as well.

In addition, there are disclosure and advergame design considerations. Advertising practitioners and managers considering the use of disclosures in advergames should take note of the context of the advergame. Specifically, what are the visual and auditory features heavily employed within the game? It is possible that the use of an audio disclosure may be inappropriate for an advergame containing multiple sound effects or audio features. Likewise, it is also

possible that the use of a text disclosure may be inappropriate for an advergame heavily laden with textual features. As evidenced by the current study's findings, auditory or textual disclosures may interact with corresponding auditory or textual elements within the advergame. This potential interaction may make successful navigation of the advergame more difficult and may detract from an accurate inference of persuasive and selling intent. Perhaps practitioners and managers should take a balanced approach when considering disclosure use in advergames. By taking special notice of the advergame's context, a balanced approach could ensure game enjoyment, advertising recognition, and a successful persuasive understanding.

## **CHAPTER VI LIMITATIONS AND FUTURE RESEARCH**

This study's findings contrast several theoretical assumptions of PKM and offer avenues for future research. First, future research should ask whether the application of PKM to advergames accurately gauges persuasion knowledge among various adult populations. Given parents' selling and persuasion knowledge of advergames partially adhere to PKM's theoretical assumptions, an investigation of other adults' ability to recognize advergames persuasive intent would be a worthy endeavor. Second, future research should explore how various populations view immersive marketing and advertising experiences beyond the scope of advergaming. The study's findings imply that immersive advertising formats can detract from an accurate understanding of persuasion under the right conditions. Given the increasing trend of immersive advertising and marketing experiences aimed at children, parents, and adults, an investigation of PKM applicability to different immersive marketing experiences and advertising formats would provide valuable insight for persuasion knowledge researchers.

The current study employed an online parent sample through the use of an existing panel. Demographic analysis indicated a relatively equal distribution of female (44%) and male (54%) guardians, a mean age of 44.5, and child mean age of 8.8. Over 92% of the sample had some form of college education. While there is no direct evidence, it is possible that the current online sample of parents' were uniquely different from any other parent sample. Previous research that focused on parents and advergames found no evidence to suggest parents' responses to questionnaire items were influenced by online panel recruitment (Evans et al., 2013). In a similar fashion, the current study found no significant relationships among a shortened version of Crown and Marlow's (1964) social desirability scale, dependent measures, and covariates. However, it is still unknown whether the use of an online panel influences parents' persuasion knowledge of

and attitudes towards children's advergames.

Future research should explore whether an offline sample of parents' responses differs from an online sample. As with previous research, future research could recruit parents through schools where their children may attend (e.g., Carlson and Grossbart 1988) or even after school programs. While parents' patterns of Internet use, online gaming experience, age, education, and income had no effect on selling and persuasion knowledge, future research employing an offline parent sample may reveal different relationships between such variables, and as a corollary, different theoretical and practitioner implications. The current findings should be replicated among a differently selected parent sample.

The current study's online experimental design may have limitations. Like most experimental methodology, the need for control is paramount in determining the influence of any particular experimental treatment or induction. There is the possibility that the current online experimental design failed to control for various extraneous factors that influenced parents' reports of persuasion knowledge for reasons not attributable to the experimental inductions. However, there were several attempts to control for such possibilities. For one, parents were provided with detailed instructions that requested they keep their computer volume on, avoid undue distractions, and read the advergame's directions before playing. Second, every parent regardless of his or her treatment condition was exposed to the advergame for precisely three minutes. Therefore, the potential influence on parents' selling and persuasion knowledge attributable to additional game exposure was controlled. An additional strength of the current study, which counteracted some potential drawbacks of online experimental design, was the context in which the study took place. In other words, while many highly controlled experimental designs may maintain high internal validity, they sometimes suffer the pitfall of

low external validity. This is not to imply that the current study suffered from low internal validity, but rather took a balanced approach by seeking high external validity by conducting advergame research in a natural setting, i.e., in one's home.

