



FACULTY OF POLITICAL AND SOCIAL SCIENCES

# **New, digital media and the effectiveness of persuasive communication strategies in a social marketing context**

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To my family, who inspired me to start  
And to Geert, who encouraged me to finish



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---

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*Find a job you love and you will never have to work a day in your life*

*-Jim Fox-*

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*-John Barrymore-*

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*-Albert Camus-*

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*-Ken Venturi-*

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*The essential things in life are seen not with the eyes, but with the heart.*

*-The Little Prince-*

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Katarina, February 2014



## ABOUT THE COVER

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The cover of this dissertation is based on the painting 'First illegal operation' by Dušan Todorović. It represents a contemporary vision of the iconic portrait of Adam and Eve, stressing the role of new media in modern communication.

The apple, which traditionally symbolizes the forbidden fruit from the Garden of Eden, is replaced by the Apple brand logo. By doing so, the painter renders his vision on our contemporary media society, which is also the topic of this dissertation.





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### **Inleiding**

Het idee voor dit proefschrift vindt zijn oorsprong in de steeds veranderende mediamaatschappij waarin we vandaag leven. Sinds de komst van het internet en de computer onderging onze mediamaatschappij een ware revolutie. Terwijl ze vroeger voornamelijk gekenmerkt werd door analoge traditionele massamedia, staan in onze huidige maatschappij vooral de zogenaamde ‘nieuwe media’ centraal. Hieronder verstaan we onder andere mobiele telefonie, het internet, tablets, computers en verschillende vormen van videogames, maar door de razendsnelle ontwikkeling van dit domein komen er steeds nieuwe voorbeelden bij. De invloed van deze nieuwe media neemt alsmaar toe, in die mate dat sommige media zoals het internet en mobiele telefonie vandaag bijna niet meer weg te denken zijn uit ons dagelijks leven.

De komst van nieuwe media en de enorme veranderingen binnen onze mediaomgeving zorgen voor een grote verandering binnen het domein van persuasieve communicatie. Niet alleen de manier waarop we communiceren en hoe we benaderd worden door communicatie, maar ook de omgeving waarin we persuasieve communicatie gaan verwerken is helemaal anders dan enkele decennia geleden. Maar hoewel er reeds heel wat onderzoek werd verricht naar de werking en doeltreffendheid van deze nieuwe media, is en nog maar weinig onderzoek naar de invloed van deze nieuwe media context op de theoretische modellen binnen persuasieve communicatie. Aangezien onze huidige mediacontext substantieel verschilt van de traditionele stelt zich de vraag of er geen nood is aan een aanpassing of aanvulling van deze theoretische modellen zodat ze beter toegepast kunnen worden in deze nieuwe context. Het voornaamste doel van dit proefschrift is dan ook om **na te gaan of een aantal eigenschappen van deze nieuwe mediacontext een effect kunnen hebben op de werking van enkele gevestigde theoretische modellen binnen persuasieve communicatie**. We focussen ons hierbij meer specifiek op drie gevestigde theoretische modellen binnen persuasieve communicatie, namelijk het Extended Parallel Processing Model (EPPM, Witte, 1992),

het Persuasion Knowledge Model (Friestad & Wright, 1994) en de Congruence Theory (Mandler, 1982).

### **Nieuwe versus traditionele media**

Maar wat zijn deze nieuwe media nu precies, en wat maakt ze zo speciaal? Nieuwe media onderscheiden zich van traditionele media (zoals televisie en print) door een aantal specifieke karakteristieken. De twee voornaamste eigenschappen zijn enerzijds de digitale aard van nieuwe media (in tegenstelling tot de analoge aard van traditionele media) en anderzijds hun interactiviteit. Terwijl traditionele media voornamelijk communicatie in één richting toelaten (in de vorm van *one-to-many* communicatie), maakt het interactieve karakter van nieuwe media ook tweewegs-communicatie mogelijk in de vorm van feedback, onderlinge interactie of dialoog (zogenaamde *many-to-many* communicatie (Cho & Leckenby, 1999). Bovendien stelt interactiviteit mensen in staat om zelf te gaan bepalen wanneer ze aan welke informatie blootgesteld worden, en wordt het voor gebruikers ook mogelijk om zelf inhoud te gaan creëren, wijzigen en delen. Dit alles wijst op een totaal nieuwe mediaomgeving die substantieel verschilt van de traditionele (Keng & Lin, 2006; Quiring, 2009). In tegenstelling tot de massamediaomgeving, waarin de ontvanger vooral de rol van publiek of toeschouwer werd toegewezen, transformeert het interactieve karakter van de nieuwe mediamaatschappij dit passieve publiek eerder tot actieve gebruikers (Adzharuddin, 2012). Zo zijn we vandaag in staat om zelf op zoek te gaan naar informatie via online webbrowsers, zelf informatie te delen via sociale netwerken, zelf te bepalen wanneer we naar welke programma's kijken op digitale televisie, zelf inhoud te delen via blogs en zo verder.

### **De werking van interactiviteit**

Er werd reeds heel wat onderzoek verricht naar de werking van interactiviteit. Daaruit blijkt dat hoewel interactiviteit een aantal belangrijke voordelen heeft op zowel cognitieve, affectieve als gedragsmatige uitkomsten, er toch ook een aantal nadelen zijn waar we rekening mee moeten houden.

Volgens eerder onderzoek kan interactiviteit zowel een positieve invloed hebben op de mate van informatieverwerking (cognitief), de gemoedstoestand (affectief) als het gedrag van mensen (Liu & Shrum, 2002; McMillan & Hwang, 2002; Sundar, 2004; Sundar & Constantin, 2004). Deze positieve effecten kunnen verklaard worden door de concepten van flow en telepresence. Volgens het model van Hoffman en Novak (1996) leidt interactiviteit tot zowel gevoelens van telepresence als flow, waarbij telepresence aanzien wordt als een antecedent van flow. Beide concepten zijn dan ook nauw aan elkaar gerelateerd. Flow is een gevoel dat door Csikszentmihalyi (1977, p.36) gedefinieerd wordt als '*an intrinsically motivated optimal enjoyable mental state*' ofwel een optimale mentale toestand die als erg aangenaam ervaren wordt. Interactiviteit kan dit gevoel van flow opwekken, wat dat weer leidt tot een positief gemoed (Wells, 1988) en een hogere betrokkenheid (Csikszentmihalyi, 1975). Telepresence wordt dan weer omschreven als het gevoel 'aanwezig te zijn in de gemedieerde omgeving' (Steuer, 1992). Mensen die zich bijvoorbeeld volledig verliezen in een computerspel hebben vaak het gevoel 'in' dit spel te zitten of fysiek aanwezig te zijn in deze gemedieerde wereld, in plaats van in de realiteit. Volgens het model van Hoffman en Novak (1996), leidt zowel het gevoel van telepresence als van flow tot een positief gevoel of een positieve gemoedstoestand, een verhoogde aandacht en een verhoogd leereffect. Bovendien gaan zowel flow als telepresence mensen gaan motiveren tot het stellen van verkennend gedrag ('*exploratory behavior*') en leiden ze tot een gevoel van voldoening en genot (Csikszentmihalyi 1997; Goleman, 1995).

Anderzijds dient men ook rekening te houden met enkele risico's van interactiviteit op informatieverwerking. Volgens de *cognitive load theory* (Kirschner, 2002) en de *limited capacity theory* (Lang, 2000) hebben mensen slecht een beperkte hoeveelheid cognitieve capaciteiten ter beschikking om informatie te verwerken. Dit wil zeggen dat ons werkgeheugen slechts een bepaalde hoeveelheid informatie kan verwerken en opslaan. Eens deze limiet is overschreden wordt het individu overbelast en wordt de inkomende informatie niet meer correct verwerkt, wat leidt tot een verlaagde recall of herinnering. Gezien het verwerken van interactiviteit op zich al heel wat cognitieve capaciteiten vereist (Yuji 1996), is het mogelijk dat sommige mensen het interactieve aspect van nieuwe media gewoonweg als te complex of te belastend ervaren (Ariely, 2000). Het verwerken van informatie in een interactieve omgeving vraagt dan ook heel wat meer

cognitieve capaciteiten dan in een passieve, traditionele media context. We kunnen dus besluiten dat hoewel interactiviteit heel wat voordelen biedt, deze zeker niet vanzelfsprekend zijn (Liu & Shrum, 2002).

### **Nieuwe media leiden tot de komst van nieuwe reclameformats**

De komst van nieuwe media heeft ook belangrijke implicaties voor reclamemakers en adverteerders. De veranderende mediamaatschappij zorgt voor een verandering of verschuiving in de mediaconsumptie van mensen, waardoor adverteerders genoodzaakt zijn op zoek te gaan naar nieuwe manieren om hun doelgroep te bereiken. Bovendien maken recente technologische ontwikkelingen het mogelijk om reclame over te slaan of te 'skippen' (denk bijvoorbeeld aan het uitgesteld kijken en doorspoelen van reclame op televisie), waardoor traditionele vormen van reclame meer en meer hun aantrekkelijkheid verliezen bij adverteerders (Chowdhury, Finn & Olsen, 2007).

Als gevolg hiervan werden tal van nieuwe reclameformats ontwikkeld, met nieuwe media als dragers. Enkele voorbeelden zijn interactieve computerspulletjes die ontwikkeld zijn rond een specifiek product of merk (zogenaamde *advergames*), banners, pop-ups en geïntegreerde videoboodschappen op websites, applicaties voor mobiele telefoons of tablets, reclameformats op digitale televisie zoals spotjes verrijkt met banners of interactieve elementen zoals de rode knop, en zo verder. Wanneer we deze nieuwe reclameformats gaan vergelijken met traditionele, klassieke reclamevormen zien we opnieuw een aantal onderscheidende kenmerken.

Zo zijn traditionele reclamevormen vaak sequentieel van aard, wat wil zeggen dat de kijker opeenvolgend blootgesteld wordt aan de media- en reclame-inhoud (bijvoorbeeld een televisieprogramma dat onderbroken wordt door het reclameblok). Bij nieuwe reclamevormen, daarentegen, wordt de kijker vaak gelijktijdig blootgesteld aan de media- en reclame-inhoud. Een voorbeeld hiervan zijn online banners of pop-ups die gelijktijdig verschijnen met de website-inhoud of interactieve reclamespots op iDTV die (door middel van 'picture-in-picture' technologie) het mogelijk maken om de kijker tegelijkertijd bloot te stellen aan bijkomende informatie over het geadverteerde product of merk en het televisieprogramma (Cauberghe & De Pelsmacker, 2006).

Een verregaandere vorm van gelijktijdige blootstelling is integratie. Hierbij gaat men de kijker niet alleen gelijktijdig blootstellen aan media- en reclameinhoud, maar gaat men de commerciële inhoud nog eens integreren *in* deze media-inhoud. Denk maar aan commerciële spelletjes waarbij een merk, product of merkkaartje geïntegreerd wordt in een computerspel zelf (*advergaming*) of commerciële merkplaatsingen die geïntegreerd worden in de oorspronkelijke inhoud van websites of blogs.

We kunnen dus besluiten dat nieuwe reclame formats zich, naast hun interactieve en digitale karakter, voornamelijk onderscheiden van traditionele reclamevormen door technieken zoals gelijktijdige blootstelling of integratie. Hoewel er vandaag heel wat nieuwe reclamevormen bestaan concentreren wij ons in dit proefschrift op 3 nieuwe reclameformats, namelijk interactieve televisiespots op iDTV, interactieve websites op het internet en interactieve digitale spelletjes (*games*).

### **Doel van dit proefschrift**

Samenvattend kunnen we stellen dat de komst van nieuwe media een aantal ingrijpende veranderingen met zich meegebracht hebben in het domein van persuasieve communicatie. Vandaag worden we niet alleen op een helemaal nieuwe manier benaderd, maar ook de context waarin we persuasieve boodschappen gaan verwerken is helemaal anders dan voordien. De huidige mediacontext verschilt van de traditionele context in termen van interactiviteit, complexiteit en snelheid, maar dus ook in cognitieve belasting. Dit kan mogelijk een invloed hebben op de manier waarop we er informatie gaan verwerken.

Wanneer we echter kijken in de literatuur zien we dat, hoewel er heel wat onderzoek te vinden is naar de effectiviteit en werking van nieuwe media, er weinig onderzoek is naar de invloed van deze nieuwe media context op de theoretische modellen binnen persuasieve communicatie. Toch zijn er een aantal theoretische modellen binnen dit domein die al jaren fungeren als gevestigde waarden, en nog frequent toegepast worden binnen wetenschappelijk onderzoek. Het merendeel van deze theoretische kaders werd echter ontwikkeld binnen een traditionele mediacontext die, zoals we reeds eerder aangeven, substantieel verschilt van de mediacontext waarin we ons vandaag bevinden.

Het voornaamste doel van dit proefschrift is dan ook om na te gaan of een aantal eigenschappen van deze nieuwe mediacontext een effect kunnen hebben op de werking van enkele gevestigde theoretische modellen binnen persuasieve communicatie. We focussen ons hierbij meer specifiek op drie gevestigde theoretische modellen binnen persuasieve communicatie, namelijk het Extended Parallel Processing Model (EPPM, Witte, 1992), het Persuasion Knowledge Model (Friestad & Wright, 1994) en de Congruence Theory (Mandler, 1982). Hoewel deze modellen nog vaak gebruikt worden binnen wetenschappelijk onderzoek dateren ze allen van meer dan twee decennia geleden en kenden ze sindsdien nog maar weinig herziening. Gezien de enorme veranderingen die de mediamaatschappij ondertussen doorgemaakt heeft willen we in dit proefschrift elk van deze theoretische modellen tegen het licht van de veranderende mediaomgeving houden, om zo te komen tot een aanpassing of aanvulling ervan die beter aansluit bij de huidige mediamaatschappij.

Wanneer we kijken naar de literatuur rond de werking en effectiviteit van nieuwe media zien we echter dat deze zich vooral situeert binnen een commerciële context. De invloed van nieuwe media (en de nieuwe mediaomgeving) op persuasieve communicatie binnen een niet-commerciële of sociale context blijft echter onderbelicht. Daarom hebben wij er met dit proefschrift voor gekozen om ons onderzoek te situeren binnen sociale marketing, vaak omschreven als *'de toepassing van commerciële marketing concepten en technieken om positieve maatschappelijke of sociale veranderingen te bewerkstelligen'* (Kotler & Zaltman, 1971). We besteden hierbij speciale aandacht aan kinderen als doelgroep. Kinderen zijn niet enkel belangrijke (en frequente) gebruikers van nieuwe media, maar ze zijn als toekomstige generatie ook een erg belangrijke doelgroep voor zowel sociale als commerciële marketeers.

Aangezien het voornaamste doel van persuasieve communicatie kan omschreven worden als het beïnvloeden van gedrag, beschouwen we gedrag ook als voornaamste afhankelijke variabele doorheen dit proefschrift.

### **Een woordje uitleg over de theoretische modellen**

Zoals gezegd werden drie theoretische modellen geselecteerd die elk een gevestigde waarde vormen binnen het domein van de persuasieve communicatie, waarbij we

telkens nagaan welke effecten de hedendaagse interactieve mediamaatschappij kan hebben op de werking van elk van deze modellen.

Het eerste model is het **Extended Parallel Processing Model van Witte (1992)**. Dit model verklaart hoe mensen fear appeals of angstboodschappen gaan verwerken. Persuasieve boodschappen (voornamelijk binnen een sociale marketing context) trachten mensen vaak angst aan te jagen om hen te motiveren hun gedrag te veranderen. Hierbij wordt voornamelijk de nadruk gelegd op de negatieve dingen die zullen gebeuren indien je het gedrag toch stelt (vb. 'roken veroorzaakt hartaanvallen en beroertes') door middel van een fear appeal.

In het EPPM onderscheidt Witte (1992) twee evaluatiefasen bij de verwerking van een fear appeal boodschap. In de eerste evaluatiefase wordt het gevaar (*threat*) geëvalueerd: mensen beoordelen de ernst van het gevaar (*perceived severity*) en de waarschijnlijkheid dat zij slachtoffer worden van het gevaar (*perceived susceptibility*). In de tweede evaluatiefase wordt de effectiviteit (*efficacy*) geëvalueerd: mensen evalueren de effectiviteit van de geadviseerde oplossing en beoordelen of zij in staat zijn deze oplossing uit te voeren. Afhankelijk van de evaluatie zullen mensen ofwel de adviezen opvolgen en het aanbevolen gedrag uitvoeren (*danger control* processen) ofwel het fear appeal verwerpen en zal er geen gedragsverandering plaatsvinden (*fear control* processen).

Hoewel het EPPM reeds uitvoerig onderzocht werd situeert de overgrote meerderheid van dit onderzoek zich binnen een traditionele media context. De vraag stelt zich echter of de eerder besproken eigenschappen van nieuwe media (zoals het aspect van interactiviteit, en de gevoelens van flow en telepresence die dit opwekt of de verhoogde cognitieve belasting) geen invloed hebben op de verwerking van (en dus ook de effectiviteit van) angstboodschappen in deze nieuwe context.

Het tweede model is het **Persuasion Knowledge Model van Friestad en Wright (1994)**. Dit model verklaart hoe mensen omgaan met persuasieve boodschappen. Persuasion knowledge, vaak vertaald als reclamegeletterdheid of reclamewijsheid (Rozendaal, Buijzen & Valkenburg, 2008), wordt vaak omschreven als de persoonlijke kennis die mensen hebben over wat reclame precies is, over de persuasieve aard van

reclame, over het doel ervan en welke technieken gebruikt worden om dit doel te bereiken (John, 1999; Kunkel et al., 2004; Livingstone & Helsper, 2006). Inzicht in reclamewijsheid is belangrijk aangezien deze wijsheid consumenten helpt te herkennen hoe, wanneer en waarom reclamemakers hen proberen te beïnvloeden.

Reclamewijsheid kan volgens Friestad en Wright (1994) dienst doen als een soort cognitief afweermechanisme dat consumenten helpt om reclameboodschappen kritisch te verwerken (Brucks, Armstrong & Goldberg, 1988; Gunter, Oates & Blades, 2005). Van zodra mensen zich bewust zijn van de persuasieve bedoeling van reclame, treedt er een soort afweermechanisme in werking die ervoor zorgt dat men de boodschap anders, meer kritisch gaat verwerken dan wanneer men zich niet bewust is van deze persuasieve intentie. Dit kan ervoor zorgen dat consumenten een negatieve houding gaan vormen ten aanzien van de boodschap, wat vervolgens een negatief effect kan hebben op de doeltreffendheid van de reclame (Kelly, Kerr & Drennan, 2010; Livingstone & Helsper, 2006).

Vaak wordt aangenomen dat kinderen en jongeren, in vergelijking met volwassenen, kwetsbaarder zijn voor de beïnvloedende effecten van reclame. De reclamewijsheid van deze jonge doelgroep is nog niet volledig ontwikkeld, wat het voor hen vaak moeilijk maakt om de onderliggende commerciële intentie van reclame te begrijpen (Wright, Friestad & Boush, 2005).

Hoewel er reeds heel wat onderzoek is naar het PKM situeert dit zich voornamelijk binnen een traditionele media context. Zoals we reeds aangaven in het begin van deze samenvatting worden nieuwe reclamevormen vaak gelijktijdig getoond met de media inhoud, of er zelfs in geïntegreerd, waardoor het *nog* moeilijker wordt om ze als zodanig te herkennen. Recent onderzoek heeft inderdaad uitgewezen dat mensen (en vooral kinderen) het moeilijk hebben om de commerciële aard van deze nieuwe reclamevormen te herkennen en begrijpen (Mallinckrodt & Mizerski 2007, Owen et al. 2010). Bovendien spelen deze nieuwe reclamevormen vaak in op affectieve beïnvloeding, terwijl het PKM zich voornamelijk richt op het begrijpen van de persuasieve intenties van reclame (cognitieve aspect). We kunnen dus besluiten dat er nood is aan een herziening van het PKM, waarbij rekening gehouden wordt met veranderingen in het huidige media- en reclamelandschap.



Het derde en laatste model is de **Congruence Theory van Mandler (1982)**. Deze theorie beschrijft de verwerking van congruente en incongruente informatie. Wanneer een reclameboodschap in een bepaalde mediacontext geplaatst wordt kan men er voor kiezen om deze boodschap te plaatsen in een thematisch gelijkaardige (congruente) context of in een thematisch geheel verschillende (incongruente) context. Zo kan een reclamespot voor een wagen op televisie bijvoorbeeld getoond worden tijdens een programma over motorvoertuigen of tijdens een kookprogramma.

Terwijl heel wat onderzoek pleit voor congruentie tussen een reclameboodschap en de mediacontext, met het argument dat dit voorspelbaar en dus gemakkelijk te verwerken is, wijst Mandler (1982) op de voordelen van incongruentie. Hoewel congruentie tussen een commerciële boodschap en de media-inhoud de verwachtingen bevestigt en dus gemakkelijker te verwerken is, is dit ook weinig opvallend en zal deze informatie dus weinig diepgaande verwerking kennen. Incongruentie, daarentegen, is meer onderscheidend, trekt de aandacht en wekt nieuwsgierigheid op. Dit kan dan weer leiden tot een betere en dus een meer gedetailleerde cognitieve verwerking van de informatie (Mandler, 1982; Meyers-Levy & Tybout, 1989, Yoon, 2012).

Bovendien argumenteert Mandler dat incongruentie leidt tot meer positieve affectieve reacties, maar enkel als mensen er in slagen om deze incongruentie op te lossen. Dit leidt tot een gevoel van voldoening, wat weer een positief effect kan hebben op de attitude die mensen ontwikkelen ten aanzien van de betreffende reclameboodschap (Lee & Schumann, 2004). Het niet oplossen van de incongruentie kan dan weer leiden tot negatieve gevoelens van frustratie. Er is tot op heden echter nog maar weinig zicht op welke factoren deze oplossing van incongruentie kunnen bevorderen (Fleck & Maille, 2010).

Net als bij de vorige theoretische modellen zien we echter dat het meeste onderzoek rond de Congruentie theorie zich situeert in een traditionele media omgeving, waar de blootstelling aan reclame- en media inhoud opeenvolgend of sequentieel gebeurt. In een nieuwe media context, daarentegen, gebeurt de blootstelling aan reclame en mediacontent voornamelijk gelijktijdig. De vraag stelt zich dan ook of de bestaande inzichten van de Congruentie theorie ook van toepassing zijn in deze nieuwe context. Een gelijktijdige blootstelling impliceert namelijk dat mensen genoodzaakt worden om

hun aandacht te verdelen tussen beide informatiebronnen, wat mogelijk een effect kan hebben op (de mogelijkheid tot ) het verwerken van (in)congruente informatiestromen. Bovendien rijst de vraag of de kenmerken van nieuwe media (zoals vb. interactiviteit) eventueel kunnen bijdragen tot het verwerken en oplossen van incongruentie.

Samenvattend kunnen we dus stellen dat het de voornaamste onderzoeksvraag van dit proefschrift is in welke mate onze bestaande inzichten in deze modellen ook toepasbaar zijn in een nieuwe media omgeving, en welke aanvulling deze modellen vereisen om beter van toepassing te zijn in deze nieuwe omgeving.

### Overzicht van het proefschrift

In het eerste, inleidende hoofdstuk, gaan we dieper in op nieuwe media, de voornaamste eigenschappen ervan en de veranderingen die deze nieuwe media met zich meebrengen op zowel cognitieve, affectieve als gedragsmatige uitkomsten. Bovendien bespreken we grondig elk van de drie geselecteerde theoretische modellen binnen het domein van persuasieve communicatie, en gaan we na welke gevolgen de veranderende mediamaatschappij zouden kunnen hebben voor de werking van elk van deze theoretische kaders. Nadien volgen er vijf empirische hoofdstukken waarin we telkens de inzichten in één van deze theorieën empirisch gaan toetsen in een nieuwe mediaomgeving. We kiezen daarbij respectievelijk voor iDTV, internet of interactieve spelletjes. Het overzicht van de empirische hoofdstukken ziet er dan ook uit als volgt:

	iDTV	Internet	Digitale spelletjes
Extended Parallel Processing Model (EPPM)	Hoofdstuk 2: Onderzoeken van het EPPM in een iDTV omgeving		Hoofdstuk 3: Onderzoeken van het EPPM in een traditionele versus interactieve spelletjesomgeving
Persuasion Knowledge Model (PKM)			Hoofdstuk 4: Onderzoek naar de impact van reclamewijsheid in een commerciële versus sociale interactieve spelletjesomgeving
Congruentie theorie	Hoofdstuk 5: Onderzoeken van de congruentie theorie tijdens gelijktijdige blootstelling in een iDTV omgeving	Hoofdstuk 6: Onderzoeken van de congruentie theorie in een interactieve web omgeving	

In het zevende en laatste hoofdstuk bespreken we de voornaamste conclusies van dit proefschrift, en de bijdragen die het levert voor wetenschappelijke literatuur binnen persuasieve communicatie. Ten slotte geven we in dit hoofdstuk een overzicht van de belangrijkste beperkingen van ons onderzoek, en bespreken we nog enkele interessante pistes voor verder onderzoek.

## **Conclusie**

Op basis van de resultaten uit de empirische studies kunnen we besluiten dat de hedendaagse media omgeving wel degelijk vraagt om een herziening of aanvulling van de besproken theoretische modellen binnen persuasieve communicatie. Samenvattend kunnen we stellen dat de besproken kenmerken van de nieuwe mediamaatschappij vaak een mediërend of modererend effect blijken te hebben op de werking van deze modellen, en dus mee in rekening moeten gebracht worden bij onderzoek in deze hernieuwde context. In het laatste hoofdstuk geven we een overzicht van de belangrijkste bevindingen voor elk van de drie modellen, en trachten we deze bevindingen te integreren in een hernieuwde visie van deze de bestaande theoretische kaders.

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## **CHAPTER 1**

### **GENERAL RESEARCH QUESTION AND RESEARCH CONTEXT**





It is change, continuing change, inevitable change  
that is the dominant factor in society today.

-Isaac Asimov-

## 1. INTRODUCTION

Since the arrival of the digital computer and the Internet, an enormous shift has taken place in the global media landscape. Especially the last two decades are characterized by an ascent of 'new digital media' such as the Internet, mobile (smart) phones, interactive digital television, computer games, tablets and so on. Today, new media are so omnipresent in people's lives that they have changed the way they think, act and communicate (Creeber & Martin, 2009). However, the emergence of new media also entails important implications for marketers. As communication technologies evolve and become more interactive, personal and receiver-directed, marketing communication tools are being forced to evolve as well. Consequently, with the arrival of each new medium, several new advertising formats and techniques are created. Among others, these include interactive branded websites, advergames, split-screen applications and mobile advertisements. These new advertising formats are considerably different from traditional advertising. Besides their digital and interactive nature, new ad formats are characterized by the fact that they are often integrated into and/or shown simultaneously with the media content.

For this dissertation, the most important implication of contemporary media is the fact that they give rise to a context that is fundamentally different from the traditional mass media landscape. Resulting from a series of technological evolutions and innovations, new media differ fundamentally from traditional ones in terms of interactivity, speed

and information load, which may in turn have a profound impact on the way people process information in this new environment. If this is the case, the question arises whether we need to reconsider some well-known traditional theories of persuasive communication. The main goal of this dissertation is to investigate whether today's new media environment affects our insight in some well-established and frequently used theoretical frameworks in the field of persuasive communication. More specifically, this dissertation investigates the effects of new media in a social marketing context. Today, the amount of research focusing on new media and the resulting new advertising formats is rising, but this is mainly done in a commercial context. Little or no research can be found regarding the implementation of new media in a social marketing context. Contrary to commercial marketing the main focus of which is financial gain, social marketing pursues the promotion of a behavior that will improve the well-being of a target audience or society as a whole (Evans, 2006). In short, it is defined as the use of marketing principles and techniques for the social good, like safety, health promotion or reducing harmful behavior (Kotler & Zaltman, 1971).

Looking into the concept of new media, and what it can mean for the processing of persuasive information in a social marketing context, three main theoretical models are distinguished, each related to one or more characteristics of new media. As the main aim of this dissertation is to investigate the value of new media in a social marketing context, the first theoretical model *the Extended Parallel Processing Model* (EMMP; Witte, 1992). In social marketing, one of the dominant and most frequently used persuasive appeals are threat appeals. Therefore, the EPPM is included in this dissertation, as it is the most comprehensive framework on the operation of threat appeals. Although there is already a significant amount of research on threat appeals, little is known about the effectiveness of these persuasive appeals in an interactive media environment. The second theoretical model is *the Persuasion Knowledge Model* (Friestad & Wright, 1994), that describes people's processing of commercial messages, and their possible critical reaction to it. As today, media content and advertising content often merge together, this makes it more difficult for viewers to recognize what is advertising and what is not. Therefore, it is potentially interesting to re-evaluate the current insights of this model in the contemporary media environment. Finally, the third theoretical model discussed in this dissertation is *the congruence theory* (sometimes also referred to as the Schema

Congruity Theory; Mandler, 1982), which discusses people's processing of congruent or similar versus incongruent or different stimuli. More specifically, we focus on the aspect of advertisement – context congruence. Although the question of congruence versus incongruence between commercial and media content has been researched extensively in the past, this matter becomes even more relevant in a new media context. Considering the fact that in this context the advertisement and the media content are often integrated and thus processed simultaneously, it is possible that this theory needs to be reconsidered or adapted to this new environment.

## 2. GENERAL AIM OF THE DISSERTATION

Although there is plenty of academic research on each of the three theoretical frameworks discussed above, the majority of these studies was carried out in a traditional media context like print, radio or television (James, Albrecht, Litchfield & Weishaar, 2013). Today, however, we face a different media context of new, interactive media. Little or no studies have investigated these frameworks in an interactive media environment. In order to fill this gap, **the main goal of this doctoral dissertation is to test the basic assumptions of the three theoretical models in an interactive environment.** As they are so different from traditional media, it is possible that today's new media context represents a new domain for old theories. Therefore, we argue that there is a need to investigate the effect of new antecedents and moderating variables on the operation of these traditional persuasive communication models, taking the main characteristics of today's media context into account. More specifically, we investigate how information processing in this new context impacts both affective (attitude, liking, fear,..) and cognitive (processing, recall..) variables, which in turn affect behavior.

The reason why we choose to position our research in a social instead of a commercial marketing context is that today, most academic research regarding new media is situated in a commercial context. However, as the prominence and importance of new media keeps rising, the future of social marketing communication is a topic that is becoming more and more relevant, and it will continue to be for the foreseeable future.

As stated by Salmones, Dominguez and Herrero (2013), many things have changed since Kotler introduced the social marketing concept. Nowadays, the non-profit sector is becoming a very competitive and fast-growing advertising area (Wheeler, 2009), and organizations are having a hard time positioning themselves and getting people's attention (Becker-Olsen & Hill, 2006). In order to keep up with the recent changes in the media environment, social marketers are forced to evolve and search for new, more effective ways to reach their target audience. In this respect, it is interesting to investigate what new media can contribute to social marketing communication. Indeed, several authors (e.g. James et al., 2013; Evans, 2008; Neff & Moss, 2011) have recently pointed out the potential of new media for social marketing communication, stressing that social marketing should make full use of technology and new media in order to improve its future communication. Therefore, the aim of this dissertation is to optimize social marketing today in terms of fundraising, educational programs, desired social behavior, social well-being etc. This way, we try to contribute to a topic which is to date underexposed in academic research. In addition, we believe that in today's cluttered media environment, where people are dominantly exposed to commercial communication (e.g. advertising addictive products or the consumption of unhealthy food), social marketing plays an important role to counter this communication directed towards the audience (Evans, Price & Blahut, 2005).

From this social point of view, we also dedicate special attention to children as a target audience. We base this special focus on the fact that children today are heavy users of new media (therefore often referred to as *the digital natives* (Prensky, 2001), *the digital generation* (Willett & Buckingham, 2006) or *the Net generation* (Tapscott, 1998). In addition, today's youngsters are viewed as a future market and are therefore heavily targeted by advertisers. This often results in the adoption of new and sophisticated advertising formats (Calvert, 2008; Moore, 2004), which makes it highly relevant to investigate children's processing and the persuasiveness of these new ad formats. Finally, children also play an important role as target audience from a social marketing perspective, as they are the future generation and thus need to be educated in the importance of social behavior and the well-being of society as a whole.

In this introductory chapter, we first take a look at new media, explaining the main features that define these media as being 'new'. Next, we discuss the main characteristics of new media, shedding a light on three new media and new advertising formats which are potentially relevant or important for social marketing communication. Then, the operation or function of new advertising formats is discussed in detail, explaining concepts like flow and telepresence. After looking deeper into the operation of interactivity, different advertising opportunities, pitfalls and ethical concerns are addressed which result from this interactive nature. Afterwards, three main theoretical frameworks or models are discussed in depth, raising the question whether the traditional insights regarding these theories still apply in an interactive new media context. This, in turn, leads to an enumeration of three main research questions of this dissertation. Finally, we provide an overview of the different chapters of this dissertation.

### **3. NEW MEDIA**

We first discuss the concept of new media together with its emergence and main characteristics. After explaining the concept in depth, we present three specific new media that are highly relevant for social marketing.

#### **3.1 The emergence of new media**

Although the term 'new media' has gained a widespread currency over the last decade, it is often used as a buzzword or a collective term, without being very clear what it actually means. Instead of a coherent entity, new media has become a general and vague blanket description, used to mean a whole range of different practices and processes. According to Lister et al. (2003), the popularity of the term can be attributed to its useful inclusiveness. 'New media' avoids the emphasis on purely technical and formal definition as in 'digital' or 'electronic media', the emphasis on a single ill-defined quality

as in 'interactive media' or the limitation to one set of machines or practices as in 'computer-mediated communication'. In literature, new media have been studied from different perspectives (e.g. technological, economic, political, legal, cultural and social, Livingstone, 2002). As a result of this multidisciplinary points of entry to new media research, numerous different definitions and explanations of the term 'new media' can be found (Lievrouw & Livingstone, 2006). In general, the term is used to refer to the major technological transformations in communication that have recently taken place (Creeber & Martin, 2009).

It is, however, not our aim to provide yet another definition of this concept. Rather, we wish to point out that despite the different views on new media, a number of characteristics of the concept can be identified.

## 3.2 New media characteristics

When something is defined as 'new', the term itself suggests that there is also something 'old'. This inevitably raises the question what makes contemporary media new and what distinguishes these media from older, traditional ones (Fuery, 2009; Lister et al., 2003). Compared to older, established media, new media encompass several characteristic features (Lister et al., 2003). First, the two key characteristics of new media are discussed, namely digitality and interactivity. Afterwards, we discuss some additional characteristics that result from this digital and interactive aspect of new media.

### 3.2.1 Digitality

First, the most obvious difference between new media and traditional ones is **digitality** (i.e., numerical representation). New media are often referred to as digital media, defining them against analogue media (Hennig-Thurau et al., 2010; Lister et al., 2003). According to Creeber and Martin (2009), digital media surpass analogue technology because digital content is easily transferrable across different media platforms, it is easily manipulated and networked and it can be stored and remotely accessed or

distributed. In addition, the digital character of new media implies that there are virtually no marginal costs for producing extra copies of digital products and that people can easily distribute their creations to a global audience without having to pass through traditional 'gate keepers' such as publishers (Hennig-Thurau et al., 2010).

### 3.2.2 Interactivity

The second characteristic of new media is **interactivity**, which is often perceived as the most important and defining difference between traditional and new media (Chung & Zhao, 2004). The term stands for a more powerful sense of user engagement with media content, a more independent relation to sources of knowledge, individualized media use and greater user choice (Lister et al., 2009). Where old media offered passive consumption, new media offer interactivity. However, just like the concept of new media, interactivity has been studied from different perspectives and disciplines, resulting in numerous definitions of the term (for an overview see Fortin & Dholakia, 2005; Liu & Shrum, 2002 or McMillan & Hwang, 2002). However, all these definitions come down to three key characteristics of interactivity: information exchange, control over media content and time. Information exchange refers to the fact that interactivity allows two-way communication in terms of dialogue or feedback, described as *'the ability for reciprocal communication between companies and users, and users and users'* (Liu & Schrum, 2002, p.55). Interactivity makes many-to-many communication possible, an approach that clearly differs from the traditional one-to-many model of mass communication (Cho & Leckenby, 1999; Rust & Oliver, 1994). The second item, control, refers to the user's ability to control which information he/she wants to process and in what sequence (Liu & Shrum, 2002). Lee (2005) describes user control as the extent to which the user can seek and gain access to information on an on-demand basis and control the timing, content and sequence of the communication. The last aspect, time, refers to the synchronicity of two way communication and user control. Interactivity allows real-time reaction which means that the actions of a user instantaneously alter the mediated environment. However, it also refers to the immediacy of response, as the users' input into a communication and the response they receive from it are simultaneous (Hoffman & Novak, 1996; Liu & Shrum, 2002). This aspect is also

emphasized in Steuer's (1992, p.84) definition, in which he describes interactivity as '*the extent to which users can participate in modifying the form and content of a mediated environment in real time*'. In sum, today's users can access, create, modify and redistribute content whenever they want, creating a totally new environment that changes the traditional parameters of mass communication within a new media environment (Hoffman & Novak, 1996; Keng & Lin, 2006; Quiring, 2009).

Beside the technological features, new media also bring change in social aspects. Through interactivity, a more participatory culture arises, in which audiences are able to engage with media and become producers as well as receivers of media content (Creeber & Martin, 2009). As a consequence, several authors argue the term 'audience' should be reconsidered in the domain of new media, as the active modes of engagement transform passive audiences into *active users* (Adzharuddin, 2012; Lievrouw & Livingstone, 2006). As a result, today's media users are active gamers or website browsers, sharing content on social network sites, controlling their own TV experience, writing blogs, responding to mobile messages, and so on.

### **3.2.3 Other characteristics of new media**

Besides the key characteristics discussed above, namely digitality and interactivity, several other characteristics of new media can be found in literature, which in most cases result from these key features. Lekakos, Papakiriakopoulos and Chorianopoulos (2001), for example, emphasize the important consequence of interactivity that it opens up new opportunities for personalization, which reflects the degree to which information is tailored to meet the needs of the individual user (Fuery, 2009). Today, the Internet and other interactive technologies make it possible for users to customize their interactive media experience by seeking what suits best with their moods and desires (Montgomery & Chester, 2009). Further characteristics discussed in literature are the ubiquitous character of new media (Hennig-Thurau et al., 2010; Montgomery & Chester, 2009), hypertextuality (Lister et al., 2003), media convergence (defined as '*the merging of formerly independent technologies and devices*', Diehl et al., 2013; Jenkins, 2006), the aspect of visibility (Hennig-Thurau et al., 2010), virtuality, modularity, multimodality (Lin et al., 2013), the ability to participate in (social) networks (Gordon, 2010; Lister et



al., 2003), create user-generated content (Napoli, 2010; Thurman, 2008; Van Dijck, 2009) and so on. However, we will not further elaborate on these characteristics in this introduction chapter, as they would bring us too far from the scope of this dissertation.

### 3.3 The operation of digital, interactive formats

Given the importance of interactivity as a new media characteristic, the aim of the next section is to look deeper into the concept of interactivity, how it operates, the effects it can bring about, and its main effects it can have on cognitive, affective and behavioral outcomes. According to previous research, interactivity has the potential to evoke several positive effects such as highly focused attention (Sundar, 2004; Sundar & Constantin, 2004) as well as provide a greater sense of behavioral control (Liu & Shrum, 2002; McMillan & Hwang, 2002). These positive effects can be explained by means of the **theory of flow**. Csikszentmihalyi (1977, p.36) defines flow as '*an intrinsically motivated optimal enjoyable mental state*'. This optimal state results when challenge and skill are in balance and elevated above some critical threshold. In other words, tasks must be simultaneously challenging and achievable. According to the 'four channel model' (Csikszentmihalyi & Csikszentmihalyi, 1988), challenge and skills can be plotted on an X and a Y axis (from low to high), where flow is defined as high skills and high challenges and apathy as low skills and low challenges. When a task is not challenging but skills are high, boredom arises and we lose interest. When, on the other hand, challenges are high, but skills are low, the task is too hard and this results in anxiety and frustration (for an overview, see Novak & Hoffman, 1997). In sum, everything hinges on the balance between the difficulty of the task and our skill, meaning that experiences will be the most positive when the challenges posed by the environment are high enough and these are matched with a person's own capacities or skills (Csikszentmihalyi, 1990). In other words, when both challenges and skills are high and in balance, people report feeling more active, alert, concentrated, happy, satisfied and creative (Wells, 1988). When in flow, people experience a loss of self-consciousness, time and place (Csikszentmihalyi & Lefevre, 1989) because they '*are so involved in an activity that nothing seems to matter*'

(Csikszentmihalyi, 1975, p.4). The result is a positive emotional state, a sense of deep enjoyment often described as fun (Csikszentmihalyi 1990; Privette, 1983).

Traditionally, flow refers to experiences evoked by arts and sports, but the concept has also been applied to general computer-mediated communication (Ghani, Supnick & Rooney, 1991; Trevino & Webster, 1992; Webster, Trevino & Ryan, 1993). Hoffman and Novak (1996) applied the concept of flow to an online environment, developing a model to explain the underlying mechanism of flow on information processing and navigation behavior in a hypermedia computer-mediated environment. In their model, the interactivity and vividness of the environment (which refers to the ability of a technology to produce a sensory rich mediated environment) are important antecedents of flow, which are mediated by telepresence and focused attention on the content (Hoffman & Novak, 1996). **Telepresence** is defined as the sense of 'being there' or being present in the mediated environment (Steuer, 1992; Keng & Lin, 2006; Coyle & Thorson, 2001). The term is used when the virtual experience dominates the real world experience (Coelho et al., 2006), therefore often defined as '*the simulated perception of a direct experience*' (Coyle & Thorson, 2001, p.66) or '*the perceptual illusion of non-mediation*' (Coelho et al., 2006, p.28). In other words, telepresence gives the user the feeling of actually being physically present in the environment generated by technology, rather than in the surrounding physical world (Steuer, 1992). In a gaming environment, for example, high levels of interactivity and vividness generate a virtual environment in which the player can participate. Due to a high level of realism, the user actually feels present in this virtual world, enhancing feelings of immersion, telepresence and flow (Steuer, 1992; Usoh, Alberto & Slater, 1996). The result is a feeling of absorption in the game, which causes the player to lose awareness of place and time (Ryan, Rigby & Przybylski, 2006).

What are the concrete advantages of flow and telepresence? According to several authors, the feeling of being present in the mediated environment can be compared to a direct experience, which leads to stronger attitudes than attitudes developed through indirect experiences and better predict subsequent behaviors (Smith & Swinyard, 1982, 1983; Fazio & Zanna, 1981; Sherman, 1982). According to the model of Hoffman and Novak (1996), when in flow, consumers experience a positive affect and mood, they are

more focused and more likely to retain the information they perceive (increased learning), and they get so involved in the act of navigating through the hypermedia computer-mediated environments that '*nothing else seems to matter*' (Hoffman & Novak, 1996, p.57). In addition, both flow and telepresence lead to more exploratory behavior and positive subjective experiences such as a positive mood and satisfaction (i.e. feelings of pleasure and enjoyment) (Csikszentmihalyi 1997; Goleman, 1995).

Interactivity also has some possible hazards for information processing. According to the cognitive load theory (Kirschner, 2002) and the limited capacity theory (Lang, 2000; Lang et al., 1996), people (and especially children) have a limited capacity to process information. This means that an increase in cognitive load generates a positive effect on information processing until a certain threshold is reached, at which point the individual will become 'overloaded' (Cauberghe & De Pelsmacker, 2010). When the limits of the working memory load are exceeded, information is not properly stored as knowledge (Kirschner, 2002). At this point, people will no longer consider additional information, and the recall of previous information is reduced.

This process is also described as the interference effect or the cognitive interference theory, whereby "*the process by which our ability to recollect information is hindered by our exposure to some other information*" (Kumar, 2000, p.155). This effect was supported by several other authors, who found that too high levels of cognitive load reduce the amount of processing capacity available for elaborating on the message (Sanbonmatsu et al. 2003; Shapiro, MacInnes & Park, 2002) which can in turn have a negative impact on its effectiveness (Putrevu, Tan & Lord, 2004; Wang et al., 2007). As the processing of interactivity itself demands a lot of cognitive resources (Yuji 1996), some people may find the interactive aspect of new media formats too complex due to the high cognitive load. Ariely (2000), for example, found that interactivity leads to increased memory and learning in general, but that these effects reverse when the demands on processing resources are (too) high, for example in the case of a novel task. Therefore, it appears that not all users prefer high levels of interactivity, and that the advantages of interactivity do have their limits (Liu & Shrum, 2002).

In sum, the operation of interactivity can be represented in the following schema:

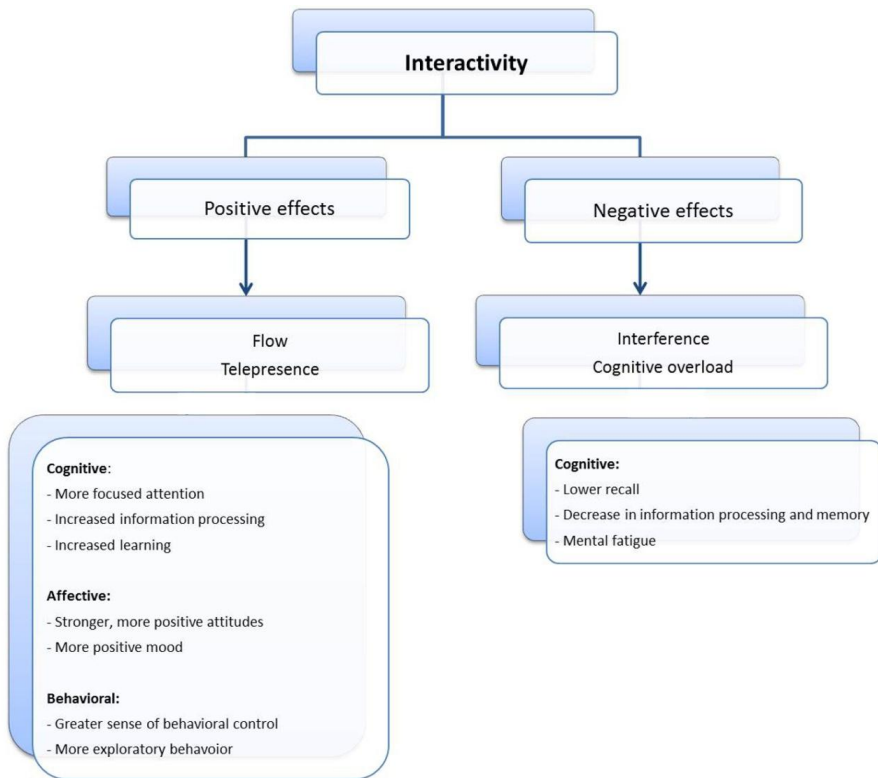


Figure 1: Overview of the positive and negative effects of interactivity

### 3.4 Discussing three specific new media formats

Although today, numerous new media formats can be found, we will only discuss three dominant technologies in the group of new media, namely the Internet (more specific interactive websites), digital television and computer games. Before discussing each medium, we motivate our choice for each of these three specific media for our research. Although other new media (like mobile phones, digital radio, social networks and so on) are highly interesting as well, they are not in the focus of this dissertation.

### 3.4.1 The World-wide web

First, let us take a look at the Internet. With 2.4 billion Internet users worldwide ([www.internetworldstats.com/stats.htm](http://www.internetworldstats.com/stats.htm)), the **World-Wide Web (WWW)** is one of the most important new media of the past two decades. In short, the WWW is a way of viewing all the online information available on the Internet as a seamless, browsable, continuum. It is a conglomerate of worldwide networks of millions of computers that allows access to information and various types of data transfer. Using hypertext jumps and searches, the user navigates through an information world which consists of hundreds of millions of Web pages from which people can extract valuable information. (Berners-Lee et al., 1994). In the last decade, the World Wide Web has become one of the largest and best accessible sources of information, and the number of webpages and the volume of information content have been overwhelming (Walraven, Brand-Gruwel & Boshuizen, 2009). It is safe to say that the success of the World Wide Web has opened a new era of the information age (Tu, Lyu, & Hsiang, 1999). The WWW is a collective term for different platforms for interaction, communication and collaboration between users, such as email, social networking websites (e.g., Facebook, LinkedIn), wikis (e.g., Wikipedia), web logs or blogs, microblogs (e.g., Twitter), sharing sites (e.g., Flickr, YouTube) and so on (Bernhardt, Mays & Kreuter, 2011). However, we will focus on interactive websites.

### 3.4.2 Interactive digital television

The second new medium which we will look into is **interactive digital television**, often abbreviated as iDTV. Television viewing is a dominant part of most people's leisure activities and daily lives and for many, it is a very important source of information and entertainment. Therefore, we decided to include this successor of traditional TV in our selection of new media. iDTV was launched in Belgium in 2005 (Cauberghe & De Pelsmacker, 2008), but the switch from analogue to digital broadcast television was not made until 2008 ([www.cjism.vlaanderen.be](http://www.cjism.vlaanderen.be)). Compared to traditional, analogue television, iDTV is a new medium that can be described as the merging of the Internet and traditional television (Lekakos, Papakiriakopoulos & Doukidis, 2008). Cauberghe and De Pelsmacker (2006 p.23) define IDTV as *'a group of technologies that gives users*

*the possibility to take control over their TV experience, enabling interactivity with the content.* Besides providing improved image and sound quality (Van Dijk, Heuvelman & Peeters, 2003) and a higher number of program channels, iDTV also provides the user the ability to interact with his/her TV, making two-way communication possible (Blackburn, Brownsell & Hawley, 2011; Jensen & Toscan, 1999; Swedlow, 2000). Offering interactive features or services such as the Interactive Program Guide, enhanced broadcasting, web browsing, Video On Demand (VOD) and communication services (Cauberghe & De Pelsmacker, 2006; Van Den Broeck, 2005), iDTV changes the traditional role of passive television viewers by turning them into active participants with control over the television viewing experience (Van Den Broeck 2005).



Figure 2: The interactive program guide as provided by the Belgian operator Telenet (source: <http://www.peterdecroubele.be>)

The 'video on demand' function, for example, permits the user to choose their favorite program or movie from the broadcaster offerings, enabling them to schedule their own TV-evening. The personal video recorder (PVR), in turn, allows users to store content, pause it, stop it or watch the program at a later time, hereby changing the traditional linear viewing experience (Fortunato & Windels, 2005; Lekakos, Papakiriakopoulos & Doukidis, 2008).

### 3.4.3 Digital computer games

Finally, the last new media addressed in the empirical studies are interactive **digital computer games**. The reason for including this new medium is based on the fact that today, games are a dominant form of media, even larger than the motion picture industry (Read & Shortell, 2011). A frequently used definition of games is that of Juul (2003, p.5), who defines a game as *'a rule-based formal system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels attached to the outcome, and the consequences of the activity are optional and negotiable'*. In contrast to traditional playing and toys, computer games take place in a computer-mediated, virtual (fantasy) world in which the game-player is an actor (Steuer, 1992). Further, games use state-of-the-art animation, high-definition video and other multi-media applications in order to create a rich, animated and playful environment. As a result, players are immersed into virtual worlds filled with stunning graphics and compelling story-lines (Amory et al., 1999). Besides their digital feature, the interactive aspect of computer games allows players to dynamically interact with the game world and its characters. Since the game software responds interactively to the players' actions, the subsequent game situation is affected by the results of these actions, giving players a sense of active control over what is happening in the game (Federoff, 2002; Papastergiou, 2009; Vorderer, Hartmann & Klimmt, 2003). In addition, computer games provide challenge and competition, as each game includes a clear goal which the player is challenged to reach (Crawford & Peabody, 1997; Juul, 2005; Salen & Zimmerman, 2004). As a result, gaming is often perceived as a highly arousing, enjoyable and entertaining experience (Griffiths & Dancaster, 1995; Vorderer, Hartmann & Klimmt, 2003). Today, many different types of games can be found such as adventure, simulation, role-playing, shoot-em-up and strategy games. Games also come in different forms, ranging from traditional online games, massively multiplayer online games (MMGs) or massively multiplayer online role-playing game (MMORPG) which allow thousands of players to share a single game world, games that are played through game consoles such as the Nintendo Wii or Sony PlayStation, educational games that are especially developed for the purpose of teaching specific skills, advergames developed for the purpose of brand promotion (Calvert, 2008), and so on.

## 4. NEW ADVERTISING FORMATS

### 4.1 The emergence of new advertising formats

Now let's look at some of the new advertising formats which arose together with the new media discussed above. As discussed earlier, new media technologies have become an important marketing channel for companies in all industries. Since today, new media are omnipresent in people's lives, they offer advertisers new ways to reach their audience, next to traditional advertising channels. As a result, the past decade is characterized by the rise of various new, interactive advertising formats, causing the percentage of marketing budgets spent on television advertising to decline, while increasing the use of new media to reach target consumers (McGinnis, Gootman & Kraak, 2006).

However, as the number of advertising formats keeps rising, this implies an increase in the amount of advertising people are exposed to (Lee & Lee, 2007). In today's cluttered media environment, people are exposed to 1.500 to 4.000 commercial messages a day (Yeshin, 2006). In order to cope with this over-exposure, people tend to avoid this overload by filtering out irrelevant ad messages or avoiding advertisements in general. Consequently, marketers are forced to compete for the limited attention resources of consumers (i.e. the 'war for eye balls', Schiessl et al., 2003).

As an additional challenge, new technologies also give consumers more control and choice over how they interact with, filter and skip marketing messages. In television advertising, for example, recent technological advances have empowered viewers to avoid commercials by fast-forwarding ads in recorded programs (i.e. zip through ads) thanks to personal video recorders and replay TV (Chowdhury, Finn & Olsen, 2007; Tse & Lee, 2001). This transforms passive viewers into active, critical users. To break through this advertising clutter, advertisers are forced to search for alternative ways of advertising in order to capture consumers' attention.



## 4.2 Characteristics of new advertising formats

Next to the medium driven properties (digitality and interactivity), there are also a few characteristics that result from this interactive and digital nature, and are specific to today's new advertising formats. In the following section, we discuss two of these characteristics which are especially relevant for advertising, namely simultaneous exposure and integration.

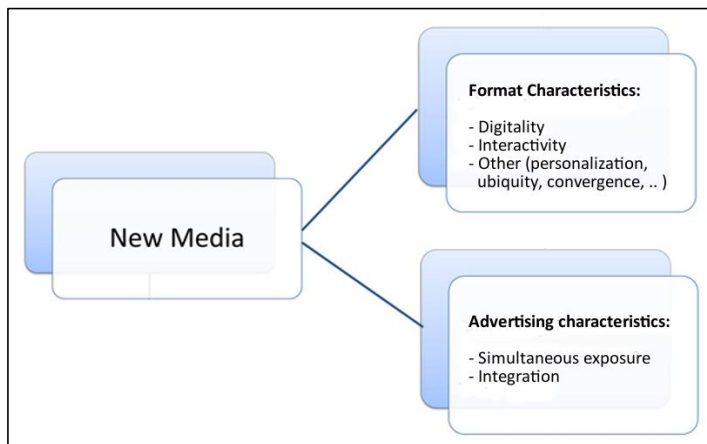


Figure 3: Summarizing the format and advertising characteristics of new media

### 4.2.1 Simultaneous exposure

As a means to avoid ad-skipping, commercial content is nowadays often presented simultaneously with the media content. This means that, contrary to traditional advertising where advertising messages and programming are presented sequentially, simultaneous exposure presents the viewer with the commercial messages and the programming at the same time. This type of simultaneous exposure is already prevalent on the Internet in the form of banner advertising, search-based ads or streaming videos that are integrated in the same visual field as the content on a website (Chatterjee, 2008). With the arrival of iDTV, simultaneous presentation of programming and advertising can also be achieved in television advertising through split screens, pop-up

ads or banner ads (Steinberg 2002). Using picture-in-picture technology (Lekakos, Papakiriakopoulos & Chorianopoulos, 2001), advertisements can be shown simultaneously with the ongoing television program (often shown in the upper-right corner, see figure three). This implies that viewers who zap or zip through the commercials also miss a part of the television program. Currently, some types of television programs such as live sports or entertainment programs use these types of advertising since they do not have natural breaks to accommodate advertising inserts.



Figure 4: example of a split-screen commercial format on Fox with the program (in the right upper corner) and the ad shown simultaneously (Source: <http://www.broadcastingcable.com>)

Although this type of presentation avoids ad skipping, it creates a form of '*forced exposure*' as consumers are forced to view the ads while they view the program. In addition, the viewing of the program with the advertising creates a '*distraction*' paradigm where the program distracts from the processing of the advertising message. However, we elaborate more thoroughly on the disadvantages or pitfalls of this advertising technique later in this chapter.

#### 4.2.2 Integration

A second technique to avoid ad skipping is to integrate the persuasive message *into* the media content. In a way, integration is an extended form of simultaneous exposure. But in contrast to the techniques described above, the integration of commercial messages in media content does not result in two separate forms of communication shown at the same time. Rather, the commercial content and the media content are routinely integrated or intertwined with each other, again exposing viewers to the commercial message and the media content at the same time (Mallinckrodt & Mizerski, 2007).

An example of integrated advertising is product placement or brand placement, which can be defined as *“the paid inclusion of branded products or brand identifiers through audio and/or visual means within mass media programs”* (Balasubramanian, Karrh & Patwardhan, 2006, p.115). With this technique, the audience is exposed to the brands and products during the natural process of watching the movie, television program, or content vehicle. (Cebrzynski, 2006). This way, product placements become part of the mediated content, avoiding the obtrusiveness of classical ad formats and thus avoiding advertising reactance (Edwards, Li & Lee, 2002). Although originally used in movies and television programs to lower the production costs, brand placements now frequently appear in video games, novels, magazines, comics, music videos, radio, blogs, Internet websites and mobile messages as well (Campbell, Mohr & Verlegh, 2007; Williams et al., 2011).



From left to right: Figure 5: product placement for Coca Cola in the television show 'American Idol' (source: <http://www.telegraph.co.uk>). Figure 6: product placement for Mercedes in the movie 'Sex and the City 2' (source: <http://www.brandchannel.com>)

This type of brand integration into another type of communication is a clear example of blurred lines between commercial communications and entertainment, a technique which has become highly popular in recent years (Solomon & Englis, 1994). The result, however, is that more and more concerns are being raised regarding the ethics and legality of placement practices. Several critics describe the practice as deceptive and unfair, particularly when children are involved (Avery & Ferraro, 2000; Nairn & Fine, 2008). These ethical concerns are further elaborated on later in this chapter.

### **4.3 Discussing three new advertising formats**

We now discuss three specific new advertising formats, each linked to one of the three new media discussed above.

#### **4.3.1 Interactive websites**

As one of the most important 'new media', the Internet offers numerous types of advertising formats ranging from banner ad, pop-ups, floating ads or overlay ads, streaming video's, personalized advertising on social networks, direct mailing, search engine marketing (SEM) and search engine optimization (SEO), and so on. In this dissertation, we focus on interactive websites as communication and advertising tool. People can interact with the web by browsing different websites. A website is a repository of information which can be accessed through a Web browser. By specifying the URL (uniform resource locator) of the homepage, a user enters the website. Other pages in the same website can then be accessed either through hyperlinking or through search services provided by the site. The process of traversing within a website and collecting information is called website browsing or navigation.

As a marketing communication tool, interactive websites contain various advantages. Providing 24/7 access, as well as the possibility to interact with consumers and actively engage them with the content, interactive websites offer advertisers the opportunity to attract new audiences, customers, followers or members, and renew their relationship with the existing ones (Fill, 2000; Ingenhoff & Koelling, 2009). In this regard, online

communications offer marketers new ways to engage public audiences which traditional ad formats do not (Cugelman, Thelwall & Dawes, 2011). In addition, interactive websites also enable the collection of online customer data in order to better target marketing appeals (McMillan, 2004). These are all properties that are not only potentially interesting for commercial marketers, but for social marketers as well. For example, recent studies show that the Internet has become an important medium for consumers who seek health information and health care services online. A 2010 Pew Internet survey estimated that in the United States, 59% of adults go online to look for health information. Further, 25% of those respondents read someone else's commentary or experience about health or medical issues on a news-group website or blog. In Europe, it is estimated that 70% to 90% of internet users access health information online (Ratzan, 2011). However, the potential of interactive websites for social marketing communication is not limited to healthcare, but can be extended to various other social topics. For example, governmental or nonprofit organizations focusing on various topics like safety, environment or sustainability may use the advantages provided by the Internet to develop a multipurpose website for a wide audience. In short, the use of interactive websites does not only offer widespread access to different kinds of information, it also offers the advantages of interactivity, information tailoring and anonymity (Cline & Haynes, 2001; Eysenbach, 2000).

#### 4.3.2 Telescopic ads

The second new medium, iDTV, also offers new advertising opportunities through its combined characteristics of television and the Internet. Among others, iDTV advertising formats include on-screen placements of banners, logos and pop-ups, split-screen advertising, personalized advertisements, red-button applications, and so on (Cauberghe & De Pelsmacker, 2006, 2008; Chowdhury et al., 2007; Lekakos & Giaglis 2004; Thawani, Gopalan & Sridhar, 2004). In this dissertation, however, we focus on one specific iDTV ad format, namely the **telescopic ad** or the microsite. This telescopic ad consists of a traditional *'30-second TV ad with a call-to-action button with clickable content or micro sites featuring individual still screens providing additional product information'* (Bellman & Varan, 2004, p.2). When the viewer clicks on the call-to-action

button, he or she leaves the linear broadcast stream to enter a dedicated advertising location (DAL). There, the viewer can navigate through the additional information, which can be structured in different layers. To avoid viewers missing part of their program while navigating in the DAL, the microsite format allows people to follow their program using the picture-in-picture technology we discussed earlier (Lekakos, Papakiriakopoulos & Chorianopoulos, 2001). For commercial goals, this format is promising (Reading et al., 2006). However, the question arises whether this new interactive advertising format can also be useful for public-service announcements (PSAs). In the past, iDTV has proven its value in creating user interaction with the broadcasted program (Teixeira et al., 2010), community building (Mantzari, Lekakos & Vrechopoulos, 2009) and e-learning (Santos et al., 2011), which also suggest a potential for social marketing purposes.

Although the use of telescopic ads has not yet been investigated in a social marketing context, we have included this new advertising format in our research because recently, a few projects have demonstrated the potential of iDTV technology and the related advertising formats in a social marketing context. Both the Portuguese iDTV HEALTH project and the Finnish Caring TV (Hyvinvointi TV) were set up in order to evaluate the potential of iDTV to support personal health care and wellness of older people. According to these projects, iDTV can be an excellent platform of health content distribution among seniors, contributing to the development of E-health services. Using an iDTV platform including different microsites, two-way communication between a broad range of users, including patients, family, health services and care professionals is offered, together with additional interactive and participatory TV-programs. These initiatives show that iDTV solutions can contribute to social marketing, in this case to healthcare and health communication (Baptista et al., 2013; Kippola, 2009).

#### **4.3.3 Advergames**

The third and final medium we discussed was a digital game. Again, several different game-related advertising formats can be found, ranging from in-game advertising or brand placement in games (i.e. the integration of branded products or brand logos into existing computer games (Lee et al., 2009; Yang et al., 2006), commercial mobile game

applications, to advergames. We choose to focus on **advergames**. These are interactive digital games that are especially designed to promote a brand and allow interaction with the brand or the brand character, linking the product or brand to rewarding stimuli (Bailey, Wise, & Bolls, 2009; Mallinckrodt & Mizerski, 2007; Nairn & Fine, 2008; Lee et al. 2009). Because of this interaction, this hybrid advertising format evokes a certain degree of activity with the consumers, hereby engaging them with the branded content rather than just passively exposing them to it (Van Reijmersdal, Rozendaal & Buijzen, 2012).



Figure 7: online advergame for the dairy product Paula pudding (source: <http://www.pauladekoe.nl/>)

Besides highly popular advertising tools, more and more studies argue that games can also be powerful learning tools (Klopfer & Squire, 2008; Mitchell, Dede, & Dunleavy, 2009; Gee, 2003). When used for purposes other than mere entertainment, these games are referred to as serious games. Besides being a fun activity, serious games also involve pedagogy, thereby offering a new and interactive learning experience based on learning by doing (Schaffer et al., 2005). The benefits of video games as learning tools have been extensively documented in various studies. Among others, due to their fun and engaging nature, games are said to attract and maintain attention, increase player engagement and interest in the subject, promote a more positive attitude towards learning and enhance behavior change through enhanced motivation (Bourgonjon et al., 2010; Ryan, Rigby & Przybylski, 2006). To date, this positive learning effect has mainly been confirmed in educational domains such as languages, history, mathematics; etc. (Papastergiou, 2009). However, several studies also suggest a potential for games as social marketing tools. To date, this potential has mainly been studied in the domain of health communication and health education (Brown et al., 1997; McPherson et al., 2006;

Pempek & Calvert, 2009). However, several studies suggest that games can also be used to promote desirable behavior change in other domains (De Grove, Van Looy & Courtois, 2010; Mallinckrodt & Mizerski, 2007; Mankoff et al., 2010). In this case, games could potentially be interesting new tools to integrate in various social marketing campaigns or social education programs (e.g. at schools), making them more enjoyable and increase engagement while fostering better behavioral outcomes (Baranowski et al., 2003). Today, we notice an increase in interactive games that complement or substitute traditional social marketing campaigns, targeting both children and adults. Also in academic literature, there is a growing importance of gaming in a social marketing (Baranowski et al., 2008; Daley, 2009; Howell, 2005; Papastergiou, 2009; Pempek & Calvert, 2009; Thompson et al., 2008). This can be illustrated by the fact that in 2012, the Games for Health journal was launched to discuss the development, use, and applications of game technology for improving physical and mental health and well-being.

#### **4.4 Advertising opportunities**

Besides affecting people's general cognitive, affective and behavioral outcomes, interactivity is also seen as an important characteristic to enhance or optimize marketing communication. In this section, we take a look at the specific opportunities that interactivity (and the resulting feelings of flow and telepresence) entails for advertising and its effectiveness. In other words, we look at the positive effects of interactivity for marketers. For example, past research shows that flow experiences can attract consumers, soften price sensitivity, and positively influence subsequent attitudes and behaviors (Novak, Hoffman & Yung 2000).

According to the affect transfer mechanism (Baker 1999), when interactivity is embedded in the persuasive message, the positive consequences of telepresence and flow can also be transferred to the ad and the brand, leading to various positive advertising effects. In this case, the format in which the brands are embedded has an influence on the formation of brand attitudes and subsequently on behavioral intention through an unconscious mechanism. Indeed, a positive attitude towards the advertising



vehicle has been shown to carry over to the embedded advertisement (Brenngman & Geuens, 2004), which can in turn produce more positive evaluations of the brand and even affect behavior (Mallinckrodt & Mizerski, 2007). In terms of advertising effects, several studies have shown a positive effect of interactivity on brand and ad outcomes (e.g. Chung & Zhao, 2004; Ko, Cho & Roberts, 2005; Schumann, Artis & Rivera, 2001; Sicilia, Ruiz & Munuera, 2005).