While the current study's balanced approach for external and internal validity is indeed a strength, there exists additional opportunities for future research on parents and advergames. For one, it may be prudent to conduct a comparison of parents' understanding of children's television advertising versus children's advergames. Second, while the current study examined only parents' attitudes and knowledge, future advergame research should compare both parents' and children's understanding of and responses to advergames. Such endeavors could include a more robust examination and comparison of persuasion knowledge, attitudes toward the advergame, purchase intention, and attitudes toward the brand, both in online and laboratory experimental settings.

Another possible limitation of the study was the adaptation of items from an existing persuasion knowledge scale (Rozendaal et al., 2010). Though proper PCA procedures were conducted when determining the structure of the persuasion knowledge scale, analysis revealed a lower than expected internal consistency measure ( $\alpha = .586$ ) for the items representing selling and persuasion knowledge. The low internal consistency measure is below the generally accepted level of .70 (Nunnally, 1978). While it could be argued that either of the other two dependent components (i.e. informational knowledge or educational/entertainment knowledge) by virtue of their high internal consistency is a better measure of advergame knowledge, it is theoretically sound that the items "*This game is not meant to sell pop tarts*" and "*This game does not influence opinions about pop tarts*" load together to represent an already tested measure of selling and persuasion knowledge (Rozendaal et al., 2010). Since there was an expectation for

certain selling and persuasion knowledge items to load together, it could also be argued that the use of a confirmatory factor analysis (CFA) was warranted. However, the adapted items were previously used to measure and compare persuasion knowledge for television advertising between adults and children (Rozendaal et al., 2010) and persuasion knowledge of sponsored online product placement among adults (Tutaj & van Reijmersdal, 2012). Therefore, the use of the adapted scale to measure persuasion knowledge in a different advertising format (i.e. advergames) among a relatively untested population (i.e. parents) warranted the use of PCA as a structural assessment tool.

Future research could improve upon or add to existing scales that measure selling and persuasion knowledge in advergaming contexts. Perhaps there are other constructs or items that may more effectively capture or explain parents' and adults' persuasion knowledge of advergames. However, other examples of current research suggest that persuasion knowledge of integrated advertisements in product placement environments can be effectively captured through the use of a single item measure (Boerman et al., 2012). The issue of how to best capture parents' and adults' persuasion knowledge of immersive and integrated advertising formats is further complicated by this study's findings, which indicate parents' individual trait level persuasion knowledge negatively influence selling and persuasion knowledge of a children's advergame. Based on the scale discrepancies for measuring selling and persuasion knowledge, in combination with the negative effect parents' individual trait persuasion knowledge scores exert on the dependent variable, future research on advergame persuasion knowledge should prioritize refining such measures.

It is possible that the use of a food advergame with a familiar product (i.e. Pop-Tarts) may have influenced parents' responses, attitudes, and selling and persuasion knowledge. The

post-test questionnaire did not include items that measured parents' attitudes toward health in general, their child's health, or their attitudes about high sugar food like Pop-Tarts. It is possible that attitudes concerning any of these questions may have influenced subsequent responses to the negative perceptions of advergames and selling and persuasion knowledge scales. However, given the limited monetary resources for stimuli development, the creation of a fictitious branded advergame was beyond the scope of this study. Furthermore, given that Pop-Tarts is a well-known brand with advertising in various traditional formats, the study's findings reiterate the notion that advergames' selling and persuasive intent are difficult to recognize not only for children but parents as well.

In addition, future research should also focus on various individual level factors theorized to exert an influence on parental selling and persuasion knowledge of children's advergames. It is reasonable to assume that some parents may be more familiar with certain types of online games their children play compared to other parents. Even though this study revealed no explanatory relationship between parents Internet mediation strategies and selling and persuasion knowledge, other individual level variables such as field independence-dependence (i.e. the ability to recognize brands within product-placement environments) (e.g. Matthes et al., 2011) may exert an influence on selling and persuasion knowledge of children's advergames.