When we specifically look at an Internet context, website interactivity has been shown to increase immersion (Coyle & Thorson, 2001) and involvement with the content (Sundar, 2007), but it also results in more intense information processing compared to traditional media or conditions of low interactivity (Ariely, 2000; Liu & Shrum, 2002). In addition, interactivity allows the creation of online brand communities, which can help to build a relationship between the consumer and the brand, support customer bonding and increase brand loyalty (Szmigin, Canning & Reppel, 2005). Indirectly, several authors found a positive causal relationship between telepresence or flow and consumer attitudes towards the website, the brand and their purchase intention (Huang, 2006; Klein, 2003; Mathwick & Rigdon, 2004; Novak, Hoffman & Yung 2000; Richard & Chandra, 2005; Suh & Chang, 2006). In an iDTV context, Bellman and Varan (2004) demonstrate that the impact of one exposure to an interactive ad with additional information equals that of three repetitive exposures to a traditional 30-second television ad in terms of brand recall, attitude toward the brand, and behavioral intentions. Reading et al. (2006) compared a traditional 30-second ad with an interactive telescopic ad and found a positive effect of interactivity on both attitude toward the ad and attitude toward the brand. Finally, in a gaming context, Dobrow (2004) compared an interactive advergame with traditional advertising forms and showed that advergames can increase brand recall, product awareness and customer loyalty more effectively than classical advertising media. According to Van Reijmersdal, Jansz, Peters and Van Noort (2010), this can be explained by the interactive aspect of advergames that allows actual interaction with the brand and leads to more positive attitudes toward the game, higher top of mind awareness of the brand, more positive brand images, and more favorable behavioral intentions. This was confirmed by several authors who found that making players interact with a brand through gaming may evoke feelings of telepresence, which in turn simulates actual product use, enhances

information processing, persuasion and subsequent behavior such as purchasing (Lee, 2004; Lee et al., 2009; Mallinckrodt & Mizerski, 2007; Sweetser & Wyeth, 2005).

#### 4.5 Advertising pitfalls

Next to the several opportunities discussed above, the characteristics of new media and the new advertising formats resulting from these new media also entail some pitfalls for advertising effectiveness. As discussed earlier, new media often entail new, alternative advertising techniques like brand integration and simultaneous exposure in order to break through the continuously increasing ad clutter and capture people's attention (Calvert, 2008; Moore, 2004). However, these techniques also entail a few challenges.

Compared to traditional advertising formats, integrated formats force the viewer to divide his or her attention between two simultaneous information sources or streams in order to understand and process this information. This may have a negative impact on advertising effectiveness (Cauberghe & De Pelsmacker, 2006). Earlier in this chapter we discussed the cognitive load theory (Kirschner, 2002) and the limited capacity theory (Lang, 2000; Lang et al., 1996) which state that once a certain level of cognitive load is exceeded, overload occurs resulting in reduced recall (Rose, Roberts & Rose, 2004). As one of the main factors that affects cognitive load is task complexity (Campbell, 1988; Hwang & Lin, 1999), it can be expected that integrated and/or simultaneous advertising formats are more complex than traditional advertising formats in which the programming and the commercial message are presented sequentially. This leads to a more substantial interference effect, which may in turn have a negative effect on information recall and advertising effectiveness (Fernandes & Moscovich, 2000; Furnham et al., 2002; Kumar, 2000). Similar pitfalls have been detected by Hoffman and Novak when it comes to flow and interactivity (1996). When navigating through a computer-mediated environment, consumers often experience feelings of flow. But next to the advantages that flow entails for advertisers (such as immersion in and more attentive processing of the persuasive communication), there are also some potentially negative consequences of flow that must be considered. Flow has, for example, also been linked to over involvement (Csikszentmihalyi, 1977), which leads to mental as well as

physical fatigue. This is in line with the cognitive load theory (Kirschner, 2002) and the limited capacity theory (Lang, 2000), stating that the overwhelming complexity which characterizes the new, interactive media context may lead to or result in cognitive fatigue (Gygi, 1990).

#### **4.6 Ethical concerns**

Next to the advertising opportunities and pitfalls, some ethical concerns are also raised regarding advertising in new media. As mentioned above, the integration of advertising in media content does not only make it impossible for viewers to skip the ads, it also implies that they are exposed to the commercial message and the media content at the same time. This integration makes it difficult for viewers to distinguish advertising from media content, often leading to blurred boundaries between advertising, entertainment and information (Raney et al., 2003). As a result, the use of these new integrated advertising techniques revives the debate about the ethics of advertising, especially when these techniques are targeting vulnerable groups such as young children. Although the discussion concerning the ethics of advertising goes back to the arrival of television (Bandyopadhyay, Kindrea & Sharp, 2001; Neeley & Schumann, 2004), the use of new, integrated and interactive advertising techniques makes this discussion more relevant than ever. Characteristics such as interactivity and integration, combined with the affect-based nature of contemporary advertising makes it even more difficult to recognize advertising as such. As a consequence, concerns are raised that these formats result in unaware and unconscious persuasion. As a result, new questions regarding the ethics of new ad formats are raised among academics, parents, government agencies, and industry experts (Bakir & Vitell, 2010; Nairn & Dew, 2007).

#### **4.7 Summing up: what is new about new media and why is this important?**

The concept of new media has been researched from various different disciplines and theoretical points of view. But whatever the perspective, it cannot be denied that media

have considerably changed over the last decades. The arrival of new media is associated with a drastic transformation of the media landscape, speeding up societal change and causing a number of technological and societal transformations in a surprisingly short amount of time (Creeber & Martin, 2009). As a result, new media have changed the way we think, act and communicate (Lister et al., 2003). As it turns out, this new media context also has some implications for marketing communication, causing the development of various new advertising formats. Due to aspects like digitality and interactivity, new media offer marketers the opportunity to interact with consumers and actively engage them with the advertising content (Tucker, 2011). These new advertising techniques raise challenges such as increased ad skipping behavior, and they also entail potential hazards such as cognitively overloading the viewer, with decreased information processing or even irritation as a result (Chen, Hsieh & Kinshuk, 2008). In commercial marketing, new media are already a well-established part of the communication mix. Today, major brands like Coca Cola and McDonalds are employing a panoply of digital marketing practices across a variety of platforms such as social networks, video games, online videos, instant-messaging and so on (Montgomery & Chester, 2009). In social marketing, implementation of new media is rising but still in its infancy.

But why is all this important? In sum, the insights from the first section of this introductory chapter bring us to the conclusion that today, the conditions under which people receive and process information are fundamentally different from the traditional media environment. As discussed earlier, the interactive nature of the media format and the integrated nature of the persuasive communication seems to affect people's content processing. Today, new media and the resulting new advertising formats are quicker, more interactive, often simultaneously showing different types of information and thus more difficult to process. On the other hand, this interactive nature also evokes different affective reactions which can be positive or negative depending on whether people can cope with and process this interactivity. As a result, this may have a profound impact on the way people process information in this new environment, which may in turn affect their behavior. Taking all this into consideration, the question arises whether we need to reconsider some traditional theories within persuasive communication as we know them. Therefore, there is a need to investigate whether this new media environment

affects our insight in some well-established and frequently studied theoretical frameworks in this domain. In the following section, we elaborate on three specific frameworks in the field of persuasive communication that we will apply to the new media context.

## **5. NEW MEDIA AND THE RE-EVALUATION OF THREE THEORETICAL FRAMEWORKS**

In order to investigate whether today's new media environment affects our insight in certain theoretical frameworks, it is necessary to first discuss each of three selected theoretical frameworks. Then, we look at how a changing media context may affect the insights we have to date for each of these models. Substantive evidence shows that the context in which a message is incorporated can influence people's cognitive (Moorman, Neijens & Smit, 2002; Shapiro, MacInnis & Park, 2002), affective (Coulter, 1998; Lord, Burnkrant & Unnava, 2001) and behavioral (Yi, 1990) responses to advertisements. As argued by several authors (De Pelsmacker, Geuens & Anckaert 2002; Van Reijmersdal, Smit & Neijens, 2010), differences in communication effectiveness often lie in format issues, as the characteristic of a specific medium (e.g. interactivity) can contribute to its effectiveness. Even when a particular content is similar across different media, some of the factors that contribute to its effectiveness will nevertheless differ as a function of the medium by which it is delivered. Each medium carries its own strengths and weaknesses, and each has its own constraints in the way in which content can be conveyed. In addition, the cognitive demands of processing and comprehending specific content in one medium may be greater than in other media. For this reason, it is important to investigate whether the main characteristics of new media may have a mediating or moderating impact on the operation of each of these three theoretical models.

## 5.1 Extended Parallel Processing Model (EMMP)

The first theoretical framework relates to the social marketing context of this dissertation. In order to obtain the desired behavior change, social marketers frequently use different persuasive communication strategies. One of the most commonly used and researched persuasive techniques in social marketing is threat appeals, i.e. emphasizing the negative consequences that will occur if a certain protective action is not taken, or a certain unhealthy behavior is performed (Witte, 1992). For example, social marketing campaigns will tell you that smoking increases your chances of getting lung cancer, that speeding can cause serious accidents or can even get you killed, that an unhealthy diet causes overweight, and so on. But why not just tell people to 'not drink and drive' or to 'eat healthy food'? Many academics and health educators believe that logical and reasoned messages do not get people to change their behavior. Instead, you have to get people emotionally involved and aroused before they will listen and act (Frijda, 1986; Witte, Meyer & Martell, 2001; Zeelenberg & Pieters, 2007). Therefore, social marketers often use risk messages or 'threat appeals' to gain compliance. Threat appeals arouse feelings of fear by promising negative consequences for not doing a certain behavior (the 'scare tactic', Witte & Allen, 2000). Because people don't want the negative consequences to occur and they are afraid of experiencing the negative consequences, they do what's suggested in the appeal. In other words, threat appeals evoke negative feelings with people, and then convince people that they can solve these unpleasant feelings of fear by performing the recommended behavior (Witte, 1992).

One of the most comprehensive frameworks on how threat appeals work is the Extended Parallel Processing Model (EPPM; Witte, 1992). Although there are several frameworks which attempt to predict how individuals will react when confronted with threat appeals, the EPPM is most commonly used as it is an integration of all the previous theoretical perspectives. In general, the EPPM suggests that risk messages initiate two cognitive appraisals – an appraisal of the threat and an appraisal of the efficacy of recommendations to avoid the threat. Based on these appraisals, one of three outcomes result – no response, a danger control response or a fear control response (Witte, Meyer & Martell, 2001). First, threat is appraised. This means that people will

think about the threat, how susceptible they are to it (*'Am I at risk for experiencing this threat?' - perceived susceptibility*) and whether the threat is significant (*'Could I be harmed by this threat?' - perceived severity*). When the threat is not perceived as relevant or severe, they will not be motivated to process the message any further. Consequently, there is no response (i.e. no attitudinal or behavioral change) to the threat appeal. In contrast, when people believe that they are vulnerable to the threat and/or the threat is sufficiently severe, feelings of fear are elicited, which can further motivate people to process the message and act. At this point, people appraise whether the recommended response or action can avert the threat (*'Can this threat be reduced if I adopt my behavior as recommended?' - response efficacy*) and their own ability to perform the recommended response (*'Am I confident that I can perform the recommended behavior?' - self efficacy*). When the threat is perceived as severe in combination with a high level of perceived efficacy, the threat appeal leads to a danger control process, which motivates individuals to process the message and protect themselves against the threat by adapting their behavior as suggested. When the perceived threat is strong but the perceived efficacy is low, individuals are not motivated to process the threat appeal and try to reduce the unpleasant fear experience by maladaptive responses (defensive avoidance mechanisms such as minimizing or denying the threat). This process is called fear control (Rippetoe & Rogers, 1987). In other words, only a combination of a perceived threat that is strong enough and a high perceived ability to avert the threat will motivate people to adapt their behavior following the recommendation in the message (Blumberg, 2000). While the perceived threat determines the strength or how much of a response there is to a risk message, the perceived efficacy determines the nature of the response - whether a risk message induces danger control or fear control processes (Witte, Mayer & Martell, 2001).

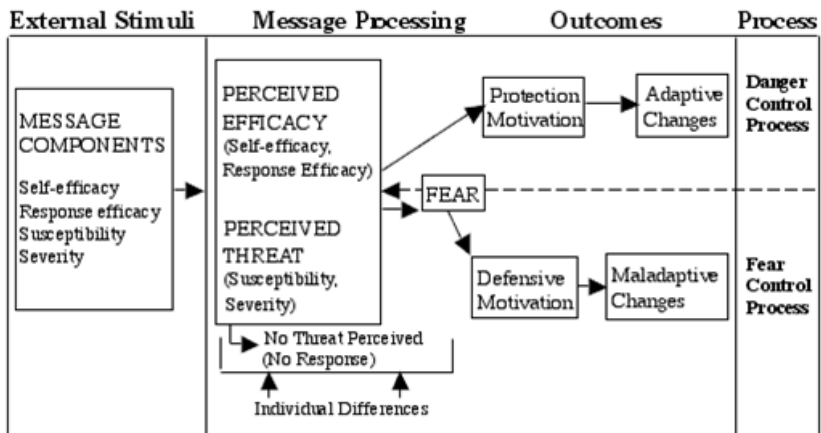


Figure 8: The Extended Parallel Processing Model (EPPM; Witte, 1992)

Although the effect of threat appeals is well documented (e.g. Cauberghe, De Pelsmacker, Janssens & Dens, 2009), little or no research can be found on the impact of threat appeals in an interactive media environment. To date, academic research has mainly been conducted in traditional media such as public service announcements (PSAs) on television or radio and print materials like newspaper articles, posters, brochures, and flyers (James et al., 2013). As the interactive nature of new media may possibly influence the effectiveness of fear appeals, there is a need to test the basic assumptions of the EMMP in a new, interactive media environment.

### 5.1.1 The EPPM and the new, interactive media environment

Compared to earlier, traditional communication channels, the arrival of new media and advertising formats entails new ways to evoke feelings of fear using threat appeals. In an Internet context, for example, feelings of fear can be evoked by integrating threat appeals in the website content, in a streaming video, in pop-up or banner ads and in other interactive features or formats which can be present on a website. Using the innovations of IDTV, marketers may also evoke fear by integrating threat appeals in multiple sources: the preceding program context, the traditional 30-second ad or public service announcement and the additional interactive information in the DAL. In an online gaming context, threat appeals may be included in the homepage, a cue which



precedes the game, and in the game itself. But these multiple sources to evoke threat are not the only characteristic distinguishing new media from traditional ones. As we have discussed before, new media are digital and interactive, while traditional, mainstream media are not. These digital and interactive nature allows new media to increase the vividness of the message, defined by Steuer (1992, p.81) as *'the representational richness of a mediated environment as defined by its formal features'* or in other words *'the way in which an environment presents information to the senses'*. As interactivity and vividness are the two main antecedents of telepresence, new media and advertising formats are expected to evoke strong feelings of telepresence. However, in this new context with multiple sources, it is not clear what the optimal level of evoked threat should be in order to arouse telepresence. In addition, once telepresence occurs, the question arises whether or not telepresence may enhance the effectiveness of threat appeals and thus influence behavior. In other words, there is a need to investigate whether telepresence as a processing variable may advance adaptive danger control or maladaptive danger control processes.

On the other hand, the interactive nature of new media may also be a disadvantage or drawback for people's processing of – and thus also the effectiveness of – threat appeals. Earlier, we discussed that when the cognitive load evoked by the medium is too high (e.g. due to a too high level of interactivity), this may lead to cognitive fatigue, which results in decreased information processing and memory. As a result, this may distract people from the threat appeal or reduce its processing, effect of fear appeal, and so impede a danger control process and adaptive changes. Therefore, there is a need to investigate new antecedents and moderating variables for the EPPM, taking the main characteristics of today's new media context into account.

## **5.2 Persuasion knowledge Model**

The Persuasion Knowledge Model (PKM, Friestad & Wright, 1994) is the main theoretical model describing people's advertising processing. According to this model, persuasion knowledge is the personal knowledge that consumers develop about marketers' motives and tactics. This knowledge helps them to identify how, when and

why marketers are trying to influence them (Friestad & Wright, 1994). In literature, persuasion knowledge is often described as a 'radar' which is activated when an ulterior motive of persuasion is perceived. In this case, the presented information is processed critically, which may lead to negative attitudes or a diminished desire to buy the advertised product (Brucks, Armstrong & Goldberg, 1988; Gunter, Oates & Blades, 2005; Knowles & Linn, 2004; Livingstone & Helsper, 2006; Robertson & Rossiter, 1974). However, people are not born with this knowledge. Rather, persuasion knowledge develops together with a person's general cognitive capacities and information processing skills (McAlister & Cornwell, 2009; Moses & Baldwin, 2005; John, 1999). Consequently, with young children, this advertising-related knowledge is still underdeveloped, making them less able to critically process the ads they encounter and thus more susceptible to its persuasive appeal than adults (Brucks, Armstrong & Goldberg, 1988; Gunter, Oates & Blades, 2005). As people's cognitive skills develop and they gain more advertising experience, they begin to recognize the nature and understand the intent of commercial messages. Until that point, advertising is often considered as unethical or unfair, as persuasion may appear at an unconscious level (Moore, 2014).

### **5.2.1 The PKM and the new, interactive media environment**

As mentioned before, one of the main characteristics of today's new commercial media environment is the fact that increasingly more commercial messages are integrated into or embedded in the media content in order to reduce ad skipping. However, this practice also raises some concerns as distinguishing between advertising and media content becomes even more difficult than with traditional ad formats. For this reason, there is an urgent need to test the basis insights of the PKM with contemporary, interactive media formats, as the problem of unconscious persuasion is expected to be larger than with traditional media. First, the embedded and subtle nature of these formats, combined with people's limited experience with these new formats makes it unlikely that viewers will retrieve and apply their advertising knowledge as a critical defense when exposed to these formats. This is the case for adults, but mainly and especially for young children with underdeveloped persuasion knowledge (Buijzen, Van Reijmersdal & Owen, 2010;

Livingstone, 2009; Owen, Hang, Lewis & Auty, 2012). Indeed, recently two studies confirmed that children find it difficult to understand the commercial nature of non-traditional advertising techniques (Mallinckrodt & Mizerski, 2007, Owen et al., 2010), resulting in implicit processing of the persuasive message (i.e., processing without awareness of the brand or persuasive intent of the format; Auty & Lewis 2004; Buijzen, Van Reijmersdal & Owen 2010). This raises the question whether the basic insights of the PKM actually apply with today's new advertising formats. In addition, new advertising formats often integrate the commercial message into a highly interactive, fun and appealing context like an interactive game or website (Wollslager 2009; Hsu & Lu, 2004). Indeed, the digital, interactive and highly vivid nature of new media may evoke strong feelings of telepresence, which can in turn lead to stronger, more positive attitudes as well as complete absorption in the content (Hoffman & Novak, 1996; Ryan, Rigby & Przybylski, 2006). Due to this affect-based nature of contemporary advertising it is argued that the probability of cognitive defense activation becomes even lower because viewers are swayed by the attractiveness and immersiveness of the interactive advertising format (Moore, 2004). To date, the PKM has mainly focused on cognitive responses to advertising. However, more recent findings regarding judgments and behaviors related to advertising (e.g. Nairn & Fine, 2008) argue that these are not only determined by cognitive responses, but also by affective associations with the advertisement. Today, digital advertising is increasingly designed to foster emotional and unconscious choices, rather than reasoned, thoughtful decision making (Montgomery & Chester, 2009). Consequently, new marketing strategies often do not communicate rational or factual appeals, but bypass a consumer's persuasion knowledge and persuade implicitly or 'under the radar' by promoting subtle affective associations (Nairn & Fine, 2008). As a result, new advertising formats are often associated with unconscious, implicit persuasion. So today more than ever, this generates discussion about the ethics of these kinds of practices. This is especially the case for young children, as little is known about their (in)ability to resist this kind of affect-based persuasion (Van Reijmersdal, Rozendaal & Buijzen, 2012).

In addition, research on children's critical reflections concerning advertising suggests that children's values and norms towards advertising practices in general are important variables to include in the advertising literacy concept. This is especially relevant with

new advertising practices like advergames, where advertisements are integrated into the content in order to reduce children's skepticism and create more openness to a brand message. These moral judgments appear to be a crucial aspect in attenuating the advertising effects. However, although the Persuasion Knowledge Model originally included this appropriateness or moral acceptability, research investigating how these moral judgments affect advertising effectiveness is non-existent (Friestad & Wright, 1994; Nelson, Wood & Paek 2009). As a result, there is a need for research regarding the adoption of the PKM in today's, interactive and integrated advertising environment, with an additional focus (next to the cognitive aspect) on the affective and moral dimension of advertising literacy on the processing and effectiveness of today's advertising formats.

### 5.3 Congruence Theory

Advertisers and media planners have known for a long time that the effectiveness of an advertisement is not only determined by the number of viewers who watch an advertising message but also by the surrounding context in which the advertisement is placed or embedded (Furnham, Bergland & Gunter, 2002; Furnham, Gunter & Richardson, 2002; Furnham, Gunter & Walsh, 1998; Hoffman & Batra, 1991; Horn & McEwan, 1987; Kamins et al., 1991). For this reason, advertisers try to enhance the effectiveness of their advertising messages by positioning them in the right editorial context (Sharma, 2000). Numerous studies have been conducted on this topic, investigating different context variables to explain the effectiveness of commercials such as the position of the ad (Schwerin, 1960), the mood induced by a program (Axelrod, 1963), program involvement (Bryant & Comisky, 1978; Soldow & Principe, 1981) and so on. For the third and final theoretical model in this dissertation, we focus on the congruence between the media context and the advertisement (described as '*the degree of similarity between the program content and the advertisement content*' Furnham, Gunter & Richardson, 2002, p.126). Congruence between a commercial and an editorial context may appear in many forms, such as thematic congruence of the commercial and media content (Cauberghe, De Pelsmacker & Janssens, 2008), congruence between the mood induced by the context and the ad (Faseur & Geuens, 2007; Kuvaas & Kaufmann,

2004), congruence between the nature of the context and the ad (e.g. cognitive versus affective, Sharma, 2000) congruence between the ad and media channel (Dahlèn, 2005), congruence between the presentation modality of the context and the ad (e.g. visual vs. auditory; Areni & Cox, 1994). Although there has been a substantial amount of research on this matter of context – advertisement congruence, the results on this matter are far from univocal.

According to one stream of research, congruence is expected to have a more positive effect on the processing and memorizing of information than incongruence. The cognitive priming theory postulates that advertisements placed in a media content of similar nature or content will be remembered better than when they are placed in a wholly dissimilar media content (Sanbonmatsu & Fazio, 1991). In this case, the media content can serve as a cognitive prime, activating specific information that influences or facilitates the processing of the subsequent ads (Herr, 1989; Yi, 1990,1993). According to this rationale, an advertisement for cars is expected to be recalled better when placed in a congruent television show (e.g. a TV show about motor vehicles) than when it is placed in an incongruent program (e.g. a cooking program). This notion for congruence between two message elements can also be found in several other theoretical frameworks like the spreading activation model (Murphy & Zajonc, 1993; Wentura, 1999), the Schema Theory (Rumelhart & Norman, 1976), the Match-up Hypothesis (Kamins, 1990), the Meaning Transfer Model (McCracken, 1986) and the Balance Model (Heider, 1946). These models all suggest that matching or congruent information (in contrast to incongruent information) facilitates processing because the relevant knowledge structures have been activated (Fazio et al., 1986; Wentura, 1999). In other words, the information is expected, easier to understand and therefore less demanding in cognitive effort.

In addition, congruence is also expected to evoke more positive affective responses than incongruence. According to the cognitive priming theory, a congruent medium context makes consumers more susceptible to the information in the ad and prompts them to evaluate the information and the ad more positively (Fazio, 2001; Herr, 1989; Klauer & Musch, 2003; Yi, 1990,1993). Congruence, it is argued, allows predictability and therefore evokes positive responses because it is in line with people's expectations

(Aaker & Brown, 1972; Campbell & Goodstein, 2001; Cannon, 1982; Feltham & Arnold, 1994; Goodstein, 1993; Sengupta et al., 1997).

This line of reasoning is confirmed by Mandler in his **Congruence theory** (also referred to as the Schema Congruity Theory, 1982). He begins his theory with the proposition that congruence leads to a favorable response because, other things being equal, people like objects that match with their expectations and allow predictability. However, he argues, although congruence is more easily processed, it is not very noteworthy and therefore unlikely to prompt extensive cognitive elaboration. Incongruence, on the other hand, may be perceived as more distinctive and interesting than congruent information. As a result, the unexpected element of incongruence has the potential to attract attention and trigger curiosity and increase arousal, which in turn leads to a greater cognitive elaboration and thus a more detailed processing in order to resolve the incongruity (Heider, 1946; Mandler, 1982; Meyers-Levy & Tybout, 1989, Yoon, 2012).

Next to a more elaborate cognitive processing, Mandler (1982) argues that (in)congruence may also influence people's affective responses. According to his theory, incongruence is expected to result in positive affective reactions, but only when this incongruence is successfully processed and resolved. Once incongruence is resolved, positive feelings of satisfaction, relief, efficiency and control are evoked (Lee & Schumann, 2004). These feelings have a positive impact on evaluations and attitudes, which may in turn improve advertising effects. On the other hand, incongruence that remains unresolved evokes negative affective reactions (Mandler, 1982). When people are not able to successfully resolve the incongruence, this may generate cognitive elaboration, but this processing of incongruence then results in negative feelings of frustration (Meyers-Levy & Tybout, 1989). To date, it remains unclear which factors incite people's processing of incongruent information. Previous studies suggest that both individual characteristics (e.g., motivation, tolerance for ambiguity) and contextual factors (e.g., time to process information, situational involvement) may impact the processing of incongruent information. In light of today's changing media environment, however, there is a growing need to investigate the moderating impact of new media characteristics on people's processing of (in)congruent information.

### 5.3.1 Congruence theory and the new, interactive media environment

Recently, more and more literature can be found which supports Mandlers preference for incongruent, rather than congruent, conditions (Dahlen et al., 2008; Fleck & Maille, 2010; Lee & Schumann, 2004). Especially in today's cluttered media environment in which consumer attention is a scarce resource, the question rises whether incongruence could be an affective new advertising strategy to attract people's attention. As discussed earlier, one of the main characteristics of the new advertising context is the fact that commercial messages are often integrated into or shown simultaneously with the media content. This raises the question whether traditional insights in the congruence theory still apply during simultaneous exposure.

Compared to a traditional advertising context, in which media and advertising content are shown in a sequential manner, simultaneous exposure to both commercial and media content implies that viewers have to switch from one media context to the other and back, dividing their attention between both information sources. Several studies have found that divided attention leads to a reduction in memory performance and recall (Craink, Govoni, Naveh-Benjamin & Anderson, 1996; Fernandes & Moscovitch, 2000). This can be explained by the interference effect, defined as *'the process by which our ability to recollect information is hindered by our exposure to some other information'* (Kumar, 2000, p.155). According to Furnham, Bergland and Gunter (2002), this interference effect is more substantial when the advertisement and the program context are thematically congruent than when they are incongruent. When an advertisement is placed within media context of similar content, elements of the media content and the advertisement merge together in a phenomenon known as 'meltdown'. This means that distinguishing between elements from both information sources becomes more difficult (and demands more cognitive resources) than when the ad and the media content are substantially different or incongruent. As congruent stimuli compete for attention, they may interfere with each other, inhibiting the retrieval of separate information items, lowering both memory and processing capacity and thus resulting in impaired recall (Kumar, 2000; Kuvaas & Kaufmann, 2004). In addition, this meltdown leads to confusion among viewers which may in turn lead to negative feelings and ad evaluations (cf. Moore et al., 2005).

This implies that in case of simultaneous exposure, advertisements should be integrated in content which is sufficiently different, in order to avoid this meltdown. However, it is possible that in an interactive new media context, the combination of interactivity, divided attention and the processing of incongruent information becomes too cognitively demanding, resulting in a cognitive overload effect (Sanbonmatsu et al. 2003; Shapiro, MacInnes & Park, 2002). To date, the majority of congruence research has been conducted in a traditional media environment. However, there is a need to test the current insights on (in)congruence in today's new media environment, as simultaneous exposure may lead to a different processing of (and lead to different affective reactions to) ad-context congruency a than sequential exposure.

To date, a few studies have investigated the congruence effect in a new media context, but their results are ambiguous. One stream of research argues that when it comes to cognitive processing, thematic congruence leads to better results during simultaneous exposure than incongruence. According to this point of view, incongruence may lead to consumer confusion, and even cause consumers to tune out the message, especially in a highly cognitive demanding situation (Mitchell & Papavassiliou, 1999). Congruence, it is argued, also leads to more positive evaluations of the ad than incongruence (in a web advertising context: e.g. Shamdasani et al., 2001; Choi & Rifon, 2002; Edwards, Li & Lee, 2002; Moore, Stammerjohan & Coulter, 2005, in an advergame context: Wise et al., 2008).

However, a second stream of research suggests that incongruence leads to a more optimal cognitive processing than congruence, as simultaneous exposure may lead to even more pronounced interference than a linear exposure setting. Compared to a traditional ad context, simultaneous exposure to the ad and the media context becomes more complex as viewers have to divide their attention between both information sources to understand and process all available information. This process can induce interference (Janssens, De Pelsmacker & Geuens, 2012), leading to a decrease in information storage and thus lower recall (Furnham et al., 2002). Indeed, the study by Moore, Stammerjohan and Coulter (2005) shows that incongruence between the product on the banner and the website the banner is placed, on has a more favorable effect on recall and recognition.



In sum, when testing the Congruence Theory in a new media environment, the question which should be addressed is whether the traditional insights also apply in a simultaneous exposure condition.

## 6. RESEARCH QUESTIONS

As little or no studies have investigated the impact of these persuasive appeals in an interactive media environment, the general research aim of this dissertation is to test the implications of today's changed new media context on our understanding of three well-established theoretical frameworks, namely the Extended Parallel Processing Model (EMPP; Witte, 1992), the Persuasion Knowledge Model (Friestad & Wright, 1994) and the congruence theory (Kumar, 2000). By means of five empirical chapters, each containing one or more experimental studies, we shed a light on three main research questions:

The first research question discusses the Extended Parallel Processing Model (Witte, 1992). Although the effect of threat appeals is well-established and frequently researched (e.g. Cauberghe, De Pelsmacker, Janssens & Dens, 2009; Hastings, Stead & Webb, 2004; Meijnders & Midden, 2001; Rogers & Thistlethwaite, 1970; Ruiter et al., 2004; Sternthal & Craig, 1974; Witte & Allen, 2000), research has mainly been conducted in traditional print/television advertising. Therefore, the second research question of this dissertation focuses on the effectiveness of threat appeals in an interactive new media environment. In addition, we assess the importance of telepresence as a processing variable of threat appeals.

*RQ1: Do the basic assumptions of EPPM still apply in an interactive new media environment?*

The second research question refers to the second theoretical framework, Friestad and Wright's (1994) Persuasion Knowledge Model (PKM). As discussed earlier, this model

provides valuable insights, but its shortcoming is that it is merely based on research concerning traditional advertising rather than on new, contemporary advertising formats. Today, new interactive and embedded advertising formats form a new environment for the PKM, with several great challenges which were not applicable in traditional media. It is possible that today's new, interactive advertising formats use different persuasion mechanisms than traditional ones, which has important implications and demands a re-evaluation of the PKM as we know it. Therefore, the second research question of this dissertation aims to hold the PKM against the light of this new media environment, reading:

*RQ2: Do the traditional insights in the Persuasion Knowledge Model still apply in an interactive new media environment?*

The third and final research question refers to the (in)congruence theory. To date, the long held reasoning in traditional literature is that information processing and recall improves under conditions of congruity, while incongruity impedes information processing and leads to decreased attention, memory and processing capacity (Forgas, 1995, 2001; Kuvaas & Kaufmann, 2004). However, recent studies argue that incongruity may be a more effective strategy in today's new media and advertising environment. First, due to the increased integration and simultaneous exposure of media and advertising content, incongruence may be an effective way to avoid interference and the subsequent meltdown effect (Janssens, De Pelsmacker & Geuens, 2012). Second, research shows that incongruence has the potential to increase attention and information processing, which could be highly interesting in today's cluttered media environment in which consumer attention is a scarce resource. However, incongruence only appears to be an interesting communication strategy provided that this incongruence can be processed and resolved (Fleck & Maille, 2010). Today, however, insights in which factors can facilitate the processing of incongruent information are still lacking, especially in a new, interactive media environment. Consequently, there is a need to investigate whether the traditional insights also apply in a simultaneous

exposure condition and whether elements of new media may enhance processing of incongruence. This brings us to the first research question, which reads:

*RQ3: How does the (in)congruence theory apply to an interactive new media environment?*

## 7. DISSERTATION OUTLINE

In order to answer the research questions, each of the three theoretical models discussed above is tested in an interactive media context. Earlier in this chapter, we discussed three different media formats, namely the Internet, iDTV and digital games, and three new advertising formats which emanate from these formats. These are the formats on which we will focus in the empirical chapters of this dissertation.

So next to the introductory chapter (chapter 1) and the final concluding chapter (chapter 7), this dissertation consists of five empirical chapters which each investigate the effect of one of the three persuasive communication theories in one of the three new media contexts (for an overview, see table 1).

	iDTV	Internet	Digital games
Extended Parallel Processing Model (EPPM)	Chapter 2: testing the EPPM in an interactive iDTV context		Chapter 3: testing the EPPM in a traditional vs. an interactive gaming context
Persuasion Knowledge Model (PKM)			Chapter 4: examining the impact of PK in an advergame context
Congruence Theory	Chapter 5: testing the congruence theory during simultaneous exposure in an iDTV context	Chapter 6: testing the congruence theory in an interactive website context	

Table 1: general overview of the empirical chapters

Although we investigate the effect of an interactive, new media context on both cognitive (processing) and affective (liking) variables, the main dependent variable throughout all

studies is behavior, or behavioral intention. As this dissertation is situated within a social marketing context, the main dependent variables of these studies include different kinds of social behavior, from accepting a new behavior (donating money to charity), rejecting a potentially undesirable behavior (buy and consume unhealthy food products), modify a current behavior (increase dental hygiene) or abandon an old undesirable behavior (speeding).

Below, an overview is given of each of the five empirical chapters, together with their research topic:

**Chapter 2:** Impact of an Interactive Anti-Speeding Threat Appeal: How Much Threat Is Too Much?

In this study, we investigate the basic assumptions of the Extended Parallel Processing Model (EPPM) in an iDTV environment, incorporating fear appeals in the interactive DAL, as well as in the program and the public service announcement. In order to determine which amount of fear should be induced in order to generate the highest persuasive impact, this study tests the impact of threat appeals in an iDTV context and assesses the importance of telepresence as a processing variable. More precisely, we measure the impact of three levels of threat on feelings of telepresence. In addition, we examine the influence of telepresence and the mediating impact of perceived response efficacy on behavioral intention, in this case the intent to reduce speeding behavior.

**Chapter 3:** Promoting Dental Hygiene to Children: Comparing Traditional and Interactive Media Following Threat Appeals

Again, using the threat appeals as persuasive strategy, this study investigates the effect of threat messages concerning dental hygiene on children's behavioral outcome, and how this effect is moderated by the type of medium used to communicate subsequent health information after the threat appeal. More specifically, we compare an interactive computer game to an information brochure and a narrative story (for instance, told in a classroom), as these are the most frequently used educational tools for children today. The desired behavior is measured through children's snack choice (healthy versus

unhealthy) as the goal of the campaign is to increase children's dental care, among others by eating healthy, low-sugar snacks.

**Chapter 4:** Comparing TV ads and advergames targeting children: the impact of persuasion knowledge on behavioral responses

In this chapter, consisting of two separate studies, we empirically investigate children's use of persuasion knowledge and its influence on children's susceptibility to advertising. In the first study, we try to provide insight on this knowledge when children are exposed to different advertising formats. More specifically, we compare the underlying persuasion mechanism for a traditional TV spot vs. an interactive advergame. In the second study, we examine the impact of persuasion knowledge evoked by a commercial and a non-commercial advergame on persuasive effects.

**Chapter 5:** The effect of divided attention on the processing of congruent versus incongruent information in an iDTV context: the mediating role of Need For Cognition

In this study, we investigate the cognitive interference effect in an iDTV context during simultaneous exposure. Using eye tracking and recall measures, the impact of thematic congruence between an ad and a TV program and the personality trait need for cognition are investigated on (1) people's visual attention and (2) the amount of information recall in an iDTV context. The aim of this study is to investigate whether the combination of interactivity and simultaneous exposure might lead to different results regarding the congruence theory than a traditional or sequential media context. Second, the moderating effect of NFC on the relation between congruence and visual (i.e. gaze jumps) and cognitive (i.e. recall) attention is investigated during simultaneous exposure.

**Chapter 6:** Fundraising in an online environment: The interaction effect of website interactivity and celebrity (in)congruity on donation intention

This study tests the congruence theory in an interactive website environment. More specifically, the study investigates the potential of interactivity as a factor to enhance processing of incongruence, in this case between a celebrity endorsement and the

charity organization. We do this by manipulating both the level of website interactivity and the (in)congruence between the celebrity and the nonprofit organization, and assessing its effect on donation intentions.

Finally, chapter 7 recapitulates the main findings of the dissertation, and discuss these findings in the light of the broader research question of this dissertation. In this final chapter, we will present the main theoretical contributions of this dissertation, followed by the practical implications of our results. Next, we will delineate the limitations of the dissertation, followed by suggestions and directions for further research.

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## **CHAPTER 2**

# **INVESTIGATING THE EFFECTIVENESS OF INTERACTIVE ANTI- SPEEDING THREAT APPEALS IN AN iDTV CONTEXT: HOW MUCH THREAT IS TOO MUCH?**



CHAPTER 2

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SPEEDING THREAT APPEALS IN AN iDTV CONTEXT:  
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**Background and objectives:** Although the potential of iDTV for commercial marketing has been well-researched, the usefulness of this new interactive advertising format for non-commercial public-service announcements (PSAs) is still unknown. Using threat appeals for anti-speeding, this study investigates the basic assumptions of the Extended Parallel Processing Model (EPPM) in an iDTV environment.

**Method:** Using a 2 x 2 x 2 between-subjects factorial design with 213 participants, the level of threat evoked by respectively a traditional PSA, the interactive part of the PSA (dedicated advertising location; DAL) and the preceding program context is manipulated to be either low or high. Next, the impact of this level of evoked threat is investigated on feelings of telepresence and behavioral intention.

**Results:** The results of the three-way interaction effect of threat evoked by the program, the PSA and the DAL on telepresence show that when the threat levels of the program and the PSA are both either low or high, exposure to the threatening information in the DAL does not generate a significant increase in telepresence. However, when a low-threat program is followed by a high-threat PSA, the threat level of the DAL has a positive effect on telepresence. The same trend is found with a high-threat program and a low-threat PSA, although this effect is not significant at conventional levels. In addition, a positive effect is found of telepresence on the behavioral intention to reduce speeding, which is partly mediated by the viewer's perceived efficacy.

**Conclusion:** These empirical results support the assumptions of the EPPM with regard to the effect of the level of perceived threat in an interactive media environment. In addition, study demonstrates the importance of telepresence as processing variable.

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<sup>1</sup> This study was presented in 2009 at the 8<sup>th</sup> International Conference on Research in Advertising (ICORIA) in Klagenfurt, Austria. It was published in 2011 as: Panic, K., Cauberghe, V. & De Pelsmacker, P. (2011). Impact of an interactive anti-speeding threat appeal : how much threat is too much? *CyberPsychology, Behavior and Social Networking*, 14(5), 281-289. doi: 10.1089/cyber.2009.0303.



## 1. INTRODUCTION

Interactive digital television (IDTV) is a “new” medium that can be defined as the merging of the Internet and traditional television. Along with some potentially harmful consequences (e.g., viewers’ ability to skip commercials), the increasing adoption and popularity of IDTV in many Western countries offers a lot of new opportunities for advertisers. One of the many new IDTV advertising formats is the microsite, which consists of a “30-second TV ad with a call-to-action button with clickable content or micro sites featuring individual still screens providing additional product information” (Bellman & Varan, 2004, p.2). When the viewer clicks on the call-to-action button, he or she leaves the linear broadcast stream to enter a dedicated advertising location (DAL). There, he or she can navigate through the additional information, which can be structured in different layers. To avoid viewers missing part of their program while navigating in the DAL, the microsite format allows people to follow their program using the picture-in-picture technology (Lekakos, Papakiriakopoulos & Chorianopoulos, 2001). This implies that viewers can simultaneously watch the ongoing program in the upper-right corner while navigating through the information in the DAL.

For commercial goals, the microsite is promising (Reading, Bellman, Varan & Winzar, 2006). However, the question arises whether this new interactive advertising format can also be useful for public service announcements (PSAs). In the past, threat appeals have often been used in PSAs as an advertising strategy to influence people’s attitudes and behaviors (Tanner, Hunt & Eppright, 1991; Bennett, 1996; Janis, 1967; Rogers, 1983). Although a lot of threat appeal research is conducted in traditional print/television advertising, none of the previous studies have investigated the impact of threat appeals in interactive media.

The main research question of this study is whether an interactive DAL that follows a traditional 30-second PSA and a media context with both varying levels of evoked threat should either contain a low-threat message, or further increase the threat level to generate the highest persuasive impact? The current study tests the basic assumptions of the Extended Parallel Processing Model (EPPM; Witte, 1992, 1994) in an interactive

environment and assesses the importance of telepresence (defined by Steuer (1992, p.75) as “*the sense of being present in the mediated environment*”) as a processing variable. More particularly, we measure the impact of the level of threat in the PSA and in the media context on feelings of telepresence evoked in the DAL. In addition, we examine the influence of telepresence and the mediating impact of perceived response efficacy on behavioral intention.

## **2. CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT**

### **2.1 How threat appeals work: The Extended Parallel Processing Model**

Threat appeals are “*persuasive messages designed to scare people by describing the terrible things that can happen to them if they do not do what the message recommends*” (Witte, 1992, p.329). One of the most recent and comprehensive frameworks on how threat appeals work is the Extended Parallel Processing Model (EPPM; Witte, 1992, 1994). According to the EPPM, threat appeals trigger a process by which individuals first appraise the perceived severity of the threat. When the threat is not perceived as relevant or severe, people are not motivated to process the message in depth any further. Consequently, there is no response (i.e. no attitudinal or behavioral change) to the threat appeal. When the threat is perceived as sufficiently severe, feelings of fear may be elicited, which can further motivate people to process the message and eventually develop the intention to adopt the recommended behavior (danger control). However, when the levels of threat and fear are too high, people develop a defensive avoidance motivation to try to control the fear rather than the danger and as a result, they do not process the message in depth. This process is called fear control (Witte, 1992; Rippetoe & Rogers, 1987).

According to the EPPM, after assessing the threat level of the message, individuals judge the perceived response efficacy of the message recommendation (the perception that the threat is reduced when the recommended behavior is adopted). The higher this



perceived efficacy, the higher the probability that processing the message will lead to danger control. This implies that individuals will try to control the danger, resulting in message acceptance and adaptive behavior. When perceived efficacy is low, a person's feelings of fear are intensified by the perception that he or she is unable to avert the threat, especially when the threat is perceived as high. In this situation, a defensive avoidance mechanism (fear control) will again take place. In other words, threat appeals have a positive effect on adaptive responses only when the perceived efficacy to carry out the recommendation is high (Blumberg, 2000; Snipes, LaTour & Bliss, 1999).

## 2.2 Telepresence as a threat appeal processing variable

The ability to affect people's attitudes and behavior by exposing them to interactive threat appeals can be linked to the experience of telepresence. Telepresence is defined as *"the perceptual illusion of non-mediation, produced by means of the disappearance of the medium from the conscious attention from the subject"* (Coelho et al., 2006, p.28). Traditionally, telepresence refers to immersive virtual environments. However, previous researchers have noted that telepresence is a useful construct for describing general human-computer interaction (Csikszentmihalyi, 1990; Ghani, Supnick & Rooney, 1991; Trevino & Webster, 1992; Webster, Trevino & Ryan, 1993). Previous studies (e.g., Lombard et al., 2000; Lee, 2004; Ditton, 1997) even provided evidence that even traditional, analogue media such as magazines, movies and television (although not as immersive as, for instance, virtual reality environments) can induce a sense of telepresence (Lombard et al., 2000; Kim & Biocca, 1997; Bracken, 2007). Kim and Biocca (1997) devoted a lot of attention to the generalization of telepresence in a traditional TV context. They state that the concept of telepresence is becoming an important component in our understanding of how people experience television. Hoffman & Novak (1996) applied the concept of telepresence to an on-line environment. In the present study, we extrapolate and apply the telepresence construct to an interactive television environment, as this is a merger of traditional television and Internet.

Telepresence has two main antecedents, namely interactivity and vividness (Steuer, 1992). Because the stimuli used in this study are both interactive (DAL) and vivid

(audiovisual), telepresence can be expected to occur (see Coyle & Thorson, 2001). Witmer and Singer (1998) report two additional conditions that are necessary for experiencing telepresence: immersion and involvement. As users focus their attention on the stimuli (due to vividness and interactivity) and feel highly involved with the threatening message, they will experience stronger feelings of telepresence (Novak & Hoffman, 2000). Indeed, Roser and Thompson (1995) find that exposing people to threat appeals results in a high involvement with the message. Also Cauberghe and colleagues (2009) find that the persuasive effects of threat appeals are mediated by the involvement with the message. Given that threat appeals increase the involvement with the threat-evoking content (Ghani, Supnick & Rooney, 1991) and that the stimuli in this study are both vivid and interactive, we expect a positive impact of evoked threat on telepresence.

Using the innovations of IDTV, the current study evokes threat using multiple sources: the preceding program context (low vs. high threat), the traditional 30-second PSA (low vs. high threat) and the additional interactive information in the DAL (low vs. high threat). According to the main mechanisms of the EPPM, a low level of threat does not motivate people to further process the message (Witte, 1992). Therefore, a low-threat program followed by a low-threat PSA may not motivate viewers enough to thoroughly process the information in the DAL, regardless of the level of threat the DAL evokes. Consequently, we expect that threat evoked by the DAL will have no influence on the experience of telepresence in this situation.

When the level of evoked threat is very high, the EPPM predicts that people will also not be motivated to process the content of the message any further, because of defensive avoidance and fear control motivations. Therefore, when a high-threat program is followed by a high-threat PSA, viewers will not be motivated to control the danger, thereby losing their motivation to process the information in the DAL. In this case, the level of threat induced by the DAL will again have no effect on the experience of telepresence.

On the other hand, when a low-threat program is followed by a high-threat PSA or a high-threat program is followed by a low-threat PSA, threat levels may be sufficiently high to trigger processing of the message (cf. danger control), but not too high to lead to

a defensive avoidance mechanism (cf. fear control). In this situation, we expect that presenting an additional strong-threat DAL will lead to a higher level of telepresence than a low-threat DAL. In other words, while we do not expect an effect of a high threat DAL on telepresence in case the program and PSA threat levels are both low or high, we do expect the following for the two other combinations of program context and PSA threat levels:

*H1a: When the threat evoked by the program is low and the threat evoked by the PSA is high, a high level of threat evoked by the DAL has a more positive effect on telepresence than a low level of threat evoked by the DAL.*

*H1b: When the threat evoked by the program is high and the threat evoked by the PSA is low, a high level of threat evoked by the DAL has a more positive effect on telepresence than a low level of threat evoked by the DAL.*

### **2.2.1 Effect of telepresence on behavioral intention and the mediating role of perceived efficacy**

As argued in the previous section, we expect that exposing people to certain levels of an interactive threat appeal results in an experience of telepresence. An important variable to make individuals experience telepresence is involvement. Involvement can be defined as a dimension of telepresence (Schubert, Friedmann & Regenbrecht, 1999; Lessiter et al., 2000) or, according to others, an antecedent of telepresence (i.e., a necessary requirement for experiencing presence; Witmer & Singer, 1998). Witmer and Singer (1998, p.227) define involvement as “*a psychological state experienced as a consequence of focusing one’s energy and attention on a coherent set of stimuli or meaningfully related activities and events. Involvement depends on the degree of significance or meaning that the individual attaches to the stimuli, activities or events.*” According to these authors, users become more involved in a virtual experience as they focus more attention on virtual stimuli, which leads to an increased sense of telepresence. Thus, a higher level of telepresence implies more involvement and vice versa (Schubert, Friedman & Regenbrecht, 2001). Because earlier studies show that the persuasive impact of threat

appeals is driven by the involvement with the message (Cauberghe et al., 2009), we expect a positive effect of telepresence on behavioral intention.

Based on the logic of Hoffman and Novak's flow model (1996) and the EPPM, the effect of perceived threat-induced telepresence on behavioral intention is likely to be mediated by a person's perceived response efficacy pertaining to the threat appeal. According to the flow model, telepresence is an important antecedent of flow. The latter in turn triggers the perception of a higher behavioral control. Following the EPPM, this increased behavioral control will lead to a stronger intention to adopt the recommended behavior of the threat appeal.

First of all, telepresence is one of the primary antecedents of flow (Hoffman & Novak, 1996). Flow can be described as an intrinsically motivated optimal enjoyable mental state in which people experience a loss of self-consciousness, time and place (Csikszentmihalyi & Lefevre, 1989). More telepresence therefore leads to more flow. Second, according to Hoffman and Novak, a stronger feeling of flow results in an increased perceived behavioral control (defined by Ajzen (2002, p.665) as "*the perceived ease or difficulty of performing a behavior*"). Because flow is enhanced by telepresence, it can therefore be concluded that a sense of perceived behavioral control (indirectly) follows from telepresence.

Finally, the EPPM states that people who experience a higher perceived efficacy will have a higher intention to change their current behavior than people with a lower perceived efficacy. Also, Hoffman and Novak state in their flow model that perceived behavioral control directly affects behavioral intention and actual behavior. Since perceived behavioral control and perceived efficacy are conceptually similar (Ajzen, 2002), we expect an effect of telepresence on perceived efficacy and an effect of efficacy on behavioral intention. In other words, we hypothesize the following:

*H2: The positive effect of telepresence on behavioral intention is (partly) mediated by perceived efficacy.*

The conceptual model is presented in Figure 1:

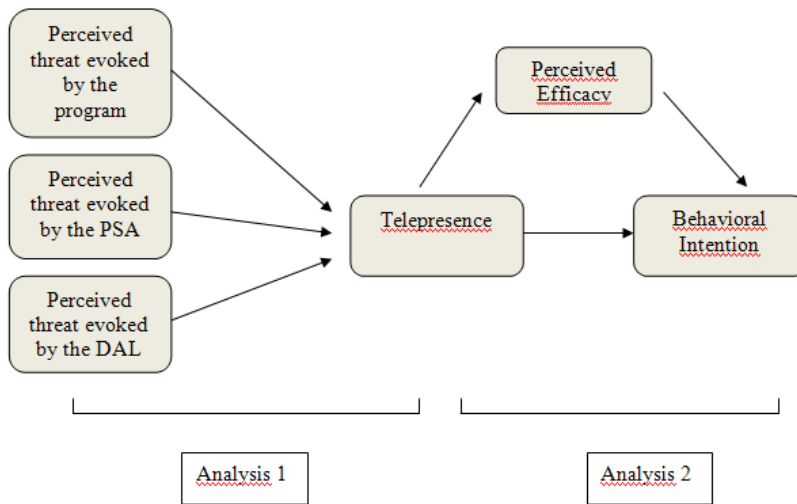


Figure 1: Conceptual model

### 3. MATERIALS AND METHODS

#### 3.1 Stimuli

We used a 2 (threat of program context: low vs. high) × 2 (threat of PSA: low vs. high) × 2 (threat of DAL: low vs. high) between-subjects factorial design. Two PSA threat appeals were created, based on an existing anti-speeding PSA. The PSA showed young people leaving a party and getting into a car. They drive into a tunnel having fun but never come out again (suggesting that they had an accident). At the end of the spot, a silent frame is shown, stating: “*Speeding causes accidents. Drive more slowly.*” This was the low-threat stimulus. For the high-threat stimulus, the PSA was manipulated by adding extra audio-visual features in a similar way to Potter et al. (2006). To make the PSA more threatening, we added the sound of a crashing car and an ambulance to the silent frame. Also, a picture showing a seriously wounded person in a hospital bed was added. In this high-threat condition, the message was “*20 casualties per week. Drive more slowly.*” At the end of both PSAs, a red button and a call-to-action appeared on screen. By

pressing this button, the respondents entered the DAL, in which they could navigate through the additional information about the dangers and risks of driving too fast.

In the high-threat DAL condition, the severity of the consequences presented in the text behind the click through link was high and the pictures included in the DAL were very vivid (e.g., showing seriously wounded victims and severe car accidents). Previous research has also used vividness to manipulate perceived threat (e.g., Meijnders et al., 2006). In the low-threat condition, the consequences of speeding were presented as less severe, and less vivid pictures were used.

In addition, we selected two different media contexts which were thematically congruent with the anti-speeding message. The high-threat context showed a movie excerpt (*The Descent*) with explicit images of people in a serious car accident causing critical injuries. The low-threat condition came from the movie *Taxi 2* and showed a comic scene in which many cars crash into one another, but without serious consequences for the drivers.

### 3.2 Procedure and participants

The study was conducted as an online survey. The respondents, who were recruited through a market research agency, all received an e-mail containing a link to the stimulus and the questionnaire. To avoid confounding effects, no indication was given about the aim of the study. The respondents were randomly assigned to one of the eight conditions. The average cell size per condition was 27, and no cell had less than 20 observations, as recommended by Hair et al. (1998). After viewing the program for 10 minutes, the PSA appeared, containing a call-to-action button and a voice-over requesting the participants to press the red button to enter the DAL. Only the respondents who interacted with the PSA could fill in the questionnaire. In total, 213 valid responses were obtained, 50.7% of which were from male respondents. The respondents' age ranged from 20 to 57 years, with an average age of 41.6 years. The mean age of the male respondents did not differ significantly from the mean age of the female respondents ( $M_{\text{male}} = 41.8$  vs.  $M_{\text{female}} = 41.3$ ;  $t(211) = .410$ ,  $p = .682$ ). In addition,

the 8 experimental groups did not significantly differ in gender ( $\text{Chi}^2(1,7) = 5.400, p = .611$ ) nor in age ( $F(7,205) = .515, p = .823$ ).

### 3.3 Measures

We measured the level of threat evoked by the PSA, the program and the DAL as experienced by the viewers using a five-item five-point Likert scale, based on the work of Laros and Steenkamp (2004; e.g., *The message made me feel scared*) (threat program: Cronbach's  $\alpha = .891$ ; threat PSA: Cronbach's  $\alpha = .897$ ; threat DAL: Cronbach's  $\alpha = .915$ ). Telepresence was measured with Kim and Biocca's (1997) seven-item five-point Likert scale (e.g., *While watching the program, I felt a new world was created*; Cronbach's  $\alpha = .875$ ). This scale is a valid and reliable subscale of the Witmer and Singer (1998) scale, developed to measure telepresence in a television environment. We measured behavioral intention with Putrevu and Lord's (2004) three-item five-point scale (e.g., *I will probably drive more slowly in the future*; Cronbach's  $\alpha = .744$ ). Perceived efficacy was measured using Witte's six-item five-point Likert scale (Witte, 1992, 1994). This scale consists of two dimensions, namely self-efficacy (e.g., *I can drive more slowly to avoid that I get involved in a car accident*) and response efficacy (e.g., *Driving more slowly is an effective way to avoid car accidents*). However, an exploratory factor analysis using Varimax rotation showed that all six items of these two dimensions were highly correlated and loaded on one factor (variance explained= 67.68%). Therefore, we combined the items into one overall perceived efficacy construct (Cronbach's  $\alpha = .904$ ). An overview of the measurement instruments is provided in Appendix 1. For each construct, we calculated the mean of the relevant items and used this measure for further analyses. Means, standard deviations, normality tests and Cronbach's alphas are summarized in Table 1:

	<i>M</i>	<i>SD</i>	Shapiro-Wilk normality test	<i>p</i>	Cronbach's $\alpha$
Threat program	2.983	.876	.971	<.001	.891
Threat PSA	2.957	.792	.959	<.001	.897
Threat DAL	3.041	.718	.927	<.001	.915
Telepresence	2.726	.773	.960	<.001	.875
Behavioral Intention	3.075	.721	.940	<.001	.744
Perceived Efficacy	3.572	.854	.961	<.001	.904

Table 1: Means, standard deviations, normality tests and Cronbach's alphas for each of the three threat measures, telepresence, behavioral intention and perceived efficacy

## 4. RESULTS

### 4.1 Manipulation checks

To assess the success of our manipulations, we measured the threat levels evoked by the PSA, the DAL and the program context to determine whether they were significantly different from each other. The results of the manipulation checks confirm that the levels of threat evoked by the program, the PSA and the DAL were adequately manipulated (program:  $M_{\text{low threat}} = 2.724$  vs.  $M_{\text{high threat}} = 3.261$ ;  $t(211) = 4.719$ ,  $p < .001$ ; PSA:  $M_{\text{low threat}} = 2.703$  vs.  $M_{\text{high threat}} = 3.204$ ;  $t(211) = 4.854$ ,  $p < .001$ ; DAL:  $M_{\text{low threat}} = 2.825$  vs.  $M_{\text{high threat}} = 3.262$ ;  $t(211) = 4.646$ ,  $p < .001$ ). As indicated before, the DAL threat level was manipulated by, amongst others, the level of vividness of the DAL which significantly differs between the low and the high threat DAL ( $M_{\text{low threat}} = 3.161$  vs.  $M_{\text{high threat}} = 3.509$ ;  $t(211) = 11.818$ ,  $p < .001$ ).



## 4.2 Analysis 1: effect on telepresence

In the first analysis, we examined the variance in telepresence explained by the three independent variables: threat of the program, threat of the PSA and threat of the DAL. We analyzed the data using ANOVA. There appeared to be no main effects of threat evoked by the PSA ( $F(1, 212) = 2.895, p = .090$ ), threat evoked by the DAL ( $F(1, 212) = 1.324, p = .251$ ), or threat evoked by the program context ( $F(1, 212) = .360, p = .549$ ) on telepresence. However, the three-way interaction effect appeared to be marginally significant ( $F(1, 212) = 3.603, p = .059$ ). Simple effects tests further revealed the following (see Figures 2 and 3): as expected, a low-threat program followed by a low-threat PSA did not lead to a significant effect of the level of threat evoked by the DAL on the feelings of telepresence ( $M_{\text{low threat}} = 2.548$  vs.  $M_{\text{high threat}} = 2.550$ ;  $t(56) = .007, p = .994$ ). When a high-threat PSA follows a high-threat program, the threat evoked by the DAL had no effect on telepresence either, as expected ( $M_{\text{low threat}} = 2.746$  vs.  $M_{\text{high threat}} = 2.586$ ;  $t(54) = .748, p = .457$ ).

For a low-threat program followed by a high-threat PSA, the level of threat evoked by the DAL had a significant and positive effect on the feeling of telepresence ( $M_{\text{low threat}} = 2.769$  vs.  $M_{\text{high threat}} = 3.177$ ;  $t(50) = 2.263, p = .028$ ) (see Figure 2 below).

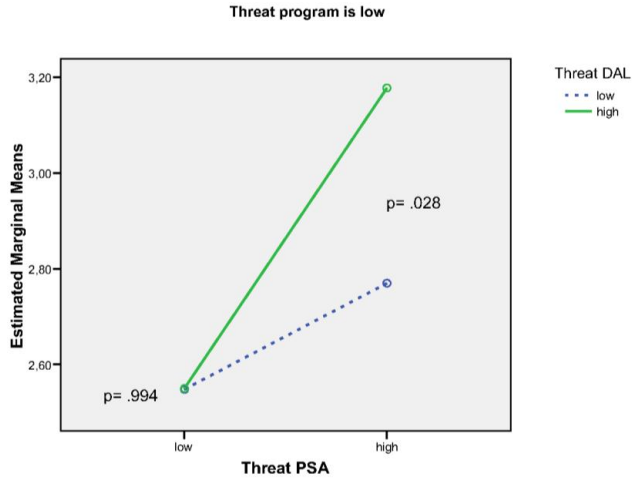


Figure 2: estimated marginal means of telepresence when threat program is low

When the level of evoked threat in the program was high (see Figure 3 below), the results show that, after respondents saw a low-threat PSA, the threat of the DAL had the expected effect on telepresence, although this effect did not reach conventional significance levels ( $M_{\text{low threat}} = 2.609$  vs.  $M_{\text{high threat}} = 2.849$ ;  $t(45) = 1.330$ ,  $p = .190$ ). Thus, the findings support H1a, but not H1b.

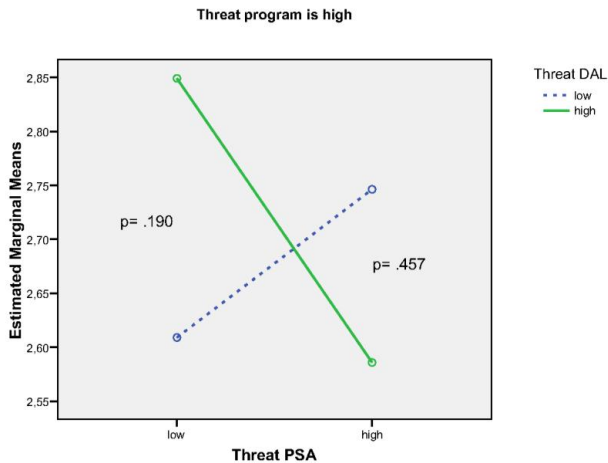


Figure 3: estimated marginal means of telepresence when threat program is high

### 4.3 Analysis 2: perceived efficacy as a mediator

Next, we test the mediating effect of perceived efficacy on the relationship between telepresence and behavioral intention. Baron and Kenny (1986) propose a standard procedure for testing mediation. This procedure consists of three successive regression models. In Model 1, we test the direct effect of the independent variable (telepresence) on the outcome variable (behavioral intention). In Model 2, we test the effect of the independent variable (telepresence) on the potential mediator or intervening variable (perceived efficacy). Finally, in Model 3, we simultaneously estimate the effects of both the independent variable (telepresence) and the mediator (perceived efficacy) on the outcome variable (behavioral intention). In Model 3, if the mediator has a significant effect on the outcome variable and the impact of the independent variable disappears or is reduced, the effect of the independent variable on the outcome variable is fully or partly mediated by the mediator.

The results (see Table 2) show that telepresence has a significant effect on behavioral intention (Model 1) ( $\beta = .323, p < .001$ ). In Model 2, the effect of telepresence on perceived efficacy is positive and significant ( $\beta = .218, p = .001$ ). In Model 3, both telepresence and perceived efficacy were independent variables in a multiple regression, with behavioral intention as the dependent variable. The results show that both perceived efficacy ( $\beta = .245, p < .001$ ) and telepresence ( $\beta = .270, p < .001$ ) have a significant effect on behavioral intention. However, when perceived efficacy is inserted in the multiple regression, the impact of telepresence on behavioral intention decreases (from  $\beta = .323$  to  $\beta = .270$ ), but remains significant. This indicates that the effect of telepresence on behavioral intention is partly mediated by perceived efficacy. In addition, the Sobel (see Sobel, 1982) test ( $z = 2.672, p < .01$ ) confirms that perceived efficacy significantly mediates the impact of telepresence on behavioral intention. Thus, the results support H2.

Baron and Kenny's Steps	Relation	R <sup>2</sup>	B	SE B	β	p
Step 1	Telepresence → BI	.105	.302	.061	.323	<.001
Step 2	Telepresence → Perceived Efficacy	.048	.241	.074	.218	.001
Step 3	Telepresence & Perceived Efficacy → BI :	.162				
	• Telepresence		.252	.060	.270	<.001
	• Perceived Efficacy		.207	.055	.245	<.001

Table 2: Mediation analysis of perceived efficacy

## 5. CONCLUSION

While most studies have investigated the impact of threat appeals in traditional television or print media, the current study focuses on the impact of threat appeals in an interactive television context.

The results of our study show that, depending on the level of threat induced by the PSA and the preceding program context, the level of threat evoked by the DAL has a different effect on the evoked feeling of telepresence. In turn, the feeling of telepresence has a positive effect on the intention to reduce speeding behavior, implying an adaptive danger-control process. This effect of telepresence on behavioral intention is partly mediated by perceived response efficacy, i.e. the perceptions of the ability to reduce one's speed and the beliefs about the effectiveness of reducing speed to avoid accidents.

Telepresence is a mental state in which a person feels physically present within the mediated environment and is absorbed by the mediated content. The results show that the positive effect of the level of threat evoked by the DAL on the feelings of telepresence is moderated by the threat evoked by the program and the PSA. Consistent with the

EPPM, when the levels of threat evoked by both the program and the PSA are low, the general perceived threat level of the stimuli is too low to trigger motivation for further processing of any related information. Therefore, exposure to the additional threatening information in the DAL does not generate higher feelings of telepresence because under such circumstances, people are not motivated to process the information. On the other hand, high levels of threat evoked by both the program and the PSA lead to a general accumulated level of experienced threat that is so high that it produces a defensive motivation and triggers a fear control mechanism (Janis, 1967). In other words, the viewer does not want to process the additional information in depth due to a level of threat that is too high, leading to a relatively low experience of telepresence, regardless of the DAL threat level. Again, this is consistent with the EPPM.

Lastly, in line with the expectations of the EPPM, the threat level of the DAL has a positive effect on telepresence when a low-threat program is followed by a high-threat PSA, generating a sufficient but not too high general level of threat, which triggers message processing. Although we found the same trend with a high-threat program followed by a low-threat PSA, the effect of the threat level of the DAL on telepresence was not significant. There are several explanations for not finding a significant effect in this situation. First, the high threat evoked by the program may induce a transfer effect (cf. Affect Transfer Mechanism (Coulter, 1998) and Excitation Transfer Mechanism (Tavassoli, Schutz & Fitzsimons, 1995)) of threat while watching a low threat PSA. However, this transfer may diminish in strength during low-threat PSA exposure, therefore decreasing the involvement and motivation when opening the DAL. Another explanation for not finding the expected result may be the nature of the threat appeal used in the high-threat program context. Compared with the other threat appeals, the threat appeal used in the program can be considered a shock message without a relief factor at the end (cf. Rossiter & Thornton, 2004). This might evoke a fear-control process, reducing the motivation to process the PSA and the DAL and therefore reducing the ability to experience feelings of telepresence.

Overall, a combination of very low or very high levels of threat evoked by the PSA and the program context is less effective in generating feelings of telepresence by a high-threat DAL than a medium level of threat evoked by the program and the PSA. In the

moderate-threat conditions (more particularly a low-threat program followed by a high-threat PSA), a higher level of threat evoked by the DAL generates higher feelings of telepresence.

The feeling of telepresence also has a positive effect on the behavioral intention. This effect is partly mediated by the viewer's perceived response efficacy (cf. perceived behavioral control). This relationship between telepresence and antispeeding behavioral intention is mediated by the respondent's belief about whether the response (driving more slowly) would be effective in avoiding a car accident and by his or her perceived ability to perform this recommended response. We expected this mediating effect of perceived efficacy because feelings of telepresence simulate feelings of flow which can increase a person's perceived efficacy or perceived behavioral control (Coyle & Thorson, 2001; Ajzen, 2002). In many models of threat appeals, and more particularly in the EPPM, perceived efficacy (cf. behavioral control) is an important driver of coping intention (Witte, 1992, 1994).

## **6. MANAGERIAL IMPLICATIONS**

In the past few years, the media landscape has changed a lot. The amount of new electronic media has increased significantly, and these new media have begun to take over traditional media. An example is the progressive substitution of traditional television by interactive television. As the media landscape changes, so does (marketing) communication. The business sector has embraced this alternative new medium as a new advertising medium. The current research shows that public health and other social marketing professionals can also gain valuable insights into how persuasion works in an interactive communication setting. Social marketers are now able to develop additional interactive information microsites following a traditional PSA. These microsites can evoke feelings of telepresence, which have a positive impact on behavioral change. In general, message effectiveness will be improved when the information in the DAL contains highly threatening information and is preceded by a program and a PSA which evoke a sufficient, but not extremely high level of combined threat.

## 7. LIMITATIONS AND FURTHER RESEARCH

The limitations of the current study provide suggestions for further research. First, this study uses self-reported behavioral intention as the main dependent variable. Although prior research has found a positive and significant correlation between people's intention to speed and their actual behavior (Elliot, 2001; Vogel & Rothengatter, 1984), future research should also measure speeding behavior through the use of a more real-life video simulator (cf. Walshe et al., 2003).