To this researcher's knowledge, this study is the first to utilize Paas and van Merriënboer's (1993) computational measure of mental efficiency as a means to form a continuous measure of cognitive load within the context of advergaming persuasion knowledge. While the results of the study indicated the efficacy of the cognitive load measure in influencing selling and persuasion knowledge, it is possible that parents acquiesced on the self-report scale that measured task remembrance and recall concentration and difficulty. It is also possible that

parents wrote down the number sequence and reported that they did not. While speculative, either of these scenarios would have biased the cognitive load distribution among the sample thus influencing the associated selling and persuasion knowledge scores. This potentiality points to one of the criticisms of both performance-based and rating-scale techniques – they are subject to error. However, the use of Paas and van Merriënboer’s (1993) inverse computational measure was a strength of the current study and controlled for this potential error. Nonetheless, future research should incorporate physiological means of measuring cognitive load such as brain activity, heart rate, and pupil dilation. These measurements assume that changes in mental functioning are reflected by changes in physical functioning (Paas et al., 2003). The inclusion of more advanced and accurate cognitive load measurements in a controlled laboratory setting could not only replicate this study’s findings but also expand upon the influence cognitive load exerts on parents’ ability to activate selling and persuasion knowledge in advergames.

## **CONCLUSION**

This study has shown that parents’ selling and persuasion knowledge of children’s advergames does not uniformly conform to the theoretical predictions provided by PKM. While parents’ ability to infer such intent in advergames has been largely assumed, this study’s findings suggest otherwise. The evidence provided by the current study supports the notion that immersive advertising formats like advergames are distinctly different from traditional advertising formats. The differences are greater than just format and design. For immersive formats, such differences raise questions about the very nature and assumptions provided by previous applications of persuasion knowledge theory.



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## **APPENDICES**

## Appendix A

# Informed Consent Statement

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Hello! Thank you for taking the time to participate in this online experiment. If you are a parent and have a child between the ages of 7-11 you qualify to participate in this study. Participation in this experiment includes playing an online children's game for at least 1 minute and 30 seconds. After playing the game you will be asked to answer several questions, which include your experiences and attitudes about the game, online games in general, internet use and rules, as well as demographic information. The purpose of this research is to examine parents' attitudes towards children's online games. Participation in this study, playing the game, and the completion of a questionnaire should take no more than 15 minutes of your time. Please read all directions and headings carefully. If you have any questions or concerns regarding this study please contact the principle investigator: Nathaniel Evans at [nevans4@utk.edu](mailto:nevans4@utk.edu) or (865) 603-4683.

### **Please read the following information before proceeding:**

I hereby give my consent for participation in this research study. I understand that:

A. My participation in this study is voluntary. If I decide to participate I may withdraw from the study at anytime. I understand that I am free not to answer any question that I am uncomfortable with. I understand that by choosing to participate in this study I am entitled to rewards or incentives provided and determined by ResearchNow. I understand that continuing on to the study constitutes my consent.

B. I understand that any personally identifying information I provide will be removed, replaced, or deleted before my responses are used for this research.

C. I understand that there is little or no anticipated risk associated with my participation in this study.

D. If you have questions at any time about the study or the procedures, you may contact the researcher, Nathaniel Evans ([nevans4@utk.edu](mailto:nevans4@utk.edu)), at University of Tennessee, 476 Communications Building, Knoxville, TN 37996-0343 or (865) 974-3046. If you have questions about your rights as a participant, contact the Office of Research Compliance Officer at (865) 974-3466.

### **BY CLICKING "YES" BELOW, I AGREE TO PARTICIPATE IN THIS STUDY AND**

- 1) I UNDERSTAND THE ABOVE INFORMATION**
  - 2) I AM 18 YEARS OR OLDER**
  - 3) I AM A PARENT OF AT LEAST ONE CHILD BETWEEN THE AGES OF 7 -11**
- Yes
- No

## Appendix B

### **Study Directions**

Thank you for taking the time to participate in this study about children's online games. After reading these directions please click on the link to begin the study and play an online game. Since children's online games are interactive and contain many elements, we ask that you do your best to concentrate when reading the game directions and while playing the game. We are interested in your accurate attitudes and perceptions toward children's online games so please make sure to **read all the following instructions carefully.**

- Your computer's volume level should be loud enough so you can hear the game you are about to play.
- Do not write anything down from this point forward.
- If possible, play the game in a quiet place. This will help keep potential distractions to a minimum.
- Read the game directions before you play the game.
- It is important that you know how to play the game before you begin playing.
- You will have 3 minutes to read the directions and play the game. Once this time expires you will be directed to a questionnaire.