Second, neither the amount of clicks of the respondents nor the time and effort they spent interacting with the information in the DAL was recorded. These variables might be important because the more a person clicks on different information links, the longer a person is exposed to information, the more opportunity he or she has to process it, the more he or she will remember it, and the greater the impact on his or her attitude may be (e.g., Pieters & Bijmolt, 1997). Cauberghe and colleagues (2006) find that the time spent in the DAL had an important mediating effect on brand recall and brand attitude. It is possible that there is also a mediating effect of time spent in the DAL on the relationship between amount of threat evoked by the DAL and the level of telepresence. Further research should incorporate these process variables. Additionally, in this study, the high threat PSA was a few seconds longer than the low threat PSA. This might have had a certain impact on how they were perceived. However, this is not a serious confound, since the main variable of interest – the evoked level of threat of the PSA – appeared to be correctly manipulated.

Third, respondents were requested to press the red button when it appeared on the television screen. Because of the respondents' inexperience with the new medium (i.e., IDTV) and the aim of the study to investigate the impact of the threatening DAL, this procedure was followed to avoid a large occurrence of non-response. Further research should however examine what motivates viewers to press (or not to press) the red button and whether the 4 conditions (low-/high-threat program, low-/high-threat PSA) have an influence on the participants' motivation to enter the DAL.

Furthermore, it is possible that there are individual differences between people with respect to their ability to develop feelings of telepresence, just as for feelings of threat

(Wildavsky & Dake, 1990; Gustafson, 1998). A worthwhile research question might be whether telepresence can be considered a personality trait that varies across respondents and whether these individual characteristics have an effect on how people process interactive and/or threat appeals.

Finally, the topic of our study was anti-speeding behavior, a topic for which the perceived self-efficacy is expected to be rather high. Further research should examine the effect of threat appeals in an interactive context for different topics with varying levels of efficacy (e.g., addictive behavior such as drug abuse or smoking).



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## Appendix 1: measures

1. The level of perceived threat was measured using a 5-item 5-point Likert-scale, ranging from *I feel this emotion not at all* (1) to *I feel this emotion very strongly* (5) (based on Laros & Steenkamp, 2004)

The program/PSA/DAL made me feel ...

- Afraid
- Panicky
- Scared
- Worried
- Nervous

2. Telepresence was measured with Kim and Biocca's (1997) 7-item 5-point Likert-scale

- When I left the interactive part of the ad, I felt like I came back to the 'real world' after a journey. (*strongly disagree/strongly agree*)
- The interactive part of the ad created a new world for me. This world suddenly disappeared when I left the interactive part of the ad. (*strongly disagree/strongly agree*)
- While I was in the interactive part of the ad, I felt like a new World was created. (*never/always*)
- I sometimes forgot that I was in the middle of an experiment when I was in the interactive part of the ad. (*never/always*)
- When I was in the interactive part of the spot, my body was in the room, but my mind was inside a new world, created by the spot. (*never/always*)
- When I was in the interactive part of the spot, this created world seemed more real or present for me compared to the 'real' world. (*never/always*)
- The world that was created by the interactive part of the ad was only 'something I saw', rather than 'somewhere I visited'. (*never/always*)

3. Behavioral intention was measured with Putrevu and Lord's (2004) 3-item 5-point Likert scale, ranging from *strongly disagree* (1) to *strongly agree* (5).

- I will probably not drive more slowly in the future.
- I will certainly not change my driving behavior.
- The next time I am in a car with friends, I will not encourage them to drive more slowly.

4. Perceived efficacy was measured with Witte's (1992, 1994) 6-item 5-point Likert scale, ranging from *strongly disagree* to *strongly agree*.

- Self-efficacy
  - I can drive more slowly to avoid that I get involved in a car accident
  - I have the ability to drive more slowly in order to avoid a car accident
  - It is easy for me to drive more slowly to avoid a car accident this way
- Response efficacy
  - Driving more slowly is an effective way to avoid car accidents
  - Driving more slowly helps to avoid car accidents
  - If I drive more slowly, I have a smaller chance to be involved in a car accident



## Appendix 2: stimuli

Screenshots of the low threat (first two) and the high threat DAL (last two):





## **CHAPTER 3**

### **PROMOTING DENTAL HYGIENE TO CHILDREN: COMPARING TRADITIONAL AND INTERACTIVE MEDIA FOLLOWING THREAT APPEALS**



CHAPTER 3

PROMOTING DENTAL HYGIENE TO CHILDREN:  
COMPARING TRADITIONAL AND INTERACTIVE MEDIA FOLLOWING  
THREAT APPEALS<sup>2</sup>

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**Background and objectives:** To date, health information has mainly communicated to children through traditional media. However, as recent studies show that games can also be powerful learning tools, this study investigates whether computer games may also be used to increase both health related knowledge and desirable health behavior among children, and whether this new medium can be equally or more effective than the traditional teaching materials used today. Using threat appeals, the aim of this study is to test the basic assumptions of the EPPM in an interactive gaming environment.

**Method:** Using a 2 x 3 between subject factorial design with 190 children (7-to-9 years old), this study investigates the effect of threat messages (weak vs. strong) concerning dental hygiene on behavioral outcome (snack choice), and how this effect is moderated by the type of medium used to communicate subsequent health information after the threat appeal (computer game, information brochure, narrative story).

**Results:** The results show a positive significant effect of perceived threat on children's adaptive behavior. However, this effect only remains significant when afterwards, children are exposed to a narrative health-related story. When children play a game or read a brochure, they need to devote more attention to process this content, distracting them from the original threat message.

**Conclusion:** The main contribution of this study is that first, it provides empirical results confirming the positive effect of threat appeals on adaptive behavior among 7-to-9 year old children, a target group which has not yet been researched. Second, this study shows that the effectiveness of threat message may be influenced by the cognitive load of the medium through which the information is presented.

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<sup>2</sup> This study was presented in 2011 at the 10th International Conference on Research in Advertising (ICORIA) in Berlin, Germany. It was published in 2014 as Panic, K., Cauberghe, V. & De Pelsmacker, P. (2014). Promoting dental hygiene to children: comparing traditional and interactive media following threat appeals. *Journal of Health Communication*, (*in press, published online January 6th 2014*). DOI: 10.1080/10810730.2013.821551



## 1. INTRODUCTION

In recent years, computer games have become an important part of children's lives. On average, children between 8 and 10 years old spend 61 minutes per day playing video games (Rideout, Foehr & Roberts, 2010), making gaming one of their favorite pastime activities (Roussou, 2004). Computer games may be highly popular with children, they have also often been criticized. Various authors raise concerns about the negative impact computer games may have on children's mental and physical health. Among others, it has been said that games provoke aggressive and other deviant behavior (Ballard & Wiest, 1995), encourage gender stereotypes (Cesarone, 1994) and produce an alienating effect over players resulting in 'electronic autism' (Rosas et al., 2003). Another concern lies in the fact that excessive gaming can contribute to prolonged physical inactivity among children. Playing games is not only predominantly done while seated, it also prevents children from playing sports and other activities (Tremblay & Wilms, 2003), causing negative health outcomes like obesity and diabetes (Baranowski et al., 2011; Mark & Janssen, 2008). Although it has been proposed by several authors that screen time should be decreased (Page, Cooper, Piew & Jago, 2010; Carlson, Fulton, Lee et al., 2009), this is not an easy goal to achieve. In today's multimedia society, screen time has become a major part of our culture. Studies show that children in the US spend more than 7 hours each day consuming screen media (Rideout, Foehr & Roberts, 2010) and current projections suggest that this average time is likely to increase, not decrease. Since today, the presence of computer games cannot be ignored, it is important to ask the question how these games can be used as – or transformed into - a tool to obtain positive health-related behavior change, rather than being labeled as the problem.

Several studies have focused on the positive aspects of games, showing that they can be powerful learning tools. This is especially relevant in a health-oriented context, since traditional school health curricular and other behavior-change interventions targeted at children seem to be limited in their effectiveness (Baranowski, Buday, Thompson & Baranowski, 2008). Although the use of interactive games for health-related behavior change is at its early stage of development, a few studies concerning the use of games to encourage health and physical education have been reported. For instance, Song, Peng

and Lee (2011) conclude that new-generation active computer games (also called “exergames”) can be used to improve children’s physical activity level. Also, computer games have proven to be effective in teaching children with type 1 diabetes to use insulin and monitor their glucose level (Brown, Liberman, Germeny et al., 1997), increasing knowledge and behavioral issues for children with asthma (McPherson, Glazebrook, Forster et al., 2006) and increasing medication adherence among pediatric cancer patients (Kato & Beale, 2006). Although these are specific target groups with specific medical needs, the findings show that games have the potential to successfully promote healthy behaviors.

In this study, we investigate whether computer games can also be useful to promote general health behavior such as dental hygiene to children. According to Newacheck and colleagues (2006) dental care is the most prevalent unmet need of America’s children. Therefore, it is highly important to increase children’s knowledge and improve their behavior concerning dental hygiene. To date, health information has mainly communicated to children through traditional media. However, the question arises whether computer games may also be used to increase health related knowledge and, as a consequence, desirable health behavior with children aged 7-to-9 years old. The main objective of this study is to investigate whether computer games can be used to enhance the effectiveness of health messages, and whether this new medium can be equally or more effective than the traditional teaching materials used today.

Within the domain of social marketing, threat appeals have been used a lot as a persuasive strategy. However, threat appeals are mainly investigated in traditional advertising media like roadside billboards or print media, neglecting their impact in an interactive environment. In addition, the audience considered has mainly been adults or young adults. A number of studies have looked into the effect of threats on intentions and/or behaviors of teens (e.g. Henley & Donovan, 2003; Pechmann et al., 2003; Greening, Stoppelbein & Jackson, 2001), but research concerning the effect of threat appeals on 7-to-9 year old children remains rare.

As bad dental hygiene remains a prevalent chronic disease among American children, simply using threat appeals warning them about the dangers of undesired behavior is not enough. Children should also be provided with additional health information, explaining why it is important to keep their teeth healthy and clean. Therefore, the



impact of interactive games as medium to provide health information and improve dietary habits should be compared to other, commonly used traditional communication tools. More specific, we compare an interactive computer game to an information brochure and a narrative story (for instance, told in a classroom), as these are, to date, the most frequently used educational tools for children.

In sum, the present study examines the effect of weak and strong threat messages about dental hygiene on children's behavioral outcome (snack choice), and how this effect is moderated by the type of medium used to communicate dental hygiene information after this threat appeal. The main contribution is to investigate which medium, used to convey this extra health information following a message evoking either a low or a high level of threat, leads to the best adaptive behavioral results.

## **2. CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT**

### **2.1 Threat appeals**

Threat appeals have long been used in health education and social marketing initiatives to motivate people to adopt healthy lifestyles. Threat appeals are "*persuasive messages designed to scare people by describing the terrible things that can happen to them if they do not do what the message recommends*"(Witte, 1992, p.329). One of the most comprehensive frameworks used to describe how threat appeals work is the Extended Parallel Processing Model (EPPM; Witte, 1992). According to the EPPM, threat appeals may evoke a danger or a fear control process, depending on perceived threat (i.e. 'how severe is this threat?') and perceived efficacy (i.e. 'can this threat be reduced if I adopt my behavior as recommended?'). When the threat is not perceived as severe, individuals will not be motivated to process the threat appeal. When the threat is perceived as severe in combination with a high level of perceived efficacy, the threat appeal leads to a danger control process, which motivates individuals to process the message and protect themselves against the threat by adapting their behavior as suggested. When the perceived threat is strong but the perceived efficacy is low, individuals are not

motivated to process the threat appeal and try to reduce the unpleasant fear experience by maladaptive responses (such as minimizing or denying the threat). This process is called fear control (Rippetoe & Rogers, 1987).

In other words, only a combination of a perceived threat that is strong enough and a high perceived efficacy will motivate people to adapt their behavior following the recommendation in the message (Blumberg, 2000). This effect is well-established (e.g. Cauberghe, De Pelsmacker, Janssens & Dens, 2009), however, mainly with adults or young adults. Since pieces of research combining children, health related contexts and threat appeals are scarce (Charry, 2009), this study investigates the hypothesis that children's consumption of healthy (vs. unhealthy) food can be influenced by manipulating their perceived threat, when perceived efficacy is sufficiently high.

The respondents are either exposed to a weak or a strong threat message warning them about the dangers of unhealthy teeth. Perceived efficacy is controlled for, telling all the children that they are able to avoid this threat by attending their teeth and eating healthy food. Effects are measured on children's behavior, making them choose between a healthy and an unhealthy snack. Hence, we expect:

*H1: When the perceived threat is strong, there will be significantly more children with adaptive behavior (choosing a more healthy snack) than in the weak threat condition*

### **2.1.1 Comparing traditional and interactive media in terms of cognitive demand**

Before investigating whether the traditional response to threat appeals can also be effectuated in combination with an interactive, digital media context, it is important to take a look at the characteristics of each of the three media types studied. Especially the cognitive demand of each of the media is looked into, since the attention devoted to the educational tool can affect children's processing of the educational content. Past research comparing games to other, more traditional communication tools in terms of attention and recall is mainly set in a commercial context (e.g. comparing games to traditional TV advertisements; Waiguny & Terlutter, 2011; Dahlen & Edenius, 2007). Therefore, we raise the question whether the attention children devote to interactive

games differs from the attention they devote to other, more traditional communication tools used for educational purposes.

Contrary to traditional media, computer games are digital, interactive and they give players a sense of active control over what is happening in the game (Papastergiou, 2009; Prensky, 2005). Due to their interactive aspect, computer games allow active participation, hereby engaging children with the content rather than just passively exposing them to it. Also, games can induce escapism (Refiana, Lizerski & Murphy, 2005), giving the player a feeling of being absorbed by the environment (the *immersion* effect; Ryan, Rigby & Przybylski, 2006). However, processing this interactive content also demands a lot of cognitive resources (Yuji 1996). Therefore, we expect that playing a computer game can capture a child's full attention, and thus attention devoted to the game will be high.

Similarly, reading a textual brochure is a complex process for 7-to-9 year olds who are still in an early stage of reading development, and have yet limited reading experience (Alloway, Gathercole, Wills & Adams, 2004; Shepardson & Pizzini, 1991). Although word-based booklets and textbooks are the dominant vehicle for delivering information in schools, reading requires a lot of attention from children, since it has not yet become an automatic process. Ericsson and Kintsch (1995) state that, when reading a text, children must maintain access to large amounts of information, in order to comprehend the text and coherently integrate it with contextual information. Cunningham and Stanovich (2001) argue that reading encompasses several skills like word recognition, decoding and comprehension, making it a complex, highly resource demanding task for children. Listening to a narrative story, on the contrary, is a rather passive activity which children already master by the age of seven. This leads us to assume that listening does not require the same elaborate cognitive processing as reading. This assumption was supported by Berl and colleagues, who, using MRI techniques on children, found that reading requires a more active processing and a larger set of cognitive demands compared to listening to a story (Berl, Duke, Mayo et al., 2010). Although narrative stories have proven to be valuable and frequently used learning tools, we expect that they require less focused attention to process:

*H2: Children devote more attention to both a game and an information brochure than they do to a narrative story*

### 2.1.2 Cognitive load, interference and the moderating effect of the medium used to convey health information

Following the cognitive load theory (Kirschner, 2002), we can expect that when a threat message is followed by additional health information, the attention devoted to the subsequent medium used to convey this information will have an effect on processing the preceding threat appeal. The reason behind this is that humans, and especially children, have a limited capacity to process information (Lang, 2000; Lang et al., 1996). Our short-term memory or working memory, used to organize and process the information we are confronted with, can only process a limited amount of information at a time. Once information is filtered by the working memory, it is then stored in the long-term memory as knowledge. It is in this memory that children make sense of this stored information and learning takes place. When, however, the limits of the working memory load are exceeded, information is not stored as knowledge and children simply forget it (Kirschner, 2002). This process is also described as the interference effect, whereby “the process by which our ability to recollect information is hindered by our exposure to some other information” (Kumar, 2000, p.155). In other words, when a lot of new information elements enter the (limited) working memory, it gets harder for children to recollect the preceding information.

One of the factors that can affect cognitive load is task complexity. As argued above, reading a brochure and playing a computer game are more complex activities and demand more attention from children than listening to a story. Therefore, we can expect that children who listened to the story will remember the preceding threat message better than the children who performed a more complex tasks like gaming or reading the brochure. Thus, the effectiveness of the strong threat appeal will decrease when followed by a complex task.

Linking this to the Extended Parallel Processing Model (EPPM; Witte, 1992), we can expect that the effect of the strong threat message will diminish or disappear and children will not be motivated to adapt their behaviour as suggested, because they simply ‘forgot’ the threatening message. When, however, the threat message is followed by a less cognitively demanding task like listening to a story, interference will be limited, leaving the threat message more prominently available in memory. Children will have

more cognitive resources left to process the threat message (danger control) and to change their behaviour by choosing a healthy snack over an unhealthy one. In short, we expect that the effect of the threat message on children's adaptive behavior will be stronger after listening to the narrative story than after playing the game or reading the information brochure:

*H3: Contrary to children who play a game or read a brochure, children who are exposed to a narrative story show more adaptive behavior (chose more a healthy snack) after previous exposure to a strong than to a weak threat appeal.*

### **3. MATERIALS AND METHOD**

A 2 (weak vs. strong threat) x 3 (medium to convey additional health information: computer game – information brochure - narrative story) between subjects factorial design is used to test the hypotheses. For the interactive game condition, we use a computer game that was developed to teach children the importance of dental hygiene through interactive game play. At the beginning of the game, the players are introduced to the avatar, a beaver named Ben. Navigating through the forest where Ben lives, the players can discover more information about Ben and his friends and play three different games. Each game has a different focus, teaching the children how to brush their teeth properly, visit the dentist twice a year and eat healthy food (see appendix 1). Throughout the game, children receive various information concerning dental hygiene, but they are also challenged to carry out assignments related to the content (for example distinguish healthy from unhealthy food or brush teeth correctly using the mouse). The information brochure and narrative story are developed by the researchers, based on the content and design of the interactive game. They contain the same information as the computer game, only presented in a different way. Also, the avatar from the computer game, is the main protagonist in the story and the brochure. As for the visual stimuli, images of Ben from the game are incorporated in both the information brochure and the story.

In the brochure, the content is presented in the same format as a traditional classroom textbook. Although the focus is mainly on information transfer, a few pictures used in the game are included to illustrate the content. Similar to the game, the three main topics discussed in the brochure are dental hygiene, visiting the dentist and the importance of eating healthy food. The same information is incorporated in the story, but this time the information is presented in a more narrative, descriptive way (e.g. "Once upon a time there was a nice beaver called Ben. Ben the beaver lived in the big beaver forest", etc.). While reading the story, pictures of Ben are shown to the children. Also, a control group was included, consisting of children who were not exposed to a preceding threat message, nor to one of the three media.

### **3.1 Participants**

The respondents are recruited from 10 different primary schools in Belgium, selected across the five Flemish provinces based on quota reflecting the population of the provinces. The selection includes both public and private schools, as well as urban and municipal schools. Only third graders are selected, each randomly assigned to one of the experimental conditions or to the control group. Each time, at least two or three different conditions (depending on the amount of pupils) are investigated in one class. This way, a maximum randomization of the children's prior knowledge is obtained. Children of the age 7-to-9 are chosen because at this age, children are capable to read information brochures and they have the skills to play computer games by themselves. In total, 190 children from 20 different classes participated (50% male, average age of 8 years).

### **3.2 Procedure**

The procedure is the same in each class. The researchers come in, introduce themselves and tell the children they are about to participate in a study, without revealing its purpose. The children are only told they will meet a beaver named Ben who is going to teach them some things. Afterwards, the children are taken to separate classroom, to

avoid any distraction during the experiment. First, the researcher asks if the children have ever had a hole in their tooth, in order to start a conversation. After discussing this for a short while, the researcher communicates the strong or the weak threat message. To strengthen the manipulation, both pictures and textual information are combined (see appendix 2). In the strong threat condition, children are informed about the consequences of untended teeth, stressing the related dangers and risks. They also see a picture of affected teeth with caries. In the weak threat condition, the consequences are described as less severe and the importance of clean and healthy teeth are stressed. Meanwhile, the children are shown a picture of nice, healthy teeth.

In both conditions, the children are told that they can avoid these negative consequences by brushing their teeth, visiting the dentist on a regular basis and eating healthy food, hereby controlling for perceived efficacy. Following the (weak or strong) threat message, the children listen to the story, read the brochure or play the computer game. The game and the brochure are played or read individually. Afterwards, each child is asked to fill out a questionnaire together with the researcher. This way, more information can be provided, in case the respondent does not understand a particular question. The pupils are all assured the survey is not a test for points. After the survey, the children are told that the study is over and that since they have done really well, they can choose a snack as a reward. To avoid imitation, the snacks are chosen individually. By making them choose between a healthy (piece of apple, coded as 0) or an unhealthy snack (candy, coded as 1), (non) adaptive behavior is measured. The children from the control group are not exposed to any stimuli, they are only asked to choose a snack.

### 3.3 Measures

Following previous research (e.g., Pempek & Calvert, 2009) and given the young age and limited memory retrieval capabilities of the target audience, a relatively simple measurement technique is used to assess the perceptions of the intended effects. Existing scales are simplified into one item, 4-point Likert scales.

Previous dental care, previous visit to the dentist, self-reported attention, perceived threat and perceived efficacy are measured (see appendix 3). Children's prior

knowledge concerning dental hygiene is not pre-measured in order to avoid confounds and priming effects.

### 3.4 Pretest

To assess the success of our manipulation, a pretest is conducted with 18 children (50% male, mean age 8.11 years). Results confirm that the level of threat evoked by the weak threat prime is significantly lower than the threat evoked by the strong threat prime ( $M_{\text{weak threat}} = 1.5$  vs.  $M_{\text{strong threat}} = 2.4$ ,  $t(16) = 2.155$ ,  $p = .047$ ). As expected, perceived efficacy is high and does not differ between the weak ( $M = 3.86$ ) and the strong threat group ( $M = 3.80$ ,  $t(139) = .770$ ,  $p = .443$ ). Finally, the time necessary to play the game and read the brochure is examined, as well as the duration of the narrative story. Results show no significant differences between the three exposure times ( $M_{\text{game}} = 339\text{sec}$ ,  $M_{\text{brochure}} = 377\text{sec}$ ,  $M_{\text{narrative story}} = 360\text{sec}$ ,  $F(152) = 2.403$ ,  $p = .094$ ).

### 3.5 Posttest

In order to assess the perceived similarity of content between the three stimuli, a short posttest is conducted (based on De Pelsmacker & Janssens, 2007) with 20 third graders (mean age = 8), as well as with nine adult advertising experts. After exposing them to all three the stimuli, the children are then asked to indicate on a five-point Likers scale (from totally disagree to totally agree) whether these stimuli cover the same subject ( $M = 4.6$ ), and whether they provide an equal amount of information concerning dental hygiene and healthy food ( $M = 4.75$ ).

The experts are asked the same two questions, only this time perceived similarity of content ( $M = 6.89$ ) and perceived equality of information quantity ( $M = 6.33$ ) are measures on a seven-point scale. Also, six additional questions are asked, concerning the amount of information and the perceived clearness of the information for each of the three stimuli separately. Results show no significant difference between the brochure, the story and the game in terms of amount of information ( $p = .107$ ) nor in terms of information clarity ( $p = .745$ ).



## 4. RESULTS

Although the respondents are randomly assigned to one of the seven conditions (six experimental groups and one control group), their prior receipt of dental care is compared since this could reflect some preconditioning. Results show no difference in prior brushing behavior ( $F(189) = 1.300$ ;  $p = .259$ ), nor in previous behavior concerning their visits to the dentist (Pearson  $\chi^2(12) = 16.529$ ;  $p = .168$ ) between these groups.

Further, the results of the manipulation check in the main study confirm that the perceived threat is significantly higher in the strong threat condition than in the weak threat condition ( $M_{\text{weak threat}} = 1.88$ ;  $M_{\text{strong threat}} = 3.22$ ,  $t(139) = 10.481$ ,  $p < .001$ ).

Concerning H1, the results show a main effect of the level of threat on children's behaviour. After receiving the strong threat message, significantly more children choose a healthy snack (55%) than the children who are exposed to the weak threat message (34%;  $\chi^2 = 5.487$ ,  $p = .019$ ). This supports H1. Furthermore, this effect is supported by the fact that the choice for healthy snacks does not differ between the children who are exposed to the weak threat message (34%) and the children from the control group (26%;  $\chi^2 = .792$ ,  $p = .373$ ). The children from the strong threat condition, however, choose significantly more healthy snacks than the children from the control group ( $\chi^2 = 7.687$ ,  $p = .006$ ). This is shown in figure 1 below:

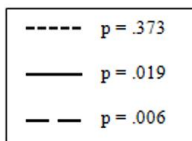
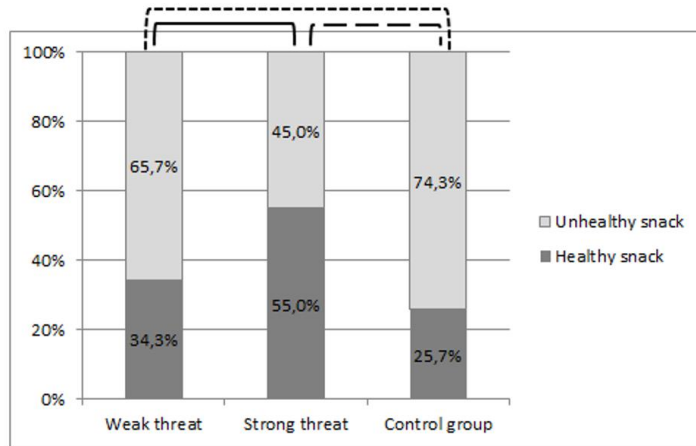


Figure 1: main effect of threat on children’s healthy versus unhealthy snack choice

The main effect of the medium type on self-reported attention is analyzed using ANOVA. Results show that the main effect of the type of medium children are exposed to on their self-reported attention is significant ( $F(152)= 4.890, p=.009$ ). As expected, children pay significantly more attention to the game ( $M= 3.57$ ) than to the narrative story ( $M= 3.23, t(103)= 2.643, p= .009$ ). The same result is found for the brochure, compared to the narrative story ( $M= 3.56, t(99)= 2.461, p= .016$ ). H2 is supported.

In addition, results show no difference between the attention devoted to the game ( $M= 3.57$ ) and the attention devoted to the brochure ( $M= 3.56, t(102)= .133, p= .894$ ). This was expected, since both reading and playing a computer game are skills which children have not yet fully mastered between the age of seven and nine, and thus demand more cognitive resources and attention than listening to a story.

The moderating effect of the medium used to convey additional information on children’s behavior (healthy/unhealthy snack choice) is tested by means of Chi<sup>2</sup> analyses. The main effect of medium type on choice behavior (healthy/unhealthy snack)

is not significant ( $\text{Chi}^2= 3.324, p= .190$ ). However, the interaction effect of the threat appeal and the medium type on choice behavior is. When looking at the snack choice after using the different media,  $\text{Chi}^2$  tests show that the children who played the computer game and read the brochure show no significant difference in snack choice after being exposed to either the weak or the strong threat message. After playing the computer game, 24% of the children chose a healthy snack in the weak threat condition versus 46% of the children in the strong threat condition. (Fisher's exact test  $p=.330$ ). After reading the brochure, 52% of the children chose a healthy snack in weak threat condition versus 57% in the strong threat condition (Fisher's exact test  $p=.782$ ). However, after being exposed to the narrative story, 19% of the children in the weak threat condition chose a healthy snack over candy, while this figure rises to 67% in the strong threat condition (Fisher's exact test  $p=.006$ ). These results support H3 (see figure 2).

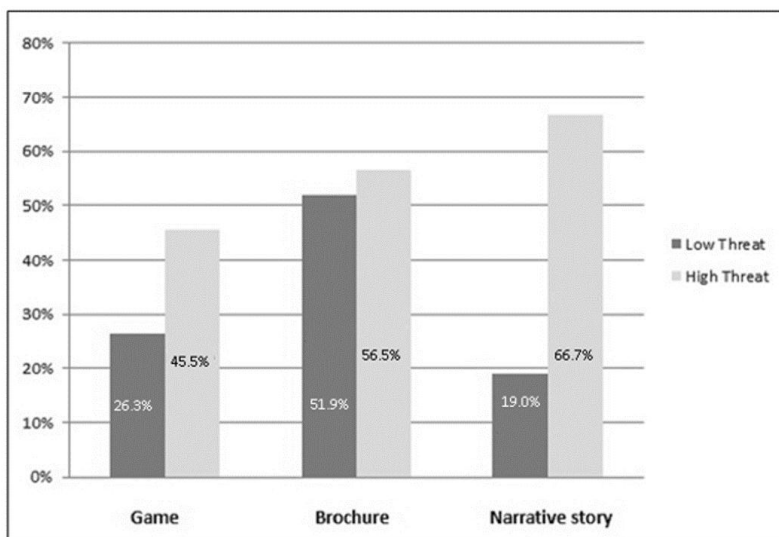


Figure 2: the effect of threat and media type on healthy snacks chosen by children

## 5. DISCUSSION AND CONCLUSION

The present study examines the possibilities for educators to achieve positive health-related behavioral change with children using threat appeals in combination with both computer games and more traditional educational media such as an information brochure and a narrative story. First, our research results contribute to the literature concerning threat appeals in health communication by showing that the effect of threat appeals on the adaptive behavior of 7-to-9 year old children follows the expectations formulated based on the EPPM (Witte, 1992). Under high levels of efficacy, significantly more improvement in healthy food selection is achieved using a strong rather than a weak threat message. However, when threat appeals are integrated in an educational setting (e.g. a classroom), they should be accompanied with additional course material in order to provide children with sufficient health-related information. Therefore the second research question considers which medium should be used as a part of this communication mix. The results show that, when children are provided with additional information after the threat message, the effectiveness of the threat message depends on the medium used to communicate this additional information. The positive effect of a strong threat appeal on snack choice only remains significant when the children listen to a story, but not when they play a game or read a brochure. This can be explained by the amount of attention that gaming and reading demands. Since children's cognitive abilities are limited, the cognitive resources they devote to the process of reading or game playing can compromise their processing of previously acquired information. Although computer games possess many motivational stimuli, they might act as a distraction due to the interactivity and the evoked feelings of immersion and absorption. Similar, reading a brochure is a complex process for children with limited linguistic capacities, demanding high concentration and focused attention. This allocation of attention may lead to an interference effect, causing little processing of the preceding threat appeal, and weakening its effect. As a result, children do not change their behavior. Listening to a story, however, requires less attention, leaving more resources to process the threat appeal. In this case, the threat appeal leads to a danger control process and motivates children to adapt their behavior.

This study implies that for children who are afraid for dental caries, the combination of a strong threat appeal and a supplementary narrative story is the best communication strategy amongst the ones tested. Although previous studies (e.g. Prensky, 2005) have argued that games can be more powerful learning tools than traditional learning modes, these authors mainly focus on the learning ability of games rather than their persuasive impact. The main conclusion of this study is that games, pleasant and attention-getting as they may be, may not always be the most effective medium to reinforce a strong threat appeal.

## **6. LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH**

The limitations of the current study suggest directions for further research. First, this study only focuses on short-term effects, exposing the children to the stimuli only once. It is possible that computer games distracted children from the preceding threat message not only because they are cognitively demanding to play, but also because of the excitement that is evoked by playing them. This is also highlighted by Conati and Klawe (2000), who argue that games can excite children too much, resulting in distraction from constructive reasoning. It is possible that once computer games are integrated more permanently in schools, children's excitement will decrease, or the complexity of the task will diminish after repeated playing.

Second, only one topic, namely the importance of dental hygiene is examined. Future research should compare the effect of threat appeals for different topics in the health care domain. Third, although prior behavior concerning dental hygiene is measured, we did not measure prior knowledge concerning this topic. We can assume that the participants have gained approximately the same amount of knowledge at school since they are all third grade pupils following the same curriculum, however this is not measured before exposing the children to the research stimuli in order to avoid confounds and priming effects. Therefore, we acknowledge the fact that prior knowledge can influence the children's responses to the experiment, regardless the random distribution to the different groups.

Further, although self-reported attention measures might give a good indication of attention allocation, further research could use eye-tracking or recall methods to measure this more validly. Also, as all the respondents were 7-to-9 year olds, further research could incorporate additional age categories, since it is very likely that both cognitive capacity and reading abilities are different for these children. Finally, it would also be interesting to actually integrate the threat appeals into the different media, thereby reducing the possible interference effect.

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## Appendix 1: Screenshot from each of the three computer games

Game nr. 1: brush your teeth and give carries no chance:



Game nr. 2: why you should visit the dentist:



Game nr. 3: distinguish healthy snacks from unhealthy snacks:



## Appendix 2: Stimuli used in the different threat conditions

**Weak threat stimulus:** “In a moment, you can play a computer game/read a brochure/listen to a narrative story about Ben the beaver. Ben is a really special beaver, because he knows a lot about teeth. Taking good care of your teeth is really important, because otherwise you can get holes in your teeth. But that’s not so bad. If you get a hole, you just go to the dentist, and he repairs your tooth. He does it really fast and it doesn’t even hurt. Usually older children get caries. It doesn’t occur often with children your age. Moreover, you can avoid having unhealthy teeth by brushing them regularly, and by eating healthy food. Look, this is a photo of a child your age (*enlarged version of the photo is shown*). You can see that his teeth are nice and healthy, without holes or brown spots.”







**Strong threat stimulus:** “In a moment, you can play a computer game/ read a brochure/ listen to a narrative story about Ben the beaver. Ben is a really special beaver, because he knows a lot about teeth. Taking good care of your teeth is really important, because otherwise you can get holes in your teeth. And when you have this whole in your tooth, this can cause brown spots to appear. Your teeth can even rotten, as you can see on this photo (*enlarged version of the photo is shown*). If you have unhealthy teeth, you must go to the dentist. He will take care of your teeth and repair them if there are any holes. If your tooth is really sick, the dentist will have to pull out your tooth, and this may hurt. Not so long ago, there was a child on television who had 14 holes in his teeth! He even had to go to the hospital. Unfortunately, it happens a lot that children of your age get holes in their teeth. The photo you just saw showed the teeth of an eight year old child. He didn’t only have brown spots, but his teeth also started to rotten in the middle. That’s really not nice. But you can avoid having unhealthy teeth by brushing them regularly, and by eating healthy food.”



### Appendix 3: Measures





- Self-reported attention was measured using a 4-point Likert scale based on the NASA Task Load Index (NASA-TLX, Hart and Staveland, 1988)

How well did you pay attention to the game/ the brochure/ the narrative story?

 Very well	 Well	 Not so well	 Not well at all
--	---	--	---





- The level of perceived threat was measured using a 4-point Likert scale based on Witte (1992):
  - the severity of the health dangers of unhealthy teeth:

Having bad/unhealthy teeth is serious

 Totally agree	 Agree	 Disagree	 Totally disagree
--	--	---	--





- the children's perceived vulnerability to this danger:

I could get holes in my teeth myself

 Totally agree	 Agree	 Disagree	 Totally disagree
--	--	---	--

- Perceived efficacy was measured using a 4-point scale based on Witte (1992):

Brushing your teeth helps to avoid getting holes (in your teeth)

 Totally agree	 Agree	 Disagree	 Totally disagree
--	--	---	--

- Previous dental care:

- Previous brushing behavior:

How often do you normally brush your teeth?

More than twice a day	Twice a day	Once a day	Sometimes	Never
0	0	0	0	0

- Previous visit to the dentist:

How often do you normally go to the dentist?

Often	Sometimes	I never go to the dentist
0	0	0

## Appendix 4: The course of the experiment

From top to bottom: playing the digital game, reading the brochure and listening to the narrative story:







## **CHAPTER 4**

# **COMPARING TV ADS AND ADVERGAMES TARGETING CHILDREN: THE IMPACT OF PERSUASION KNOWLEDGE ON BEHAVIORAL RESPONSES**



COMPARING TV ADS AND ADVERGAMES TARGETING CHILDREN: THE  
IMPACT OF PERSUASION KNOWLEDGE ON BEHAVIORAL RESPONSES<sup>3</sup>

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**Background and objectives:** Although to date, most studies concerning advertising targeting children are based on the Persuasion Knowledge Model (Friestad & Wright, 1994), this model is merely based on research concerning traditional advertising. Today's changes in the commercial media environment demand insights as to how the defining characteristics of new formats affect children's ad processing. Therefore, the main purpose of this study is to empirically investigate persuasion knowledge and its influence on children's susceptibility to advertising in terms of advertising effects for advergames.

**Method:** This chapter includes two studies, each focusing on a different element of the persuasive message: the message format (medium) and the message topic (content). In experiment1, children's processing of a TV commercial versus an advergame is compared in terms of activated persuasion knowledge, affective reaction to the format and persuasive outcomes. In experiment2, a commercial vs. a non-commercial advergame is compared in terms of activated persuasion knowledge and its effect on persuasive outcomes.

**Results:** Investigating the underlying persuasive mechanism, experiment 1 shows that for TV advertising, persuasion knowledge drives the persuasive effects while for advergames, persuasion is mainly driven by the attitude towards the game. Adding advertising cues to the advergame does not increase persuasion knowledge but does diminish the positive attitude toward the game effect, influencing behavior indirectly. Experiment 2 demonstrates that for an advergame, the persuasive mechanism does not differ between a commercial versus a social persuasive message.

**Conclusion:** This study stresses the importance of affective, next to cognitive responses to advertising in today's interactive new media environment.

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<sup>3</sup> This study was presented in 2012 at the 41th European Marketing Academy Conference (EMAC) in Lisbon, Portugal. It was published in 2014 as: Panic, K., Cauberghe, V. & De Pelsmacker, P. (2013). Comparing TV ads and advergames targeting children: the impact of persuasion knowledge on behavioral responses. *Journal of Advertising*, 42 (2-3), 264-273. DOI 10.1080/00913367.2013.774605.



## 1. INTRODUCTION

Due to digitalization, children's media environment has been subjected to substantial changes over the last decade. Advertisers are not only targeting today's children more often than earlier generations, they are also rapidly adopting new interactive marketing techniques to reach this young audience (Calvert, 2008). One of these new marketing techniques is the advergame, "a form of branded entertainment that features advertising messages, logos and trade characters in a game format" (Mallinckrodt & Mizerski, 2007, p.87). These online games are especially designed to promote a company's brand, linking the product or brand to rewarding stimuli (Lee et al., 2009; Nairn & Fine, 2008). In 2009, US companies spent an estimated \$676 million on advergame development (Lee et al., 2009) and according to content analyses of food and beverage websites in the USA, approximately 80% of the food websites promoted on children's television networks include advergames (Culp, Bell & Cassady, 2010).

Compared to traditional advertising, this new technique is fundamentally different. First, advergames integrate the persuasive message into a highly entertaining computer game. This implies that viewers are exposed to the commercial message and the media content at the same time, resulting in blurred boundaries between advertising, entertainment and information (Raney et al., 2003). Another point of difference is the level of interactivity. Contrary to traditional advertising, advergames evoke a certain degree of activity with the consumers, hereby engaging them with the interactive content rather than just passively exposing them to it (Van Reijmersdal, Rozendaal & Buijzen, 2012). But despite these considerable and ongoing changes in advertising techniques targeting children, little is known about how children process these new formats, how this processing affects their persuasion and how this mechanism is different from persuasion induced by traditional advertising. Especially the role of persuasion knowledge is unclear.

For decades, children's understanding of the persuasive intention of commercial messages has been one of the most important topics in the study of children's advertising processing. The main theoretical model describing this process is the

Persuasion Knowledge Model (PKM, Friestad & Wright, 1994), stating that people need to possess a certain knowledge about the intent and tactics of advertising in order to 'cognitively defend' themselves against its persuasive influences. With young children, however, this advertising-related knowledge is still underdeveloped, making them less able to critically process the ads they encounter and thus more susceptible to its persuasive appeal (Gunter, Oates & Blades, 2005; Brucks, Armstrong & Goldberg, 1988). Although this line of reasoning has dominated the academic and public debate about children and advertising, some shortcomings to the application of the PKM for children regarding advergames can be noted.

First, although theories like the PKM provide valuable insights, they are merely based on research concerning traditional advertising like TV and print. Today's changes in children's commercial media environment, however, demand a re-evaluation of the relation between children's advertising literacy and their susceptibility to advertising effects. As mentioned before, contemporary advertising formats differ substantially from traditional techniques. However, insights as to how the defining characteristics of these new formats - that is their integrated and involving nature - affect children's processing are still lacking (Van Reijmersdal, Rozendaal & Buijzen, 2012). As research on this topic is scarce, the main purpose of this study is to empirically investigate persuasion knowledge and its influence on children's susceptibility to advertising in terms of advertising effects for a new, interactive advertising format, namely an advergame.

Second, although previous persuasion knowledge literature has contributed substantially to our understanding of the age at which children possess advertising knowledge, profound insight on children's use of this knowledge when exposed to advertising is still lacking, certainly for new advertising formats such as advergames (Rozendaal et al., 2011). As argued by John (1999), the fact that children possess a certain amount of persuasion knowledge does not necessarily imply that they will spontaneously retrieve and apply it every time they are confronted with advertising. Due to the affect-based nature of contemporary advertising it is, for example, possible that children will not activate their cognitive defenses because they are swayed by the attractiveness of the interactive advertising format (Moore, 2004). To date, the main focus of the PKM remains on children's cognitive responses to advertising. However,

more recent findings from psychology and neuroscience (Nairn & Fine, 2008) argue that judgments and behaviors (including those related to advertising) are not only determined by cognitive responses, but also by affective associations with the advertisement. Therefore, the present study looks into the role of cognitive as well as affective reactions towards the advertising format while comparing the underlying persuasion mechanism for both traditional and new advertising forms.

Finally, although the role of message content on persuasion knowledge has been examined in the past (Boogaard & Fransen, 2011; Bhatnagar, Aksoy & Malkoc, 2004), its effect in a new, interactive environment has not yet been investigated. Therefore, we examine the impact of persuasion knowledge evoked by a commercial and a non-commercial advergaming on persuasive effects.

The research target of the current study is twofold, focusing on two elements of the persuasive message: the message format (medium) and the message topic (content). In the first experiment, the role of message format is examined by comparing children's processing of a television commercial versus an advergaming in terms of activated persuasion knowledge, affective reaction to the format and persuasive outcomes. In the second experiment, two advergaming with different message content (commercial vs. non-commercial) are compared in terms of activated persuasion knowledge and its effect on persuasive outcomes. The results of these studies contribute to our theoretical understanding of persuasion knowledge, but also provide guidelines for future legal and policy decisions concerning the protection of children with respect to new advertising formats. We focus on children between seven and ten year old, as the most important developmental changes in children's advertising literacy occur around this age (John, 1999).

## **2. THE DEVELOPMENT OF PERSUASION KNOWLEDGE**

According to the PKM, persuasion knowledge is the personal knowledge consumers develop about marketers' motives and tactics. This knowledge helps them to identify

how, when and why marketers are trying to influence them (Friestad & Wright, 1994). Past research concerning children's persuasion knowledge relies mainly on frameworks developed by cognitive psychologists (e.g. Piaget, 1929). In this point of view, children's understanding of advertising tactics and intentions develop together with their general cognitive capacities and information processing skills (McAlister & Cornwell, 2009; Moses & Baldwin, 2005; John, 1999). As children grow older, they begin to recognize the nature and understand the intent of advertising and they use this knowledge when processing commercial messages. In other words, children use persuasion knowledge as a defense mechanism or a 'filter' when processing persuasive messages, making them less susceptible to its influences. This cognitive defense mechanism encompasses multiple skills which are accumulated during childhood. Based on Piaget (1929), four general phases in children's development of persuasion knowledge are distinguished (for an overview, see Rozendaal, Buijzen & Valkenburg, 2011). Although there is a successive amount of research concerning the development of children's cognitive advertising defenses, research on the negative relation between persuasion knowledge and advertising effects remains equivocal. Only a few studies have empirically established the relation between low persuasion knowledge and children's susceptibility to advertising (Rozendaal, Buijzen & Valkenburg, 2011; Young, 2003). Furthermore, these studies only focus on traditional advertising, despite the recent changes in young people's media environment. As such, this study takes an important first step by comparing the role of both cognitive defenses and affective reactions on children's susceptibility to both traditional and new forms of advertising.

### **3. THE ROLE OF MESSAGE FORMAT: CHILDREN'S PERSUASION KNOWLEDGE FOR TV ADVERTISEMENTS VERSUS ADVERGAMES**

In recent years, computer games have become an important part of children's lives. On average, American children between eight and ten years old spends 61 minutes per day playing video games, making gaming one of children's favorite pastime activities (Rideout, Foehr & Roberts, 2010). As a result, advertisers targeting children adopt



computer games as a new advertising opportunity, integrating their commercial message into this popular entertainment medium. In contrast to traditional advertising, advergames are interactive and immersive. Designed to be playful and fun, these digital games provide challenge and competition and give the player a sense of active control over what is happening in the game (Williams & Clippinger, 2002).

Also, advergames are free, typically require little skill and are easy to access on company websites or general gaming sites (Grossman, 2005). This makes playing advergames a very pleasant experience for children (Hsu & Lu, 2004), more so than watching a television commercial. Indeed, a study by Waiguny and Terlutter (2011) shows that children have a more positive attitude towards an advergame than towards a television advertisement. Furthermore, advergames are less likely to activate cognitive defense mechanisms. As children often find advergames very appealing, they do not fully understand what these games are and how they work (Wollslager, 2009). With advergames, compared to traditional advertising where advertising and media content are shown sequentially, the advertising message is interwoven into an interactive game. Due to the embedded and subtle nature of these games, combined with children's underdeveloped persuasion knowledge and limited experience with this new advertising format, young children are unlikely to retrieve and apply their advertising knowledge as a critical defense while playing an advergame (Buijzen, Van Reijmersdal & Owen, 2010; Livingstone, 2009).

Recently, two studies demonstrated that children indeed find it difficult to understand the commercial nature of non-traditional advertising techniques (Mallinckrodt & Mizerski, 2007; Owen et al., 2010). Based on these findings, we expect that:

*H1: Children who play an advergame demonstrate lower persuasion knowledge than children who watch a TV advertisement*

However, the question remains as to whether persuasion knowledge affects children's susceptibility to advertising effects, and whether this persuasion process differs between a traditional versus an advergame context.

Traditional advertising literature shows that with adults, persuasion knowledge functions as a cognitive defense mechanism when processing advertising messages. When an ulterior motive of persuasion is perceived, persuasion knowledge is activated. This knowledge helps consumers to critically process the information, leading to less trust in the advertisement and a diminished desire to buy the advertised product (Livingstone & Helsper, 2006). For children, this mechanism is not always triggered. When playing an advergame, children are actively engaged in a pleasant activity. In this case, the players' attention is divided between two tasks, playing the interactive game (primary task) and processing the embedded brand information (secondary task; An & Stern, 2011). According to the limited capacity model of attention (Kahneman, 1973), these two tasks compete for cognitive capacity in the working memory, as capacity used for the primary task cannot be used to perform the secondary task. As children's ability to process information is limited (Buijzen, Van Reijmersdal & Owen, 2010) and that playing a computer game demands a lot of cognitive resources related to the interactivity of the game itself (Yuji, 1996), they may be totally absorbed in the game, leaving little cognitive capacity available to recognize and process the brands in the game (Van Reijmersdal, Rozendaal & Buijzen, 2012; Campbell & Kirmani, 2000). Watching a TV advertisement, however, demands less cognitive capacity than processing brand information while simultaneously playing a game, leaving more working memory capacity to critically process brand information. Hence, we expect that:

*H2: Persuasion knowledge has a more negative effect on children's purchase request for a TV advertisement than for an advergame*

Next to the level of persuasion knowledge, the processing of commercial content can also be influenced by the consumer's affective reaction towards the message format. The affect transfer mechanism (Baker, 1999) suggests that, through an unconscious mechanism, the format in which the brands are embedded has an influence on the formation of brand attitudes and subsequently on behavioral intention. Indeed, a positive attitude towards the advertising vehicle has been shown to carry over to the embedded advertisement (Breneman and&uens, 2004), which can in turn produce more

positive evaluations of the brand and affect children's purchase requests (Mallinckrodt & Mizerski, 2007).

As established earlier in this manuscript, the action of game play itself takes up a considerable amount of cognitive resources. When all the cognitive resources are taken up by due to the cognitive load of the game, children's information processing capabilities are hindered (Janssen, Fennis & Pruijn, 2010). Research by Shiv and Fedorikhin (1999) shows that under circumstances of high cognitive load, participants tend to base their reaction on affect rather than cognition. Affective responses are automatic reactions which tend to occur rapidly upon exposure to a stimulus. Compared to cognitive responses, their formation does not require the use of significant cognitive resources (Zajonc, 1980). Taking into consideration that advergames are playful and affect-based by nature and require more cognitive resources to process than a television commercial, we expect that:

*H3: The attitude toward the advertising format has a more positive influence on children's purchase request for an advergame than for a TV commercial*

### **3.1 The effect of advertising cues**

A possible explanation for the limited activation or use of children's persuasion knowledge when confronted with advertising can be found in the 'cued processors' theory. Brucks, Armstrong and Goldberg (1988) found that children, especially children between seven and 11 years old, often know what advertising is and how it works, but have trouble using this knowledge to generate critical thoughts and counterarguments when confronted with advertising. However, the cue processor theory suggests this process can be enhanced by presenting 'a cue' to activate this knowledge. For example, this can be a separation device like the announcement of an advertising break in a TV program or a disclaimer that identifies the presence of commercial content in a website or a movie (An & Stern, 2011). This advertising cue should make the motives of the persuasive message more accessible, and thus help children to 'stop and think' about what the advertisement is trying to accomplish (Rozendaal et al., 2011). In other

words, an advertising cue can facilitate recognition of the ulterior motive and trigger children's previously acquired persuasion knowledge.

However, advertising cues have only recently regained academic attention, and the limited results are far from univocal. While some studies confirm that cues indeed activate persuasion knowledge (e.g. Boerman, Van Reijmersdal & Neijens, 2012), other studies found no effect from cues (Van Reijmersdal & Tutaj, 2010; Stern & An, 2009). However, these studies mainly focus on the direct effect between advertising cues and the activation of persuasion knowledge rather than the effect of persuasion knowledge on children's susceptibility to advertising. Also, cues are mainly examined in a traditional advertising context like a television program (e.g. Dekker & Van Reijmersdal, 2010) or a magazine (e.g. Van Reijmersdal, Rozendaal & Buijzen, 2012b), rather than an interactive, online environment. This is mainly due to the fact that various legislative initiatives oblige the clear separation of content and commercial content on television. In 1979, the National Association of Broadcasters and the Federal Communications Commission passed rules obliging the inclusion of separation devices (i.e., "bumpers") in between commercials and television programs aimed at children (e.g., "And now, a word from our sponsors!" or "We will return after the commercial"). Currently, such regulation is missing on the Internet. As a result, only a number of online advergimes include cues indicating the presence of commercial content (An & Stern, 2011). But as the concerns regarding the ethical treatment of children online are heightened, laws and regulations concerning advertising cues are soon to be extrapolated to the World Wide Web.

A recent study by An and Stern (2011) focusing on the effect of cues in advergimes found no effect of ad breaks on children's ability to detect the commercial nature of advergimes, but did reveal a mitigating effect of ad breaks on children's desire to buy the advertised product. However, the authors note that the advertising cue which was used in this study is rather complicated for young children to understand, which might have affected the results. Therefore, using cues which can easily be understood by eight year old children, the next aim of this study is to compare the effect of persuasion knowledge on children's purchase request for both an advergame with and without

advertising cue. Following the 'cued processors' theory, the following hypothesis is developed:

*H4: Persuasion knowledge has a more negative effect on children's purchase request for an advergame with a cue than for an advergame without a cue*

Next, we examine to what extent advertising cues mitigate the positive effect of the gaming context on favorable behavioral responses. According to An and Stern (2011), advertising cues may lead to a 'detachment' effect where children simply ignore the promotional message or the brand and reallocate their attention to other, more fun aspects of the game. In other words, a cue can lead children to pay more attention to the active controls of games, while ignoring the integrated brand information. As a result, the affect transfer mechanism (from the advertising vehicle to the brand and in turn on behavior) can be expected to be reduced. Therefore, we expect that:

*H5: The attitude toward the advertising format has a more positive effect on children's purchase request for an advergame without a cue than for an advergame with a cue*

#### **4. THE ROLE OF MESSAGE CONTENT: CHILDREN'S PERSUASION KNOWLEDGE FOR A COMMERCIAL VERSUS A SOCIAL ADVERGAME**

According to Buijzen et al. (2010) not only the persuasive format (i.e. the medium), but also the nature of the message should be taken into account when investigating young people's processing of persuasive media content. Following the assumption that persuasion knowledge activates a defense mechanism (Knowles & Linn, 2004), different kinds of messages may provoke different resistance strategies. Commercial advertising can, for example, be more easily recognized as an attempt to persuade than a social game because the self-interest of the commercial advertiser is more obvious compared to a social message. Although social messages may also be recognized as a persuasive communication attempt, the fact that the source (e.g., a health organization)

has little self-interest in the message might evoke less defensive reactions with the recipients (Walster, Aronson & Abrahams, 1966). Contrary to commercial messages, the source of a social message acts out of public interest and wellbeing. Since a social persuasive messages will raise less suspicion of ulterior motives, this may evoke less critical message processing than commercial messages, in turn, affecting persuasion. Therefore, we expect persuasion knowledge to have a more negative effect (making children more critical) on behavioral intentions when playing a commercial advergaming than when playing a social game:

*H6: The negative effect of persuasion knowledge on behavioral intention is higher for a commercial advergaming than for a social advergaming.*

## 5. STUDY 1

### 5.1 Method

#### 5.1.1 Design and procedure

Using a three-level between subject groups design, children are either exposed to a TV advertisement, an advergaming without a cue, or the same advergaming including a cue. Both the advertisement and the advergaming promote Lays natural potato chips, a product which is highly popular and well-known among children. To make the stimuli realistic, the Lays 30 second TV commercial is integrated into a television program, simulating a commercial break. This way, children were sequentially exposed to a fragment from *Spongebob Squarepants* (a popular television program for children), followed by the Lays potato chips commercial showing people eating Lays chips and having a good time at a party. Although the TV commercial is not primarily aimed at children, it was chosen because the Lays advergaming was based on this commercial.

The total exposure time to the program and the commercial break was two minutes. A visual disclaimer is placed at the beginning and at the end of the television commercial,

announcing a break ('we'll be back after the commercial break') and welcoming the viewer back to the program. We did not include a condition without disclaimer, as advertising breaks (or cues) are mandatory in between commercials and television programs aimed at children. In the advergaming condition, each child gets to play a Lays advergaming on the computer. In this game, the player is challenged to get to a (Lays) party within the given time, earning bonus points when collecting bags of Lays chips along the way. Since both advergaming with and without cues can be found on the Internet, one group of children plays the game without any advertising cue, while in the second group, a full-screen disclaimer stating 'Play the Lays advergaming! Go to [www.Lays.be](http://www.Lays.be) or click here!' is integrated at the beginning of the game.

Children can only get to the game by clicking on the word 'here' in the disclaimer. On average, the children needed two minutes to finish the game. This is significantly longer than the TV commercials which only lasts 30 seconds, but mimics a realistic exposure situation for both TV ads and advergaming. As the advergaming is based on the TV ad, the product, the package, the setting and the slogan are the same in both conditions, enhancing similarity. Before starting the experiment, the respondents are randomly exposed to one of the three experimental conditions. After receiving some basic information about the stimuli (e.g. how to play the game), children either watch the fragment with the TV advertisement or play the advergaming. The children are instructed to individually watch a TV show or play an advergaming as they would do at home. Afterwards, each participant is presented with a standardized questionnaire. After explaining the meaning of the smileys used as anchors (see hereafter), each question is read out loud by the researcher. Participants can then point out their answer from a set of picture response options, providing the opportunity to ask questions or clarifications if necessary. Children's attitude towards the game, persuasion knowledge and behavioral outcome (purchase request) are measured.

### 5.1.2 Respondents

In total, 254 children participated in the study (44% male, M age = 8). The respondents are all second or third grade pupils, randomly recruited from different primary schools in Belgium. Children between seven and ten years old are chosen because, according

to John (1999), the most important developmental changes in children's advertising literacy occur around this age. Also, at this age, children are able to read and have the skills to play a computer game by themselves.

### 5.1.3 Measures

The attitude towards the game/advertisement is measured based on the scale by Holbrook and Batra (1987). To measure children's purchase request ('will you ask your parents to buy Lays potato chips?'), the scale of Putrevu and Lord (1994) is used. The two main aspects of persuasion knowledge are measured the same way as done in Van Reijmersdal, Rozendaal and Buijzen (2012) and Mallinckrodt and Mizerski (2007). More specific, understanding of the commercial source is measured with the question 'who created the commercial/game?', with the following response options: 'Lays', 'the researcher', 'the teacher', 'a pirate' or 'I don't know'. The first response is coded as correct, the others as incorrect. Understanding persuasive intent is measured asking 'what does the commercial/game want you to do?', with the response options 'buy Lays chips' (correct), 'be a good pupil', 'be happy' or 'game' (all incorrect). The results of both items are summated to obtain one measure of persuasion knowledge (correlation between both items = .311,  $p < .001$ ). Due to the children's limited reading skills, smileys and visual icons are included in the survey (cf. Mallinckrodt & Mizerski, 2007). Also, existing scales are simplified into one item, five-point Likert scales (see appendix 1).

### 5.1.4 Manipulation check

In order to determine whether the saliency of both the TV cue and the advergaming cue is similar, a manipulation check is conducted among an additional 44 children from the third grade (65% male, mean age = 8). After seeing one of the cues (without any context), children's advertising recognition is measured by asking 'What are you about to see?'. For the TV cue, the correct response is 'a TV advertisement'. For the advergaming cue, 'a game which contains advertising' is coded as correct. The other, incorrect response options were 'a TV program without advertising', 'a cooking website', 'a game



*without advertising*' and *'a cartoon*'. In addition, understanding of the commercial source and understanding of the persuasive intent is measured using the same scale items as in main study. When adding this three PKN items up, a between subjects test showed that the cue from the TV condition ( $M = 1.50$ ) and the cue used in the advergame condition ( $M = 1.91$ ) did not vary in the amount of evoked persuasion knowledge ( $t(42) = 1.480, p = .146$ ). In addition, to rule out a possible affective transfer mechanism from the TV program to the TV ad, children's affective reaction towards the Lays TV ad and the Spongebob TV program is measured. The results show no difference in attitude between the TV ad ( $M = 3.33, SD = 1.365$ ) and the TV program ( $M = 3.45, SD = 1.438, t(126) = .468, p = .640$ ).

## 5.2 Results

First, a control test is conducted to test whether children's attitude towards the advergame is indeed significantly more positive than their attitude towards the TV ad. This assumption is used as part of the development of some of the hypotheses and therefore needs to be tested among the respondents of the main study. ANOVA with post-hoc tests is conducted including the experimental condition as independent, and the attitude towards the format as dependent variable. The model is significant ( $F(204) = 38.630, p < .001$ ) and results of the Scheffe test show that children indeed like the advergame (with cue) significantly more ( $M = 4.67$ ) than the TV advertisement ( $M = 3.33, SE = 187, p < .001$ ). Although the effect of cues is tested further in this section, we note for completeness that the same results appear when the attitude towards the TV ad ( $M = 3.33$ ) is compared with the attitude towards the advergame without a cue ( $M = 4.59, SE = 165, p < .001$ ). The first hypothesis compares the general level of children's persuasion knowledge after playing an advergame (with cue) or seeing a TV advertisement. Pearson  $\chi^2$  test shows that, persuasion knowledge is significantly lower after exposure to the advergame than after seeing the TV ad ( $\chi^2 = 38.000, p < .001$ ). This supports hypothesis one. Again, we note for completeness that the same results appear when comparing persuasion knowledge after seeing the TV ad vs. playing the advergame without cue ( $\chi^2 = 26.161, p < .001$ ). To test hypotheses two to five,

three separate multiple regression analyses are run (one for each of the three conditions) with the attitude toward the advertising format and persuasion knowledge as independent variables and the behavioral responses (purchase request) as the dependent variable. The conceptual model is presented in figure 1. In the TV advertisement condition, the results show a significant negative effect of persuasion knowledge on purchase request (path A in the model:  $\text{Beta} = -.242$ ,  $t = -2.243$ ,  $p = .028$ ). However, persuasion knowledge appears to have no significant effect on children's purchase request in the advergence without cue condition, ( $\text{Beta} = .151$ ,  $t = 1.696$ ,  $p = .093$ ), nor in the advergence with cue condition ( $\text{Beta} = .131$ ,  $t = .910$ ,  $p = .367$ ). This supports hypothesis two, but disconfirms hypothesis four.

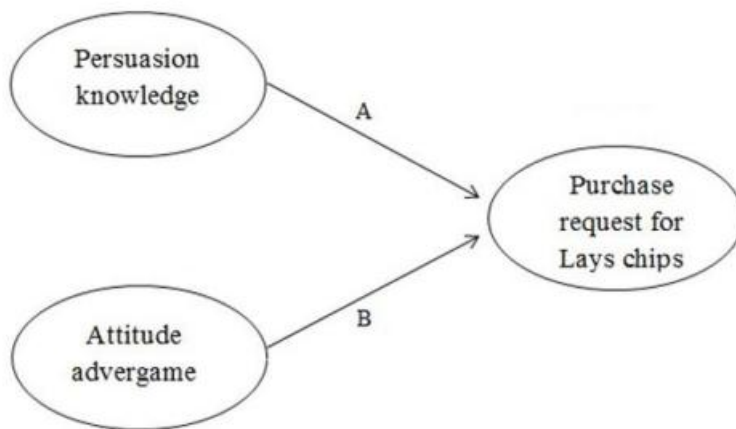


Figure 1: A conceptual model of the underlying persuasion mechanism

When looking at the affective measure, results show that in the TV ad condition, there is no significant effect of the attitude towards the advertising format on purchase request (path B in the model:  $\text{Beta} = .028$ ,  $t = .217$ ,  $p = .829$ ). This in contrast to the advergence without cue, where results show a positive and significant effect of attitude towards the game on purchase request ( $\text{Beta} = .239$ ,  $t = 2.679$ ,  $p = .008$ ). This supports hypothesis three. When the cue is added to the advergence, the positive effect of attitude towards the game diminishes and does not reach conventional levels of significance anymore

(Beta= .270,  $t = 1,880$ ,  $p = .067$ ). These results are in line with hypothesis five, but do not significantly support it. Furthermore, children's intention to ask for Lays chips drops significantly ( $M$  adverggame without cue = 3.56 vs.  $M$  adverggame with cue = 2.92,  $t(119) = 2.488$ ,  $p = .014$ ) when a cue is added to the adverggame. This is remarkable since there was no difference in purchase request between the TV ad ( $M = 3.18$ ) and the adverggame without the cue ( $M = 3.56$ ,  $t(155) = 1.709$ ,  $p = .090$ ).

### 5.3 Discussion

From the first study, we can conclude that persuasion knowledge does not affect the persuasive outcomes for an adverggame (with or without a cue), while it appears to have a negative effect in a TV advertising context. To test whether this low persuasion knowledge effect is solely due to the appealing nature of the format a follow-up study is conducted. Comparing the same advertising format (an adverggame), the second study uses two computer games with different content (i.e. a commercial versus a non-commercial or social game) in order to detect whether or not the content of the message has an influence on this persuasion knowledge effect.

## 6. STUDY 2

### 6.1 Method

#### 6.1.1 Design and procedure

Using two between subjects groups, the Lays commercial adverggame from study 1 is compared to a new, non-commercial game in order to investigate the effect of message content on the influence of persuasion knowledge on behavioral intention. For the social game, we use a game that is especially developed to teach children the importance

of eating healthy food. While playing, children are challenged to collect as many healthy snacks as possible within the given time. This way, children learn to distinguish healthy from unhealthy snacks, as bonus points can only be earned when the avatar eats healthy snacks (fruit, vegetables, cheese etc.) and leaves the unhealthy ones (donuts, ice cream etc.) behind. To keep confounds as limited as possible, both games promote the same product category (food) and have the same goal (collect respectively chips or fruit and vegetables and earn bonus points when succeeding). Furthermore, both games are played using the arrow keys on the computer.

### **6.1.2 Respondents**

In total 128 children participated (47% male; M age = 8). The respondents are all second and third grade pupils, recruited from different primary schools in Belgium. The respondents are randomly exposed to one of the two experimental conditions.

After receiving some basic information about the games (how to play, rules, purpose of the game, etc.), the children either play the Lays advergame or the healthy food game individually. The exposure time in both conditions is two minutes, which is enough time to play the commercial or the social game once. Afterwards, each participant fills in a standardized questionnaire with the help of one of the researchers. Again, children are asked to choose their answer from a set of picture response options. Children's attitude towards the game, persuasion knowledge and behavioral outcome (purchase request) are measured.

### **6.1.3 Measures**

The attitude towards the game and behavioral intention are measured using the same scales as in study 1. For the social game, however, the purchase intention ('will you ask your parents to buy Lays potato chips?') is replaced by the question 'will you ask your parents to eat more healthy snacks?'. Again, two aspects of persuasion knowledge are measured and added into one measure, as in study 1. Understanding of the commercial source is measured with the question 'who created the game?'. Compared to the commercial game condition, the response option 'someone who wants me to eat healthy

food' (correct) is added. The other options are '*Lays*', '*the researcher*', '*the teacher*' or '*I don't know*' (all incorrect). Understanding persuasive intent was measured asking 'what does the game want you to do?'. This time, the response options are '*eat healthy*' (correct), '*be happy*' or '*play a nice game*' (all incorrect). In each condition, the results of both items were summated to obtain one measure of persuasion knowledge (correlation between both items = .245,  $p = .002$ )

## 6.2 Results

To avoid confounds, children's attitude towards both games is tested but results show no difference in the attitude between the Lays game ( $M = 4.67$ ) and the social game ( $M = 4.84$ ,  $t(126) = 1.759$ ,  $p = .083$ ). To test the sixth hypothesis, two separate multiple regression analyses are run for the commercial and the non-commercial game condition with the attitude towards the game and persuasion knowledge as independent variables and purchase request as the dependent variable. Contrary to what was expected in hypothesis six, there appears to be no significant effect of persuasion knowledge on behavioral intention (path A in the model), neither in the commercial game condition (Beta = .119,  $t = 1.024$ ,  $p = .309$ ) nor in the social game condition (Beta = -.093,  $t = -0.715$ ,  $p = .478$ ). Further, the attitude towards the game appears to have a marginally positive effect on behavioral intention in the advergaming condition (path B in the model: Beta = .270,  $t = 1.880$ ,  $p = .067$ ), but not in the non-commercial game condition (Beta = .052,  $t = 0.662$ ,  $p = .506$ ).

## 6.3 Discussion

Contrary to what we expected, the results of the second study show that in a gaming context, the effect of persuasion knowledge on persuasive outcomes does not differ between a game with commercial and a game with social content. These results may

indicate that in a gaming context, children's persuasion knowledge does not affect behavioral outcome, regardless of the message content.