After you have read the above instructions please click the link below to begin the study.

Click here to  
continue



## Appendix C

Were you asked to remember a number sequence before you played the game? Y\_\_\_ N\_\_\_

Did you write that number sequence down? Y\_\_\_ N\_\_\_

What was the number sequence you were asked to remember? \_\_\_\_\_

How difficult was it to remember the number sequence?

**Not Difficult at all**                      **Very Difficult**  
                   1            2            3            4            5            6            7

How difficult was it to recall the number sequence?

**Not Difficult at all**                      **Very Difficult**  
                   1            2            3            4            5            6            7

When you were playing, how hard were you concentrating on remembering the number sequence?

**Not at all**                                      **Very Hard**  
                   1            2            3            4            5            6            7

When you were playing, how hard were you concentrating on the game?

**Not at all**                                      **Very Hard**  
                   1            2            3            4            5            6            7

**For the next questions please think of your youngest child between the ages of 7 -11**

How old is this child\_\_\_\_\_?

This child is a **Male**\_\_\_ **Female**\_\_\_

I am this child’s **Mother** \_\_\_ **Father** \_\_\_ **Other (Please Explain)**

\_\_\_\_\_

Does your child play online games? Y\_\_\_N\_\_\_

What online games does he or she play?

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Would you allow your child to play this game? Y\_\_\_\_ N\_\_\_\_

How likely would you be to let your child play this game?

**Not likely at all**                              **Very likely**  
                   1            2            3            4            5            6            7

\_\_\_\_\_

---

On a scale from 1 to 7, with 1 = Strongly Disagree and 7 = Strongly Agree, please mark the number that best reflects your attitude toward the game you just played.

This game provides information about pop tarts.

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
1	2	3	4	5	6	7	

This game is educational in nature.\*\*

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
1	2	3	4	5	6	7	

This game makes people like pop tarts.

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
1	2	3	4	5	6	7	

This game is a good way to pass the time.\*\*

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
1	2	3	4	5	6	7	

This game lets people know more about pop tarts.

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
1	2	3	4	5	6	7	

\*This game is not meant to sell pop tarts.

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
1	2	3	4	5	6	7	

This game provides entertainment.\*\*

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
1	2	3	4	5	6	7	

This game is meant to be fun.\*\*

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
1	2	3	4	5	6	7	

This game helps develop cognitive skills.\*\*

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
1	2	3	4	5	6	7	

This game stimulates the sales of pop tarts.

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		<b>7</b>

This game is a waste of time.\*\*

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		<b>7</b>

\*This game does not influence opinions about pop tarts.

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		<b>7</b>

I don't know when an offer is "too good to be true.\*

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		<b>7</b>

I can tell when an offer has strings attached.

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		<b>7</b>

I don't understand the bargaining tactics used by salespersons.\*

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		<b>7</b>

I know when a marketer is pressuring me to buy.

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		<b>7</b>

I can't see through sales gimmicks used to get me to buy.\*

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		<b>7</b>

I can't separate fact from fantasy in advertising.\*

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		<b>7</b>

**The following questions ask are about online games for children like the one you just played. When answering the following questions please think of your youngest child between the ages of 7 -11.**

Games like this make children want things they don't really need.

**Strongly Disagree**      **Strongly Agree**  
1      2      3      4      5      6      7

Games like this that use children's food related content should not be allowed.

**Strongly Disagree**      **Strongly Agree**  
1      2      3      4      5      6      7

Games like this lead children to make unreasonable purchase demands on their parents.

**Strongly Disagree**      **Strongly Agree**  
1      2      3      4      5      6      7

Games like this don't need parents' permission before children under 12 can play.\*

**Strongly Disagree**      **Strongly Agree**  
1      2      3      4      5      6      7

Games like this directed at children lead to family conflict.

**Strongly Disagree**      **Strongly Agree**  
1      2      3      4      5      6      7

It's the parent's responsibility to explain games like this to their children.