## 7. CONCLUSION

In order to determine the types of policies and regulations that are needed to protect children in today's advertising environment, public policy makers need to get a clear picture of children's processing of persuasive messages in contemporary advertising practices. However, to date, little is known about how children process new interactive advertising formats and how this in turn affects persuasion. The present study contributes to the existing body of literature on children and advertising in a number of ways. First, instead of assuming a causal relation, this study empirically investigates the effect of persuasion knowledge on children's susceptibility to advertising in terms of advertising effects. In addition, we include the role of affective reactions towards the advertising format next to the traditional, cognitive aspect. Third, we do not limit our research to traditional advertising formats but compare the underlying persuasion mechanism for both traditional and new advertising formats, respectively including and excluding an advertising cue. Finally, focusing on the advergame as an advertising format, we compare the persuasion knowledge evoked by commercial versus non-commercial content and its effect on children's behavioral intention. Overall, our framework proposes that the underlying mechanism of the persuasion process is different for traditional than for new advertising formats. The results confirm that children like advergames more than they like TV advertisements, but they have more difficulty to understand the commercial nature of these games. This is in line with previous findings by Mallinckrodt and Mizerski (2007) and Owen and colleagues (2010). The next step in our research was to understand the specific ways in which persuasion knowledge affects the persuasion process. The results show that while children's defense mechanism for the television commercials seems to be in line with the cognitive defense view, advergames persuade children through positive affective reactions towards the games, without any effect of persuasion knowledge. However,

this positive effect diminishes when a cue is added to the advergame. Results show that although a disclaimer at the beginning of an advergame does not increase persuasion knowledge, it does decrease purchase request, influencing advertising effects implicitly. The same results were recently found by Ann and Stern (2011). In addition, the content of the game (social vs. commercial) appears to have no influence on persuasion knowledge activation. Based on the results of the second study, we can conclude that in a gaming context, children's defense mechanisms simply do not influence behavioral outcomes, independently of the content of the message. The same conclusion was drawn by Van Reijmersdal, Rozendaal and Buijzen (2012), stating even if children understand the game's commercial and persuasive nature, they do not use this knowledge as a defense against an advergame's effects.

## **8. PUBLIC POLICY IMPLICATIONS**

Due to changing nature of children's media environment, policy makers need to reconsider policies and regulations concerning child-directed advertising and re-open the discussion of the ethical treatment of children as a target group. Today, many countries base themselves on children's cognitive development as criterion for policy decisions. However, the present study argues that this cognitive focus is no longer sufficient. The affect-based nature of contemporary advertising demands a radical revision of our conceptualization of "fair" marketing to children. The current study suggests that the ethical debate should no longer solely focus on the question until what age we should protect children, but policy makers should also take into account children's (in)ability to resist implicit affect-based persuasion when deciding on regulations. Knowing that today, many governments worldwide do not regulate online marketing to children and that there are no limits to the number or duration of advertising exposures on 'non-broadcast' technologies such as the internet (Moore & Rideout, 2007), the need for rules and regulations protecting children becomes even more apparent. Furthermore, consistent with the 'cued processors' theory (Brucks, Armstrong & Goldberg, 1988), our research suggests that children should be informed

when an online game contains commercial content, as cues seem to have the potential to mitigate the effects of advergames implicitly. Finally, the results suggest that, compared to advertising cues used in television, alternative measures need to be implemented in advergames to protect young children from the affective overrides of persuasion knowledge while playing these immersive online games.

## **9. LIMITATIONS AND FURTHER RESEARCH**

The limitations of our work suggest directions for further research. Since there is no regulation regarding the advertising exposure time of children on the internet, several authors (e.g. Moore, 2004, p.264) have acknowledged that ‘rather than capturing children’s attention for thirty seconds through a television commercial, the advertiser may now engage children for several minutes in this potentially powerful, interactive medium’. Although this difference is inherent to both advertising formats, it implies a difference in brand exposure time between the TV ad and the advergame condition in the first study.

Second, to keep the stimuli as realistic as possible, a fragment of the TV program *Spongebob* is added before the 30 second ad to simulate a commercial break. However, the children from the advergame condition did not see the *Spongebob* program before playing. Future research could embed the advergame into, for example, a *Spongebob* website to make both condition even more similar to each other.

Third, brand exposure is not measured. Further research should measure children’s exposure to the brand and control for it in the analyzes. In addition, although a difference in children’s attitude between a TV ad and an advergame has already been confirmed in past research, it is possible that this affective difference overrides the persuasion knowledge effect. Therefore, further research should be conducted using a different advergame and TV ad (promoting a different, or an unknown brand), in order to determine whether the obtained effect can be generalized.



In the second study, message content was only examined in an advergame context. Future studies should also include other non-traditional advertising forms like interactive branded websites directed to children, possibly comparing media with different levels of interactivity (low – medium – high). Also, it would be interesting to measure the effect of advertising cues in a commercial versus social advergame context.

Finally, some general limitations are that only seven-to-ten year old respondents are examined. Future research should also include respondents from other age categories as several authors (Rozendaal, Buijzen & Valkenburg, 2009, 2011) found that children's understanding of persuasive intent shows a considerable increase around the age of ten. Furthermore, the children were exposed to the stimuli only once. Further studies should include repeated exposures and study long term effects, since children's persuasion knowledge is developed by advertising experience and may increase after repeated exposure to the advergame.

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## Appendix 1: stimuli

Advertising stimulus study 1: the cue shown in the television advertisement condition:



English translation: *'We'll be back after the commercial break'*

Advertising stimulus study 1: screenshot of the advergame:

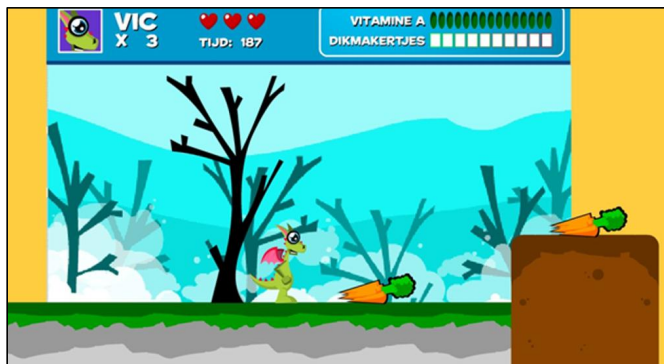


Advertising stimulus study 1: screenshot of the disclaimer used as cue in the advergaming condition:



English translation: 'Play the Lays advergaming! Go to [www.lays.be](http://www.lays.be) or click [here!](#)'

Advertising stimulus study 2: screenshot of the non-commercial advergaming:





## Appendix 2: measurement scales

### 1. Attitude towards the computer game (or television commercial):

*Do you like the computer game/ TV commercial you just played/saw? Circle the smiley that shows how much you like the computer game / TV commercial:*



I like it very much



I like it



I don't know



I don't like it  
so much



I don't like it at all

### 2. Attitude towards the brand:

*Do you like Lays chips? Circle the smiley that shows how much you like it:*



I like it very much



I like it



I don't know



I don't like it  
so much



I don't like it at all

### 3. Purchase intention:

*Will you ask your parents to buy lays chips next time you go to the store?*



Certainly



I like it



I don't know



I don't like it  
so much



I don't like it at all

### 4. Persuasion knowledge:

#### a. Understanding of the commercial source

*Who created the computer game? Take a look at the drawings and mark the drawing that fits best with your answer with a cross:*



The teacher



A pirate



Lays

Picture removed



The researcher

I don't know

b. Understanding of the persuasive intent

What does the commercial/game want you to do? Choose the answer you think is correct and put a cross under the corresponding drawing:



Be a good pupil



Be happy



Buy Lays chips



Game

## **CHAPTER 5**

# **THE EFFECT OF DIVIDED ATTENTION ON THE PROCESSING OF CONGRUENT VERSUS INCONGRUENT INFORMATION IN AN IDTV CONTEXT: THE MEDIATING ROLE OF NEED FOR COGNITION**



The effect of divided attention on the processing of congruent versus incongruent information in an iDTV context: the mediating role of Need For Cognition<sup>4</sup>

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**Background and objectives:** In order to determine which factors cause an increase or decrease in information processing during simultaneous ad-media content exposure, this study investigates the cognitive interference effect in an iDTV context. Second, the moderating effect of need for cognition (NFC) on the relation between congruence and visual attention on the one hand and information recall on the other is investigated.

**Method:** Using eye tracking and recall measures, this study investigates the impact of program - advertisement congruence (thematically congruent vs. incongruent) and need for cognition (low vs. high) on (1) people's visual attention to the simultaneous viewing condition and (2) the general amount of information recall, both during simultaneous exposure in an iDTV context.

**Results:** The results show that when viewers are simultaneously exposed to a thematically congruent program and interactive ad, this results in more gaze switching between both information sources (although not significant at a conventional level), but significantly less recall than when the ad and the program are thematically incongruent. The latter appears to be less interfering and distracting. Further, the results suggest that this positive effect of congruence on gaze jumping and negative effect on recall only applies for high NFC individuals.

**Conclusion:** While a traditional sequential congruent program-ad situations may benefit from cognitive priming effects, more novel simultaneous exposure formats appear to be more effective in contrasting, incongruent contexts.

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<sup>4</sup> A variant of this study was Presented in 2010 at the 9<sup>th</sup> International conference on Research in Advertising (ICORIA) in Madrid, Spain. It was published as a book chapter in 2011 as: Panic, K., Cauberghe, V. & De Pelsmacker, P. (2011). The impact of congruency and time pressure during simultaneous exposure in an IDTV context. In: E. Mann (Ed.), Nova Science, NY, p. 45-59.



## 1. INTRODUCTION

In today's cluttered media environment, people are exposed to a large amount of commercial messages every day. In order to cope with this over-exposure, people tend to avoid this overload by filtering out irrelevant ad messages or avoiding advertisements in general. Consequently, marketers are forced to compete for the limited attention resources of consumers (i.e. the 'war for eye balls', Schiessl et al., 2003). As an additional challenge, new technologies also give consumers more control over their advertising exposure. While the only way to avoid advertising used to be switching television channels during commercial breaks or XX, recent technological advances such as video on demand, replay TV, ad skipping technologies and internet user control provide new ways for consumers to avoid commercial information (Chowdhury, Finn & Olsen, 2007; Tse & Lee, 2001). As a result, advertisers are continuously searching for new ways to counter this advertising avoidance behavior. In the past, product placement has often been used as a technique in this light. By integrating the commercial message into the media stream such as a television program, a movie or an interactive game, this technique forces consumers to watch the commercial messages if they don't want to miss part of their media content (Newell et al., 2006). With contemporary technological innovations, however, new advertising formats providing simultaneous exposure to entertainment content arise. On the internet, for example, this type of simultaneous exposure is already prevalent in the form of banner advertising, search-based ads or streaming videos that are integrated in the same visual field as the website content (Chatterjee, 2008). With the arrival of interactive digital television (further abbreviated as iDTV), simultaneous presentation of programming and advertising can also be achieved through split screens applications (dividing the screen in two part), pop-up ads or banner ads in TV programs, etc. (Steinberg 2002).

In this paper, we focus on the telescopic ad, a new advertising format on iDTV, which can be regarded as the extension of a traditional 30-second ad with additional product information and clickable content (Bellman & Varan, 2004, Reading et al., 2006). When the viewer clicks on the call-to-action button in the 30-second ad, he or she leaves the linear broadcast

stream to enter a dedicated advertising location (DAL). There, the viewer can navigate through the additional information, which can be structured in different layers. To avoid that the viewer would miss a part of the linear broadcasting stream, a picture-in-picture or split screen divides the television screen in two parts, reducing the size of the program to fit a smaller part of the screen during the presentation of the advertisement (Lekakos, Papakiriakopoulos & Chorianopoulos, 2001).

For advertisers, this new format is promising. Besides reducing ad skipping behavior, this format allows marketers to provide more product information, create interaction with the brand and increase exposure time to the advertising content, without the viewer missing the ongoing television program (Cauberghe & De Pelsmacker, 2006). On the other hand, simultaneous exposure might also distract the viewer's attention away from the ad content (Chowdhury, Finn & Olsen, 2007). Compared to the traditional, sequential format of TV advertising, the split screen application forces viewers to divide their attention between both information sources. This can lead to a cognitive interference effect, which is defined as "*the process by which our ability to recollect information is hindered by our exposure to some other information*" (Kumar, 2000, p.155). According to Furnham, Bergland and Gunter (2002), this interference effect is even larger when both information sources are thematically congruent or related (vs. incongruent). This implies that in the case of simultaneous exposure, both media and advertising content should be substantially different in order to achieve optimal processing. However, to date, only one study can be found which provides empirical evidence to support this claim in a contemporary media environment (Janssens, De Pelsmacker & Geuens, 2012). This study investigated the effect of divided attention on the processing of (in)congruent information, but focuses mainly on ad evaluation and clicking behavior in a web environment. The current study, however, investigates the effect of divided attention on both visual (i.e. gaze jumping) and cognitive (i.e. recall) processing in an iDTV context.

In today's cluttered media environment, consumer attention is a scarce resource. As more and more advertising formats apply the technique of simultaneous exposure, the question arises which type of exposure will lead to the optimal viewer attention to - and cognitive



processing of – this simultaneously exposed content. When it comes to cognitive processing, previous research has often looked at the effect of need for cognition (Cauberghe, De Pelsmacker & Geuens, 2007; Kuvaas & Kaufmann, 2004), a personality trait, which refers to an individual's tendency to engage in and enjoy effortful cognitive processing (Cacioppo, Petty & Morris, 1983). However, this effect has rarely been investigated in a simultaneous viewing situation.

Using eye tracking and recall measures, this study investigates the impact of program congruency with the advertisement and need for cognition (NFC) on (1) people's visual attention to the simultaneous viewing condition and (2) the general amount of information recall, both during simultaneous exposure. The aim of this study is twofold. First, we investigate the cognitive interference effect in an iDTV context as the combination of interactive content and simultaneous exposure might lead to different results than a traditional or sequential media context. Second, we investigate to what extent NFC moderates the effect of program congruence on visual attention and information recall during simultaneous exposure in an iDTV context.

## **2. CONCEPTUAL FRAMEWORK AND HYPOTHESES**

### **2.1 Main effect of thematic(in)congruence**

When examining (in)congruence between an advertisement and the media content this ad is placed into in literature, several traditional models can be found which argue that information processing can be enhanced under conditions of ad-content congruence (i.e., match-up hypothesis (Kamins, 1990), Meaning Transfer Model (McCracken, 1986), balance model (Heider, 1946), Schema Theory (Rumelhart & Norman, 1976)). The general reasoning behind these models is that advertisements placed in a media content of similar

content will be facilitate processing because the relevant knowledge structures have been activated (Fazio et al., 1986; Sanbonmatsu & Fazio, 1991; Wentura, 1999). In this case, the media content can serve as a cognitive prime, activating specific information that facilitates the processing of the subsequent ads (Herr, 1989; Yi, 1990, 1993). However, all these studies relate to a traditional advertising context where advertising messages and programming are presented sequentially. With contemporary telescopic ads, picture-in-picture technology allows the viewer to be exposed to both commercial content and TV programming at the same time. This implies that viewers have to divide their attention to two simultaneous streams in order to understand and process all the information.

Previous research shows that divided attention at the encoding stage of memory may lead to a significant decrease in information storage and recall ( Craik et al., 1996; Park et al., 1989). According to the limited capacity model (Kahneman, 1973; Lang, 2000; Simon, 1974) people have limited memory and cognitive resources. When the viewers' attention is divided between two simultaneous information streams, their limited working memory is heavily taxed as the two tasks compete for cognitive capacity in the working memory. This is especially the case of a telescopic ad which, compared to traditional advertising, is more complex because of the additional information and the embedded interactivity (Cauberghe & De Pelsmacker, 2010; Yuji 1996). When attention is divided during encoding, the likelihood of that information being remembered adequately decreases, leading to poor memory (Bentin, Moscovitch & Nirhod, 1998). In other words, this divided attention may lead to an interference effect due to a collapse of information since individuals forget the new acquired or the previous decoded information (Fernandes & Moscovitch, 2000).

According to Furnham, Bergland and Gunter (2002), this interference effect is more substantial when the advertisement and the program context are thematically congruent than when they are incongruent. When an ad is placed in a program of similar content, elements of the program and the ad merge together in a phenomenon known as '*meltdown*'. This implies that the viewing condition becomes more cognitively demanding, as congruent stimuli compete for attention and thus interfere with each other, making it more difficult for viewers to distinguish between elements of the ad and the program. In this case,

information from the ad may interfere with information from program, inhibiting the retrieval of separate information items and leading to reduced recall (Kumar, 2000). For marketers, this is an important hazard, as the meaning of the marketing message can potentially be lost.

In a simultaneous exposure condition, we expect that viewers will switch their attention from the program to the ad and back in an attempt to process both information sources. In other words, cognitive capacity is used to avoid or cope with the meltdown between the ad and program. As the interference effect is larger in a congruent context, we expect that this will lead to more frequent gaze-jumping than an incongruent context. In this case, viewers will switch their attention between both information sources which will lead to fragmented viewing, less in-depth processing and lower recall.

In the incongruent condition, on the other hand, both information sources are substantially different, which suggests that the viewers will be less distracted by the interference effect and therefore show less gaze-switching between the program and the ad. As incongruent information is more resistant to forgetting and is easier to retrieve (Eysenck, 1979), it will be easier for viewers to keep elements from both information sources separate, resulting in a higher recall. This brings us to the following hypotheses:

*When the content of the program and the ad are thematically congruent, viewers will:*

*H1a: divide their attention more between both information sources, resulting in more gaze jumps than when the program and the ad are incongruent.*

*H1b: retrieve less information from both information sources, resulting in a less recall than when the program and the ad are incongruent.*

## **2.2 The moderating role of Need for Cognition**

Previous studies have investigated the effect of both individual characteristics (e.g., motivation, tolerance for ambiguity) and contextual factors (e.g., time to process

information, situational involvement) on the processing of (in)congruent information elements. In this study, we additionally investigate the moderating influence of Need for Cognition (NFC, Cacioppo & Petty, 1981, 1986) on the processing of congruent and incongruent information during simultaneous exposure.

NFC is a personality trait, which refers to an individual's tendency to engage in and enjoy effortful cognitive processing (Cacioppo, Petty & Morris, 1983).

Applied to the current context, NFC can be expected to have an impact on both visual attention to, and the cognitive processing (i.e. recall) of congruent versus incongruent information during simultaneous exposure. According to Cacioppo & Petty (1982), individuals with a high NFC like thinking, enjoy cognitively demanding activities and have an intrinsic motivation to elaborate on information. People high in NFC do not only have a strong need to think about and reflect on information, but also to structure information in a meaningful way. This may imply that when they are simultaneously exposed to congruent stimuli, high NFC individuals will be highly motivated to avoid meltdown between both information elements. This can be explained by the positive relation which was found between NFC and curiosity (Olson, Camp & Fuller, 1984) and their high need to understand and make sense of stimuli (Nair & Ramnarayan, 2000). When they are exposed to incongruent stimuli, we expect that information from the ad and the program is sufficiently different, resulting in less meltdown and making it easier for viewers to process. Therefore, we expect that both high and low NFC individuals will need less attention switching to process the information than in a congruent condition.

Low NFC individuals, on the other hand, avoid effortful thinking and have a low intrinsic motivation to elaborate on information, compared to high NFC individuals (Cacioppo & Petty (1982). For this reason, we expect that these viewers will not be motivated to disentangle information from the congruent information sources and will therefore not show a difference in attention switching between the ad and program in the congruent versus the incongruent condition. Hence:

*H2: The positive effect of program-ad congruence on people's attention switching behavior (i.e. the amount of gaze jumps) is stronger for high NFC individuals than for low NFC individuals.*

However, the question arises how this difference in attention switching of high NFC individuals will affect recall. It is possible that in the congruent condition, the attention switching will lead to fragmented viewing which, in combination with the cognitive load of the interactive ad (i.e. browsing through the information in the DAL, Cauberghe & De Pelsmacker, 2010), the cognitive resources required to process information from two simultaneous sources (Lloyd & Clancy, 1991) and the cognitive cost of frequent attention switching (Anderson, Craik & Naveh-Benjamin, 1998) will leave little or no cognitive resources to memorize the presented information. As attention switching is expected to be lower in the incongruent condition, we can assume that less cognitive resources will be 'wasted' on coping with (or avoiding of) the interference and meltdown effect, leaving more resources available for cognitive information processing. In this case, there will be less fragmented viewing and thus a higher recall.

For low NFC individuals, on the other hand, we expected that they would not be motivated to divide their attention between both information sources and process the information. In addition, low NFC individuals are more likely to be overloaded by information (Malhotra, 1982), which may be especially the case in an interactive, simultaneous viewing condition. Therefore, we expect a low cognitive processing of the information in both the congruent and the incongruent condition, resulting in an equally low recall in both conditions. This brings us to the final hypothesis:

*H3: The negative effect of program-ad congruence on people's recall is stronger for high NFC individuals than for low NFC individuals.*

### 3. METHOD

#### 3.1 Stimuli and participants

A between-subjects 2 (program context: thematically congruent vs. incongruent) x 2 (low vs. high need for cognition) factorial design was used. For the 30-second ad, we used a PSA stressing the dangers of incorrect use of antibiotics. The interactive DAL contained additional information about the use of antibiotics. The ad and the DAL were identical across both conditions.

Simultaneous with the interactive information, the audiovisual program appeared in the upper right corner of the screen. In the thematically incongruent condition, a sequence from the movie 'Taxi' was shown. In this scene, two police men are going under cover in an attempt to expose some criminals in a funny way. For the thematically congruent condition, we select a sequence featuring a doctor explaining a medical treatment to a patient in a hospital. In this scene, the doctor explains use of medicine to counter a virus. Both the topic and the medical context of the program are thematically congruent with the ad message on antibiotics.

For the comparison of low and high need for cognition individuals, a median split of the summated NFC scale was used to create a dummy variable. By doing so, all respondents who scored lower than the median value were divided into the low NFC group, respondents with a score higher than the median were assigned to the high NFC group.

The respondents were randomly assigned across the different conditions. In total, 136 subjects participated in the study, 28% of whom were male. The respondents were all master students who participated in the study in the context of a research program. The average age of the respondents was 22 years (range 20 to 27 years).

## 3.2 Procedure

The experiment was conducted in a living room setting and set in an interactive television context, using a telescopic ad. A public service announcement (PSA) on antibiotic use was used as a persuasive message. The participants individually first watched a sequence of a television program for 10 minutes, followed by a traditional 30-second PSA that contained a call-to-action button and a voice-over requesting them to press the red button. After responding to the call-to-action, viewers left the linear broadcast stream and an interactive part with clickable information appeared about the use and misuse of antibiotics (DAL). From this moment on, the participants were exposed to two information sources simultaneously and their viewing behavior was registered by the eye tracker. While participants browsed through the interactive information, the ongoing television program was shown in the right upper corner (filling one quarter of the screen, see figure 1). After the experiment, subjects were asked to fill out a standardized questionnaire containing the dependent variables and some socio demos. After a filler task, each participant was asked to recount everything he or she remembered about the stimuli. This recall information was then transcribed and coded.

## 3.3 Measures

Need for Cognition was measured using the 18-item 9-point scale of Cacioppo, Petty & Kao (1984, Chronbachs alpha = .856) which is a short for the 34-item version of Cacioppo and Petty (1982). For eye tracking, a Tobii computer monitor was used (Tobii 1750), accurate to 5 millimeters. In order to measure viewing behavior for both the interactive ad and the ongoing program, we defined two areas of interest: the interactive ad (area 1) and the television program (area 2; see figure 1).

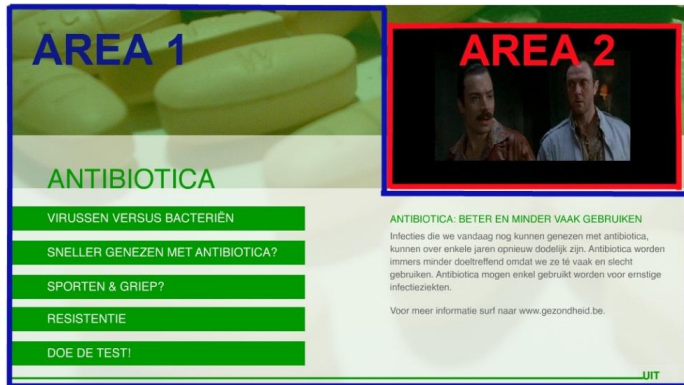


Figure 1: screenshot of the telescopic ad showing the clickable content in the DAL (area 1) and the ongoing TV program (area 2)

Every time the viewer switched his or her gaze from area 1 to area 2 or the other way around, this was noted as one observation count. At the end of each session, the total number of observation counts or gaze jumps was automatically calculated for each respondent.

Self-reported recall was transcribed and divided into separate information items. The respondents were asked to recall everything they remembered from the stimuli they were exposed to. In total, 2117 separate information elements were obtained. Items describing personal thoughts or impressions were excluded. Also, items from the beginning of the program or the PSA (i.e. the linear exposure when only one stream of information was shown on the screen) were excluded. This way, only the recall items concerning information from the TV program or the DAL during *simultaneous* exposure were selected for analysis (N=1027).



### 3.4 Pretest

A pretest was used to check if the thematic (in)congruence manipulation of the PSA and the program was successful. Sixteen randomly selected respondents (20% male, average age = 23) were either exposed to the congruent or the incongruent context. Afterwards, they had to evaluate the ad and context as either thematically congruent or incongruent. Fourteen out of sixteen respondents answered all the (in)congruency questions correctly.

## 4. RESULTS

The effect of program (in)congruence on both the amount of gaze jumps and the total recall of information items was analyzed using ANOVA.

The results show viewers from the congruent condition ( $M = 21.6$ ) switched their gaze (i.e. the amount of gaze jumps) more often between area 1 (the interactive part of the ad) and area 2 (the program) than viewers from the incongruent condition ( $M = 16.9$ ). Although these results are in line with our expectations, the main effect of congruence on the total amount of gaze jumps is not significant at the conventional level ( $F(1,111) = 2.923, p = .090$ ). H1a is not supported.

A two-way ANOVA analysis with congruence and NFC as independent variables does not show a significant interaction effect of these variables on the amount of gaze jumps ( $F(1, 104) = 2.638, p = .107$ ). However, post hoc tests show that high NFC viewers switch their gaze significantly more between the PSA and the program when both stimuli are congruent ( $M = 26.4$ ) than when they are incongruent ( $M = 16.6, t(51) = 2.446, p = .018$ ). With low NFC individuals, on the other hand, there appears to be no significant difference in the amount of gaze jumps between the congruent ( $M = 18.1$ ) and the incongruent condition ( $M = 17.8, t(49) = .058, p = .954$ , see figure 2). This supports H2.

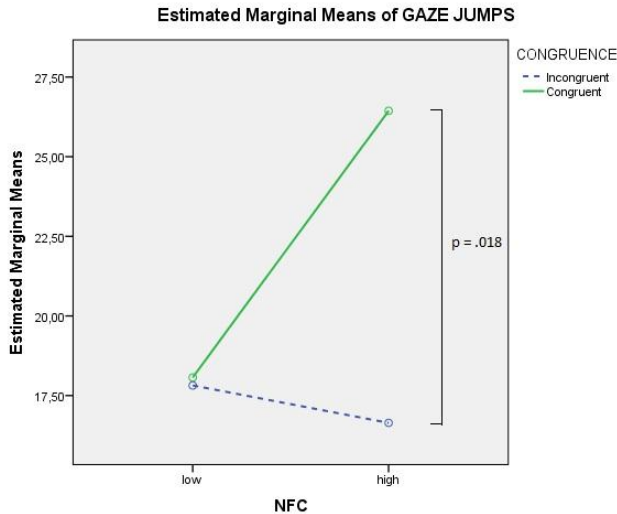


Figure 2: The interaction effect of congruence and NFC on people's viewing behavior

Further, the results show a significant main effect of PSA-program congruence on recall ( $F(1, 120) = 11.506, p = .001$ ). As expected, the subjects from the incongruent condition show a significantly higher recall ( $M = 16.8$ ) than subjects from the congruent condition ( $M = 13.2$ , see figure 3). This supports H1b.

A two-way ANOVA analysis with congruence and NFC as independent variables shows a significant interaction effect of these independent variables on people's recall ( $F(1, 114) = 3.750, p = .050$ ). More specifically, post hoc tests show that for high NFC people, the recall is significantly higher when the PSA and the program are incongruent ( $M = 19.6$ ) than when they are congruent ( $M = 13.9, t(53) = 3.647, p = .001$ ). For low NFC individuals, there appears to be no significant difference in recall between the congruent ( $M = 12.7$ ) and the incongruent condition ( $M = 14.3, t(46.094) = 1.087, p = .283$ , see figure 3). These findings support H3.

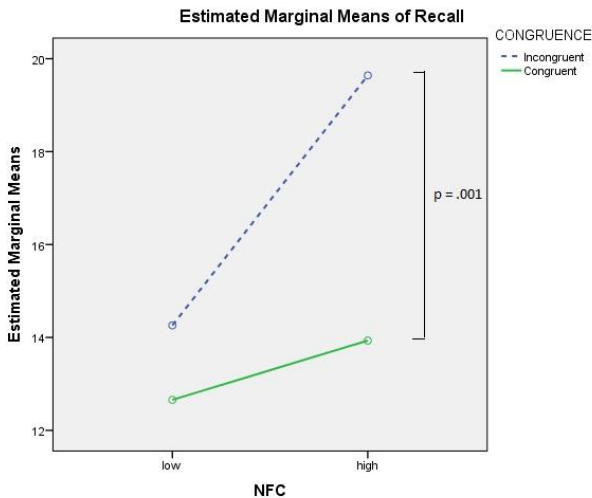


Figure 3: the interaction effect of congruence and NFC on people's recall

## 5. CONCLUSION, LIMITATIONS AND SUGGESTION FOR FURTHER RESEARCH

In this study, we investigated the effect of congruent versus incongruent information on viewer's attention to and cognitive processing of this information during simultaneous exposure. In addition, we looked at the moderating effect of NFC on the relation between congruence and visual and recall. The results of this study provide some important insights for marketers (both commercial or social) and consumer behavior researchers in order to determine which factors cause an increase or decrease in information processing during simultaneous ad-media content exposure.

The results show that when viewers are simultaneously exposed to a thematically congruent program and interactive advertisement, this results in more gaze switching between both information sources (although not significant at a conventional level), but

significantly less recall than when the ad and the program are incongruent. These findings confirm the notion that congruent stimuli induce an interference effects and increase processing difficulty in an interactive iDTV context (Furnham, Bergland & Gunter, 2002; Kumar, 2000). When viewers want to process the ad information in a thematically congruent context, they are hindered and distracted by this context that 'melts down' with the information in the ad. On the other hand, a thematically incongruent context is less interfering and distracting, resulting in a better recall. These results suggests that while a traditional sequential congruent program-ad situations may benefit from cognitive priming effects (Yi, 1990, 1993), more novel simultaneous exposure formats appear to be more effective in contrasting contexts.

Furthermore, the results suggest that this positive effect of congruence on gaze jumping and negative effect on recall only applies for high NFC individuals. These people feel an intrinsic motivation to structure and process information. Therefore, in an attempt to avoid elements from the congruent program and ad, they will constantly switch their attention between both information sources, however without succeeding. Low NFC individuals, on the other hand, are not motivated to avoid this meltdown and 'give up' on trying to disentangle elements from the ad and the program. This results in little or no differences in viewing behavior or recall for a congruent versus an incongruent context.

The managerial implications of this study is that our results show advertisers and media planners that in formats where ads and non-commercial content are shown simultaneously, it is advisable to thematically contrast the various components to which viewers are exposed. This will lead to less distraction, interference and cognitive load, enabling viewers to pay more attention to the commercial message. This is especially the case with high NFC individuals, who are distracted by their intrinsical need to engage in thinking and structure the information they encounter, leaving little cognitive capacity for information recall.

The limitations of the current study suggest directions for further research. First, we investigated the effect of congruence and NFC on people's general recall during simultaneous exposure. Further research should take this a step further and split this

general recall into recall on both parts of the dual processing environment (i.e. recall on the program and recall of the DAL). This will give advertisers an even clearer view on the effect of congruence, divided attention and NFC on people's attention to and recall of the ad message.

Second, as dependent variables, we focused on viewing attention and measures of recall. However, further research should also include affective measures such as attitude towards the advertising format (as was done by Janssens, De Pelsmacker & Geuens, 2012) and the relation between these cognitive and affective outcomes. Previous study shows that simultaneous exposure to both ad and program can evoke a sense of intrusiveness and may have a negative effect on attitude towards the ad and brand evaluation (Nam, Kwon & Lee, 2010). However, this effect may vary between low and high NFC people, as high NFC people may perceive this simultaneous exposure more as a cognitive challenge than as an 'unwilling exposure' but further research is needed to support this claim.

Third, only one specific advertisement or public service announcement was tested, discussing one specific topic. Although the use of antibiotics (and the dangers of its incorrect use) is a general health topic which applies to all target groups, future research should also include a topic which is more applicable to the targeted audience. In this study, for example, the respondents were mainly students, which could make other issues such as binge drinking or drug use more relevant.

Finally, we chose to set this experiment in an iDTV context, but simultaneous exposure to various message formats like banners or streaming videos on a web page may also be used to study the effects of a set of similar or dissimilar ads on congruent or incongruent websites, advergames, mobile applications, etc.

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## **CHAPTER 6**

### **FUNDRAISING IN AN ONLINE ENVIRONMENT: THE INTERACTION EFFECT OF WEBSITE INTERACTIVITY AND CELEBRITY (IN)CONGRUITY ON DONATION INTENTION**



FUNDRAISING IN AN ONLINE ENVIRONMENT: THE INTERACTION EFFECT  
OF WEBSITE INTERACTIVITY AND CELEBRITY (IN)CONGRUITY ON  
DONATION INTENTION<sup>5</sup>

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**Background and objectives:** Due to the increasing amount of (and thus competition among) nonprofit organizations, it is important to understand which factors influence people's willingness to donate money to charity. Besides individual and situational factors, factors related to persuasive messages may influence donation intentions. traditional literature states that fundraising improves under conditions of congruent message elements, incongruity may be a more effective strategy provided that it is processed and resolved. However, insights in which factors can facilitate the processing of incongruent information are still lacking. Since today, fundraising activities are shifting to an online environment to reach potential donors, the current study investigates the potential of interactivity as a factor to enhance processing of incongruity.

**Method:** Using a 2 x 2 between subjects design (N= 117), the level of website interactivity and the (in)congruity between a celebrity and a nonprofit organization are manipulated.