**Strongly Disagree**      **Strongly Agree**  
1      2      3      4      5      6      7

Games like this don't take advantage of children.\*

**Strongly Disagree**      **Strongly Agree**  
1      2      3      4      5      6      7

Online games that use children's toy-related content should not be allowed.

**Strongly Disagree**      **Strongly Agree**  
1      2      3      4      5      6      7

There aren't enough games like this directed at children.\*

**Strongly Disagree**      **Strongly Agree**  
1      2      3      4      5      6      7

Games like this that use children's program/commercial characters should not be allowed.

**Strongly Disagree**      **Strongly Agree**  
1      2      3      4      5      6      7

Games like this use tricks and gimmicks to get children to buy their products.

**Strongly Disagree**      **Strongly Agree**

<b>Disagree</b>							<b>Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		<b>7</b>

Games like this don't need to be required to identify themselves as advertising.\*

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		<b>7</b>

The following questions ask about your Internet rules and practices. When answering them please think of your youngest child between the ages of 7 -11.

I have strict rules about the time my child spends online.

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		<b>7</b>

I stay nearby when my child is online.

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		<b>7</b>

I watch the screen when my child is online.

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		<b>7</b>

I help my child when they use the Internet.

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		<b>7</b>

I talk to my child about Internet use.

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		<b>7</b>

I sit with my child when they are online.

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		<b>7</b>

My child is allowed to give out personal information.\*

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		<b>7</b>

My child is not allowed to buy anything online.

<b>Strongly Disagree</b>							<b>Strongly Agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>		<b>7</b>

My child is allowed to fill out online forms/quizzes.\*

**Strongly  
Disagree**

**1**

**2**

**3**

**4**

**5**

**6**

**Strongly  
Agree**

**7**

*\*Reverse Coded Questions*

*\*\*Filler Questions*

Did the pop tarts game explicitly tell you that it was advertising? Y\_\_\_N\_\_\_

If yes, how did it tell you?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

---

**These next questions are about you**

What is your age \_\_\_?

What is your race? American Indian \_\_\_ Asian/ Pacific Islander \_\_\_ Bi- Racial \_\_\_ Black \_\_\_ Hispanic \_\_\_ White \_\_\_ Other (Please Indicate \_\_\_\_\_)

What best describes your level of education.

- \_\_\_ Some high school
- \_\_\_ High school graduate/ GED
- \_\_\_ Some college
- \_\_\_ College graduate
- \_\_\_ Graduate/ Professional Degree
- \_\_\_ Don't know/ not sure

What is your approximate annual household income \_\_\_\_\_

How many days per week on average are you on the Internet for personal use? \_\_\_\_\_

How many hours per day do you use the Internet for personal use? \_\_\_\_\_

How many days per week on average do you use the Internet at work? \_\_\_\_\_

How many hours per day do you use the Internet for work? \_\_\_\_\_

Do you play online games? Y\_\_\_N\_\_\_

What online games do you play?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

How experienced are you with playing online games?

**Not at all Experienced**

**1**

**2**

**3**

**4**

**5**

**6**

**Very Experienced**

**7**

What device did you use while participating in this study?

\_\_\_ Laptop Computer

Desktop Computer  
 Tablet  
 Smartphone  
 Other \_\_\_\_\_

## VITA

Nathaniel Joseph Evans was born in Crossville, Tennessee, on September 13, 1982, son to Arthur Evans and Patricia Evans. He attended Eckerd College in St. Petersburg, FL where he earned a Bachelor of Arts degree in psychology. In 2010 he earned a Master's degree in Communication and Information with a concentration in Advertising from the University of Tennessee. During his time in the Ph.D. program at the University of Tennessee, he was an Instructor of Record for an Advertising Principles course. His research focuses on children's immersive advertising formats with an emphasis on theoretical, practitioner, and public policy implications. In 2013 Nathaniel was the recipient of the College of Communication and Information Graduate Student Research award. In 2013 Nathaniel completed his Ph.D. in Communication and Information with a concentration in Advertising. Currently he is an Assistant Professor of Advertising in the Grady College of Journalism and Mass Communication at the University of Georgia.