**Results:** The results show that an incongruent celebrity endorser incites a higher donation intention than a congruent celebrity, but only when the endorser is integrated in a highly interactive website. This is due to the mediating role of involvement evoked by the interactive website. In a low interactive website, congruity has no impact on people's donation intentions.

**Conclusion:** The main goal of this paper was to contribute to the debate concerning the effect of incongruity as advertising strategy, as literature on this topic is ambiguous. The present study suggests that in a nonprofit sector, endorser incongruity may be an interesting and refreshing new strategy.

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<sup>5</sup> This study was submitted for potential publication to the Journal of Nonprofit and Voluntary Sector Quarterly as: Panic, K., Hudders, L. & Cauberghe, V. Fundraising in an online environment: The interaction effect of website interactivity and celebrity (in)congruity on donation intention.



## 1. INTRODUCTION

Due to an increased amount of nonprofit charity organizations, the competition within the charity fundraising market has become fierce (Bennett & Savani, 2011). As today, charity organizations have to rely more on individual donors and less on the government for funding, nonprofit marketers are constantly searching for new ways to reach their target audience and increase or maintain monetary donations. Gaining insight in the factors that affect individuals' willingness to support charity organizations is thus an important challenge (Hsu, Liang & Tien, 2005). To date, several factors have been found to affect monetary donations, among which individual factors (e.g. age, gender, income, religiosity, identification with the cause, past donation, Bennett, 2003), situational factors (e.g. reputation of the organization, type of cause, Hsu et al., 2005) and message factors (e.g. message framing, use of celebrity endorser, Wheeler, 2009). In light of the latter, traditional literature argues that donation intention can be enhanced under conditions of congruence of message elements (i.e., match-up hypothesis (Kamins, 1990), meaning transfer model (McCracken, 1986) balance model (Heider, 1946)).

Recent research, however, suggests that incongruity could also be lucrative in some cases (Fleck & Maille, 2010; Lee & Schumann, 2004). Since today, consumer attention is a scarce resource, the use of incongruent information may be a creative way of capturing audience attention. According to Mandler (1982), incongruity is perceived as more 'interesting' and 'note-worthy' and has therefore the potential to increase persuasion (Yoon, 2012). A prerequisite, however, is that people *consider*, *process* and *resolve* this incongruity. When they do so, positive feelings of relief are generated (Ingenhoff & Koelling, 2009), which may transfer to people's evaluations of the organization and improve fundraising performance. Although strategies evoking schema incongruity have already been used in advertising, it remains unclear which facets may facilitate individuals' processing of incongruent information (Fleck & Maille, 2010).

Furthermore, almost all fundraising studies are based on traditional media, as television, newspapers and magazines. Today, however, the importance of the Internet as a fundraising tool can no longer be denied. Providing 24/7 access to over 1.5 billion Internet users, as well as the possibility to interact with consumers and actively engage them with the content, the corporate website offers fundraisers the opportunity to attract new donors, renew their relationship with the existing ones and generate financial transactions immediately online (Fill, 2000; Ingenhoff & Koelling, 2009). In this regard, online communications offer new ways to engage public audiences (Cugelman, Thelwall & Dawes, 2011).

As insights into the effectiveness of donation strategies in this new, interactive online environment are scarce, the current study investigates how the level of interactivity embedded in a website improves the effectiveness of (in)congruent message strategies. Past research shows that interactive websites lead to greater immersion and more information processing, which may enhance the processing and 'resolving' of incongruent information (Coyle & Thorson, 2001). To manipulate congruity, the current study uses celebrity endorsers, a frequently used fundraising strategy in nonprofit marketing. Therefore, the main research question is *whether and how website interactivity moderates the impact of (in)congruity between celebrity endorser and charity organization on donation intention*. These insights can have important implications for today's social marketers who are searching for effective ways to improve their fundraising performances online.

## **2. THE IMPACT OF CONGRUENT VERSUS INCONGRUENT STIMULI**

A review of studies examining (in)congruity in advertising and consumer behavior literature reveals mixed results for memory and attitude outcomes. One stream of research argues that congruent messages generate more favorable responses than incongruent ones (see e.g., Kamins, 1990; Kamins & Gupta, 1994; Sengupta, Goodstein & Boninger, 1997).



This line of reasoning can also be found in fundraising literature, where it is argued that the communication used to address and attract donors should match or 'fit' the identity of the nonprofit organization. Past research, for example, revealed that people's willingness to donate money to a charity organization is higher when there is a fit between the valance of the image used in the ad and the message frame (Chang & Lee, 2009). Also, when it comes to the use of celebrity endorsers, theories like the match-up hypothesis suggest that optimal celebrity endorsement can be achieved by creating a match between the endorser and the charity organization (e.g., actor and Parkinson patient Michael J. Fox endorsing organizations conducting stem cell research, Wheeler, 2009). According to this theory, the effectiveness of the fundraising campaign, and thus the intention to donate money, depends on the strength and the logic of this match. When the fit is good, the celebrity endorser will foster a connection between the endorser and the endorsed organization in the mind of the consumer and a transfer of meaning will occur. Accordingly, advertising effectiveness will be enhanced (Biswas, Hussain & O'Donnell, 2009).

However, evidence also shows that incongruity can sometimes generate more favorable responses than congruity, calling the match-up hypothesis into question. Several studies argue that incongruent information may be perceived as more distinctive and interesting than congruent information, triggering curiosity (Mandler, 1982). In today's cluttered, or even saturated advertising environment in which consumers are becoming numb to standard marketing techniques, using less obvious, incongruent information may be an effective way to attract attention. Also, the unexpected element of incongruity has the potential to create tension, which leads to a more elaborate and detailed processing of this information in order to reduce this tension (Heider, 1958; Miller, Galanter & Pribaum, 1960). It is suggested that tension aroused by incongruity has the potential to trigger a human need or desire to relieve the tension through some form of resolution (Heider, 1985; Lee & Schumann, 2004; Meyers-Levy & Tybout, 1989; Baker & Petty, 1994; Goodstein, 1993).

Fleck and Maille (2010) found that incongruity may indeed lead to a more positive evaluation of the stimuli, but only when individuals process the endorsement and

successfully resolve the evoked tension. Once the incongruity is *considered, processed* and *resolved*, positive feelings of satisfaction, relieve, efficiency and control are evoked. These feelings have a positive impact on evaluations and attitudes toward the organization, which may in turn affect donation behavior.

However, it remains unclear which factors may incite people's processing of incongruent stimuli (Fleck & Maille, 2010). Previous studies suggest that both individual characteristics (e.g., motivation, tolerance for ambiguity) and contextual factors (e.g., time to process information, situational involvement) may impact the processing of incongruent information. In light of today's important role of the Internet as communication tool, the current paper tests the moderating impact of interactivity on the relationship between celebrity endorsement's (in)congruity and donation intention.

### 3. THE MODERATING ROLE OF INTERACTIVITY

Although several studies show that the Internet provides a valuable communication tool for the nonprofit sector, little attention is devoted to the potential of interactive websites for fundraising purposes.<sup>14</sup> Nevertheless, the benefits offered by the element of interactivity may also offer new ways to engage public audiences and increase donations. Interactivity is a multifaceted concept which permits user engagement, responsiveness and exchange (McMahan & Hovland, 2009). Instead of passive targets, users become active users who can control the communication process. The interactive element enables individuals to select information and the order in which the information is presented, increasing control and leading to a more intense processing (Ariely, 2000). **Previous research** shows that interactivity increases the extent of cognitive elaboration compared to traditional media or conditions of low interactivity (Liu & Shrum, 2002).

Based on the congruity literature, we expect that the use of incongruent celebrity endorsers may trigger people's curiosity, but may also create tension due to the unexpected 'misfit' of the endorser. This tension will trigger a human need or desire to relieve the tension

through some form of resolution (Mandler, 1982). However, processing and resolving incongruity demands more cognitive effort and resources than processing congruent information. Therefore, when the incongruent celebrity endorsers is embedded in a highly interactive website context, the increased processing evoked by the interactivity can facilitate the process of resolving incongruity. Once the incongruity is resolved, gratifying and positive feelings of relief, satisfaction and control are aroused (Fleck & Maille, 2010), which may transfer to higher donation intentions. This mechanism however, may not hold in a low interactive condition. In this case, people lack the increased cognitive elaboration and the motivation to thoroughly process the incongruent information and reduce the tension, which may lead to negative irritation effects of incongruity. In this case, congruent celebrity endorsers might lead to higher donation intentions (Fleck & Maille, 2010). In other words, we expect that:

*H1a: In a highly interactive website, an incongruent celebrity endorser will lead to a higher donation intention than a congruent celebrity endorser.*

*H1b: In a low interactive website, a congruent celebrity endorser will lead to a higher donation intention than an incongruent celebrity endorser.*

Previous studies suggest that interactivity may increase the involvement with the content (e.g., Sundar, 2007). In particular, these studies report a strong positive correlation between interactivity and perceived relevance of - and involvement with - content. This involvement may lead to increased information processing of advertising content (Adzharuddin, 2012), which may in turn facilitate the processing of the incongruent information, reducing the tension leading to positive effects on donation intention. Indeed, several authors identified involvement as a key predictor underlying the donation process (e.g., Bennett, 2003). We therefore expect that, in a highly interactive environment, the impact of incongruity on donation intention will be mediated by the involvement with the content. In the low interactive condition, however, there will be no increased involvement or increased information processing which means that the conditions for resolving incongruity are not met. As resolution of incongruity is necessary for a positive influence,

people may find it more difficult or even impossible to understand the incongruence, resulting in incomprehension and feelings of frustration (Mandler, 1982). In other words, we expect that:

*H2a: In a highly interactive website, involvement with the issue mediates the impact of celebrity incongruity on donation intention.*

*H2b: In a low interactive website, involvement with the issue does not mediate the impact of celebrity incongruity on donation intention.*

## **4. METHOD**

### **4.1 Design and Procedure**

A 2 (celebrity endorser congruity: congruent vs. incongruent) by 2 (website interactivity: high vs. low) between subjects experimental design is used to test the hypotheses. To avoid confounding effects based on the gender of the endorser, a male and a female endorser are selected for each condition.

The data is gathered using an online questionnaire, distributing all participants randomly to one of the conditions. The respondents each sees one screenshot, showing a website of a nonprofit charity organization that fights illiteracy among children in underdeveloped countries. To avoid confounds from prior attitudes, a fictitious name (SKO) and organization is used. After seeing the screenshot, respondents are asked to complete a questionnaire in which they were, among others, asked about their donation intention.

## 4.2 Stimuli

To assess the success of our manipulation, two pretests are conducted. First, the interactivity manipulation is assessed (N= 20). For the low interactive condition, a basic website is constructed, providing information about the organization and the celebrity endorser. This website provides very few interactive elements and no opportunity for feedback. For the highly interactive condition, interactive elements are added to that same website (e.g. an online discussion forum, a link to connect and follow the organization on Facebook, Twitter and YouTube, an online donation button and a link to the endorser's blog; see appendix 1, Ahern & Stromer-Galley, 2000). The information on both websites remains equal. Using the perceived interactivity scale by McMillan and Hwang (2002), results of the pretest show that the low interactive website is indeed perceived as less interactive (M= 2.13) than the highly interactive website (M= 4.10,  $t(18)= 6.86$ ,  $p < .001$ ).

In the second pretest (N= 15), endorser congruity (congruent vs. incongruent to the nonprofit issue) is examined. Endorser congruity is measured stating '*this person matches, or fits a nonprofit organization committed to fight illiteracy among children in underdeveloped countries*' followed by a seven-point Likert-type scale ranging from 'strongly disagree' to 'strongly agree'. Also, the familiarity of the celebrity is controlled for, making sure that all the respondents know the celebrities.

After pretesting 12 pictures of local celebrities (50-50 male/female ratio), four final celebrities (two congruent and two incongruent) are selected based on their high score on endorser (in)congruity. The congruent endorsers are Karen Damen, a well-known actress starring in various programs directed to children and Koen Wouters, a TV personality known for his support to nonprofit organizations helping children. The two incongruent celebrities are Piet Huysentruyt, a TV personality hosting a well-known cooking show on TV and Astrid Bryan, a Belgian model starring in a reality show portraying her wealthy life in Hollywood. Both personalities do not have a specific connection to nonprofit organizations or children.

Using the high and low interactive website from the first pretest and the four celebrities from the second pretest, eight final websites are created. To avoid gender confounds, the gender of the celebrity was not matched to the gender of the respondents, so both men and women saw male and female endorsers. However, an additional variable is construed to control for possible confounding effects of match versus mismatch. The results show that the interaction effect between website interactivity and celebrity congruity remains significant ( $F(1, 106) = 4.81, p = .031$ ) when including the gender match variable as moderator in the model. In addition, there is no significant three-way interaction effect between gender match, celebrity congruity and website interactivity ( $F(1, 106) = .55, p = .46$ ). These results reveal no confounding effects of matching gender of the respondent with gender of the celebrity. Therefore, the male and female conditions are taken together for the analysis, resulting in four final conditions (celebrity congruity x website interactivity).

### 4.3 Measures

As in the pretest, perceived celebrity congruity is measured with the statement '*this person matches, or fits a nonprofit organization committed to fight illiteracy among children in underdeveloped countries*' (strongly disagree to strongly agree). Familiarity of the celebrity is measured asking '*do you know this person?*', with the response options '*yes*', '*no*' and '*I vaguely recognize this person*'. The last manipulation, perceived interactivity is measured based on the three-item seven-point Likert-type scale of McMillan and Hwang (2002,  $\alpha = .89$ ). Issue involvement is measured using the five-item seven-point Likert-type scale of Zaichkowsky (1994,  $\alpha = .83$ ), and donation intention using the three-item seven-point Likert-type scale of Putrevu and Lord (1994,  $\alpha = .87$ ). Finally, the attitude towards the celebrity is measured using the five-item seven-point Likert-type scale of Martin, Lee and Yang (2004,  $\alpha = .79$ ).

#### 4.4 Participants

A total of 117 Flemish respondents participated in this study (using a snowball sampling method, departing from a database composed by a European University with participants who are willing to participate in research).

As that two respondents did not know the celebrity at all and assessing the celebrity's congruity with the organization is impossible unless one knows this celebrity, these respondents were deleted for further analyses. Thus, in total 115 valid cases remained (38% men and 62% women, aged 15 to 68 years,  $M_{age}= 29.93$ ,  $SD= 12.43$ ). Each condition in the study contained more than 20 subjects (Hair, Anderson, Tatham & Black, 1998).

### 5. RESULTS

First, a manipulation check reveals that respondents perceived the congruent endorser ( $M= 4.18$ ) as more congruent than the incongruent endorser ( $M= 2.74$ ) ( $t(112)= 4.54$ ,  $p < .001$ ). In addition, the results show that the highly interactive website was indeed perceived as more interactive ( $M= 4.30$ ) than the low interactive site ( $M= 1.87$ ,  $t(78) = 16.09$ ,  $p < .001$ ).

Before conducting a two-way ANOVA analysis to test the impact of celebrity congruity and website interactivity on donation intention, a Kolmogorov-Smirnov test was conducted to test whether the distribution within each of the groups is normal. The results showed a normal distribution within each of the four groups (low interactivity:  $K(60)= .096$ ,  $p= .200$ ; high interactivity:  $K(55)= .094$ ,  $p= .200$ ; incongruity:  $K(54)= .084$ ,  $p= .200$ ; congruity:  $K(61)= .100$ ,  $p= .063$ ). In addition, a Levene's test was conducted to test whether the variances between the groups were equal. The results support the null-hypothesis of equal variances ( $F(3, 111)= .185$ ,  $p= .906$ ).

Next, a two-way ANOVA (GLM) with celebrity congruity and website interactivity as independent variables and donation intention as dependent variable was conducted. The results reveal no main effects of congruity ( $p = .254$ ) or interactivity ( $p = .269$ ).

However, the results show a significant interaction effect on the intention to donate money ( $F(1, 111) = 5.13, p = .025$ , see figure 1). In particular, results show that incongruent celebrity endorsers ( $M = 3.41$ ) lead to a significant higher donation intention than congruent celebrities ( $M = 2.58$ ) in a highly interactive context ( $t(53) = 2.29, p = .026$ ). These results confirm H1a. In the low interactive context, however, donation intentions are equally high for both congruent ( $M = 2.86$ ) and incongruent ( $M = 2.59$ ) endorsers ( $t(58) = .83, p = .41$ ). These results contradict H1b.

As the attitude towards the celebrity endorser could interfere with the congruity effects, we conducted an additional analysis, adding the attitude towards the celebrity endorser as a covariate in the model. Although the results reveal a main effect of attitude towards the celebrity on donation intention ( $F(1,108) = 10.86, p = .001$ ), the interaction effect between congruity and interactivity remains significant ( $F(1, 108) = 6.64, p = .011$ ). In addition, the results reveal no interaction effects between attitude towards the celebrity and congruity ( $F(1, 108) = 2.40, p = .124$ ) nor between attitude towards the celebrity and interactivity ( $F(1, 108) = 2.83, p = .095$ ) on donation intentions. In sum, these results show that the attitude towards the celebrity does not interfere with the congruity effects.

To test the mediated moderation assumption stated in H2, we used the PROCESS macro developed by Preacher and Hayes (2004), a versatile modeling tool for SPSS. The mediated moderation analysis reveals that the indirect effect of the interaction between celebrity congruity and interactivity on donation intention through issue involvement is  $-0.59$  ( $SE(\text{boot}) = 0.27$ ). A 95% bootstrap confidence interval for this indirect effect does not include zero ( $LLCI = -1.18, ULCI = -.11$ ), concluding that the moderation is mediated. In particular, in a highly interactive context, incongruent endorsers increase the issue involvement and accordingly, lead to a higher donation intention ( $c = -.58, \text{Boot SE} = .22, LLCI = -1.08, ULCI = -.20$ ). In the low interactive context, however, this is not the case ( $c = .01, \text{Boot SE} = .18, LLCI = -.36, ULCI = .34$ ).



## 6. CONCLUSION AND SUGGESTIONS FOR FURTHER RESEARCH

The main goal of this paper was to contribute to the debate concerning the effect of incongruity as advertising strategy, as literature on this topic is ambiguous. Although traditional theories like the match-up hypothesis (Kamins, 1990), meaning transfer model (McCracken, 1986) and the balance model (Russel & Stern, 2006) advocate congruity of message elements, recent studies revealed that under *certain* conditions, incongruity can be more effective than congruence. However, there is still very little insight into what conditions actually lead to positive effects of incongruity. Furthermore, these studies were all conducted in a traditional media context, leaving the question of the effectiveness of (in)congruity in an interactive, digital context unanswered.

The present study suggests that in a nonprofit sector, endorser incongruity may be an interesting and refreshing new strategy. More specific, a highly interactive website leads to higher donation intentions when it portrays an incongruent celebrity than when it portrays a congruent celebrity endorser. This implies that the use of an incongruent endorser can be a more effective strategy in an online environment. However, future research should further investigate the amount of interactivity that is necessary to achieve the optimal result. In this study, we considered interactivity as a binary variable (high vs. low). It would be interesting, however, to consider interactivity as a continuous variable. As discussed in the theoretical section of this paper, interactivity may lead to greater immersion, greater cognitive elaboration and a more intense information processing, which may enhance the processing and 'resolving' of incongruent information (Ariely, 2000; Coyle & Thorson, 2001; Liu & Shrum, 2002). Consequently, it can be assumed that the higher the level of interactivity, the more prone these effects will be. However, previous research suggests that, at a certain point, the level of interactivity may be too high (e.g. by integrating too many links or interactive features in the website), resulting in 'cognitive overload'. This means that an increase in cognitive load triggered by interactivity generates a positive effect on information processing until a certain threshold is reached, at which point cognitive elaboration and recall is reduced and the effect of interactivity backfires (Gygi,

1990; Kirschner, 2002; Lang, 2000). Further research should investigate this balance between the positive and negative effects of website interactivity on processing incongruent information.

Next, the study shows that when the level of interactivity is low, the 'fit' of the endorser for the nonprofit organization makes no difference in an online context. Although we expected a congruence effect to occur in the low interactive website, the results did not support this assumption. A possible explanation is that the low interactive website still evokes a higher level of processing than a traditional advertising context. An alternative explanation for this finding may be that individuals in a low interactive context are only little involved with the content, which may imply heuristic processing of this content (Gigerenzer & Todd, 1999). As such, celebrity endorsers, both congruent and incongruent ones may lead to positive evaluations. Further research should therefore include actual measures of processing level (e.g., thought listing procedure) and include a non-interactive context to test the congruity effect of the celebrity endorsement.

Contributing to literature on social marketing, we can conclude that incongruent (celebrity) endorsers may be an effective strategy to use in highly interactive websites in order to increase monetary donation to charity organizations. In addition, these results have important implications for nonprofit marketers. Since the last decades, the emphasis has shifted towards an integrated marketing communication, online communication strategies such as the organizational website are often integrated in the overall communication strategy. However, the results of this study suggest that using the same strategies online is not necessarily optimal, as different formats may demand different (advertising) strategies. For future research, it would also be interesting to investigate if incongruity also works better (than congruity) in an interactive offline (advertising) context. For instance, it is possible that adding an interactive element (e.g., a QR code which refers to a barcode that can be scanned by a smartphone and directs the consumer to a website) to offline advertisements, such as billboards, may lead to higher effectiveness of incongruent compared to congruent advertising strategies.

Next, the results of this study suggest that when incongruity is resolved, positive feelings are aroused which appear to transfer to people's donation intention. However, is not yet clear *how* incongruity causes higher intention. Further research is needed to gain insight in the mechanism behind this increased donation. In addition, future studies should investigate the effectiveness of incongruity in an interactive commercial context, where the development of counter argumentation is generally higher than in a non-commercial context. Finally, in this study, we chose to operationalize (in)congruity by using celebrity endorsers, as this marketing technique is often used in nonprofit marketing. However, future studies should test these findings for other forms of (in)congruity, by manipulating elements of the message, such as website form (layout, colors, music) or message content. In addition, in future research, it would be interesting to examine if certain personality traits have a moderating impact on the processing of incongruent content. As such, it is possible that certain individuals (e.g., individuals who are used to engage actively with websites and often use social media) need less cognitive resources to process incongruent content in an interactive context.

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# Appendix 1: stimuli


Stichting tegen Kinderanalfabetisme in Ontwikkelingslanden

Want leren lezen en schrijven is een recht, geen voorrecht

Home

**Projecten**

West-Afrika

Mekong-gebied

Latijns-Amerika

**Meer over SKO**

Nieuws

Contact

Doe een gift

**Welkom op onze site!**

De Stichting tegen Kinderanalfabetisme in Ontwikkelingslanden is een niet-gouvernementele, kindgerichte organisatie die structurele projecten steunt in 50 landen in Afrika, Azië en Latijns-Amerika.

De Stichting wil kinderen uit ontwikkelingslanden de kans geven op een betere toekomst met betere leermogelijkheden. Elk kind heeft namelijk het recht op onderwijs. Helaas is ongeletterdheid voor vele kinderen uit derdewereldlanden een feit en is hun kans op verder onderwijs zo goed als onbestaande. De Stichting Kinderanalfabetisme in Ontwikkelingslanden (SKO) ijvert er dan ook voor om deze kinderen te voorzien in hun recht om te leren lezen en schrijven.

**Help ons nu om ook deze kinderen de toekomst te geven die ze verdienen en steun onze campagne.**



**Karen van K3, meter van SKO!**

Karen Damen, de Vlaamse zangeres, actrice en presentatrice bekend als de roodharige zangeres van de groep K3 is sinds dit jaar de trotse meter van SKO.

In nauwe samenwerking met de lokale gemeenschap, waaronder ook de kinderen, helpt Karen heel wat bouw- en schoolprojecten te realiseren. Karen bezocht reeds een aantal scholen en streeft ernaar het onderwijsrecht voor elk kind te kunnen verwezenlijken!





Stichting tegen Kinderanalfabetisme in Ontwikkelingslanden

Want leren lezen en schrijven is een recht, geen voorrecht

Home
Onze projecten
Meer over SKO
FAQ
Online guestboek
Online forum
Contact

**Welkom op onze site!**

De Stichting tegen Kinderanalfabetisme in Ontwikkelingslanden is een niet-gouvernementele, kindgerichte organisatie die structurele projecten steunt in 50 landen in Afrika, Azië en Latijns-Amerika.

De Stichting wil kinderen uit ontwikkelingslanden de kans geven op een betere toekomst met betere leermogelijkheden. Elk kind heeft namelijk het recht op onderwijs. Helaas is ongeletterdheid voor vele kinderen uit derdewereldlanden een feit en is hun kans op verder onderwijs zo goed als onbestaande. De Stichting Kinderanalfabetisme in Ontwikkelingslanden (SKO) ijvert er dan ook voor om deze kinderen te voorzien in hun recht om te leren lezen en schrijven.

**Help ons nu om ook deze kinderen de toekomst te geven die ze verdienen en steun onze campagne.**

Wist u dat u ook kan schenken via uw testament? Klik op de **rode** doneerknop voor meer informatie.








**Karen van K3, meter van SKO!**

Karen Damen, de Vlaamse zangeres, actrice en presentatrice bekend als de roodharige zangeres van de groep K3 is sinds dit jaar de trotse meter van SKO.

In nauwe samenwerking met de lokale gemeenschap, waaronder ook de kinderen, helpt Karen heel wat bouw- en schoolprojecten te realiseren. Karen bezocht reeds een aantal scholen en streeft ernaar het onderwijsrecht voor elk kind te kunnen verwezenlijken!

**Lees hier de blog van Karen en volg haar reizen en ervaringen als SKO meter..**

**Geef kinderen nog meer kansen**

via een bijdrage aan



**Bekijk nu ook de reportage uit Niger op deze blog!**



**CHAPTER 7**  
**CONCLUSION, LIMITATIONS AND FURTHER RESEARCH**



## CHAPTER 7

### CONCLUSION, LIMITATIONS AND FURTHER RESEARCH

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Now this is not the end. It is not even the beginning of the end.

But it is, perhaps, the end of the beginning.

-Winston Churchill-

#### 1. RECAPITULATION OF THE GENERAL RESEARCH QUESTION AND CONTEXT

The media environment underwent substantial changes over the last few decades. These changes are attributed to the rise of new interactive media, which have dramatically altered the concept of communication (Peltier, Schibrowsky & Schultz, 2003). Providing new, interactive communication tools and platforms, these new media have not only changed the way we act, think and communicate, but they have also brought new opportunities for marketers to interact with their target audience, thereby changing the concept of persuasive communication as we knew it. In literature, both proponents and opponents of new media can be found, stressing respectively the positive and negative effects of these media on today's society (Lister et al., 2009). However, it was not the aim of this dissertation to take a position in this debate. Rather, we impartially acknowledge the arrival of these new media and the changes they bring to the media environment, and focus on the question whether and how these changes affect some traditional theoretical models of persuasive communication as we know them today. More specifically, the main objective of this research was to test the basic assumptions of three theoretical models, namely the Extended Parallel Processing Model (Witte, 1992), the Persuasion Knowledge Model (Friestad & Wright, 1994) and the Congruence Theory (Mandler, 1982) in a new, digital and interactive media environment.

This a relevant research question. In the past two decades, with the rise of new media, media consumption has increased tremendously with adults (Thorp et al., 2011) as well as with children (Biddiss & Irwin, 2010; Rideout, Foehr & Roberts, 2010). In addition, current projections suggest that this average time is likely to increase even more in the future. These findings do not only stress the importance of new media in people's lives, they also announce a new context for information processing, as these new electronic media are substantially different from traditional media (Hoffman & Novak, 1996). Although a great amount of academic research is being devoted to new media and their effectiveness as communication tools, little or no research has investigated to what extent our insights in traditional theoretical frameworks in the field of persuasive communication still apply in this new media environment. Considering the growing importance of new media in today's society, however, we believe that this is a highly relevant question to pose. In this doctoral dissertation, we investigated whether some of the characteristics of new media could potentially have a moderating or mediating effect on the operation of each of these theoretical frameworks. By doing so, our main objective was to obtain an adjustment or complement of each of these theoretical models which better suits the contemporary media environment.

Today, most academic research regarding new media is situated in a commercial context and devotes little attention to these effects in a social marketing context. Therefore, in an attempt to 'balance out' this inequality, we chose to set this dissertation in a social marketing context. From this social point of view, special attention was given to children. Not only are they heavy users of new media, but as 'the next generation', children are also an important target audience for both social and commercial marketers.

In order to answer the main research question, five empirical studies were conducted. In the following section, we recapitulate the main findings and discuss the implications and theoretical contributions of these findings.

## 2. CONCLUSIONS AND CONTRIBUTIONS

### 2.1 Extended Parallel Processing Model

The first theoretical framework that was investigated is Witte's (1992) Extended Parallel Processing Model. After testing the basic insights of the EPPM in both an iDTV (chapter two) and a gaming context (chapter three), the results of our empirical studies suggest that this model should be adjusted in order to fit better with today's interactive new media environment.

The results of chapter two, where we investigated the use of threat appeals in an iDTV environment, showed that depending on the threat levels of the program and the PSA, exposure to the threatening information in the DAL can generate feelings of telepresence. Telepresence, in turn, appears to have a positive effect on people's behavioral intention, but this effect is partly mediated by the viewer's perceived efficacy.

As discussed in chapter one, new media formats have the ability to evoke feelings of telepresence (defined as the feeling of being present in the mediated environment, Novak, Hoffman & Yung, 2000) due to their interactive and vivid nature (Coyle & Thorson, 2001). However, our results show that telepresence may also be considered as a processing variable which enhances the desired effect of threat on people's intention to change their behavior. As it turns out, the right amount of threat induced by the context may influence or increase the level of telepresence evoked by a new, interactive medium, which lead to more adaptive behavior. However, following EPPM, this only applies for a moderate level of threat. Contrary to traditional, sequential media environments, today's new media context is characterized by the integration of a persuasive message in a media context and simultaneous exposure. In this context, it is important to take into account that perceived threat can be evoked on different levels, which interact with each other. In an iDTV context, for example, threat appeals can be integrated into the traditional TV program and in the subsequent ad or public service announcement, but also in the interactive DAL (Dedicated Advertising Location) or microsite which follows (or is shown simultaneously with) the persuasive message. In an Internet context, threat appeals may be integrated in the interactive website, but also

in a banner or a streaming video integrated in this webpage. Therefore, the following questions arise: what should be the 'optimal' level of threat to generate feelings of telepresence, does telepresence actually lead to more adaptive behavior and how may this telepresence level be achieved in a new media context? The results of chapter two suggest two main contributions.

First, our results indicate that for an iDTV context, the threat level of the interactive microsite (in this case the interactive DAL) only has a positive effect on telepresence when the general level of threat evoked by the preceding threat levels (threat embedded in the program and the public service announcement) is substantial, but not too high. Overall, a combination of very low or very high general levels of threat is less effective in generating feelings of telepresence than moderate threat levels. In this case, the level of threat evoked by the DAL will have no effect, and respectively result in no response or a fear-control mechanism. In a moderate-threat condition, however, the level of threat evoked by the DAL triggers message processing and generates higher feelings of telepresence. This is in line with the expectations of the EPPM, where a moderate level of threat is considered optimal (Witte, 1992). However, rather than discussing the optimal level of threat which can be induced by one threat appeal, our results shows that, depending on the level of threat induced by the preceding context (which can consist of multiple levels, cf. the program, the ad), the threat evoked by the interactive format can have a different effect on the evoked feeling of telepresence. In other words, the positive effect of the level of threat evoked by the interactive format on telepresence is moderated by the threat evoked by the preceding media context.

Second, our results indicate that, once this feeling of telepresence is induced, it has a positive effect on people's behavioral intentions, implying an adaptive danger-control process. This effect is partly mediated by the viewer's perceived response efficacy, i.e. the perceptions of the ability to perform the recommended behavior and the beliefs about the effectiveness of this behavior to avoid negative outcomes. This mediating effect of perceived efficacy can be explained by the fact that feelings of telepresence simulate feelings of flow, which can in turn increase a person's perceived efficacy or perceived behavioral control (Ajzen, 2002).

In sum, it appears that, assuming that a moderate level of threat is evoked by the surrounding media context, embedding threat appeals into an interactive new media content can enhance the effectiveness of these appeals, as the evoked telepresence may increase adaptive changes and increase desired behavior change.

In the third chapter, the effect of threat messages on children's behavioral outcome was investigated. In addition, we investigated how this effect is moderated by the type of medium used to communicate subsequent health information after the threat appeal.

The results from this chapter suggest that, when it comes to children, some potential further refinements to the reasoning discussed above should be taken into account. The findings indicate that the positive effect of a strong threat appeal on children's behavior is only significant when this appeal is combined with a medium that does not demand too much attention from the viewer. This is especially relevant with highly interactive, immersive and absorbing new media such as digital games, that demand a lot of cognitive resources (such as concentration and attention) to process. Since people's, and especially children's, cognitive abilities are limited (Lang, 2000), the cognitive resources they devote to game playing can lead to an interference problem, hereby 'forgetting' previously acquired information and, consequently, weakening the effect of the threat appeal. As a result, the threat appeal is not properly encoded and stored. In this situation, the desired behavior change is not achieved, as the threat appeal does not lead to a danger control process. This leads us to the conclusion that the amount of cognitive capacity that is left after processing the medium content itself affects people's assessment of both the perceived efficacy and the perceived threat of the threat appeal. These findings suggests that new, interactive media such as games, pleasant and attention-getting as they may be, may not always be the most effective medium to reinforce a strong threat appeal as the combination might lead to a risk of cognitive overload, especially for children.

Therefore, we suggest that, in order to keep up with the recent changes in the media environment, the EPPM should include media components (e.g. the amount of threat evoked by the preceding media context) and the cognitive load resulting from the format type, next to messages components and individual differences which are already part of the model. Although there has been some research on the impact on context factors (e.g.,

Basil et al., 2013; Cauberghe et al., 2009; Janssens, De Pelsmacker & Cauberghe, 2010), this was rarely situated in an interactive environment. Also, telepresence should be included as a processing variable.

The following revision of the EPPM is suggested (additional components added to the original model as suggested by Witte (1992) marked in grey):

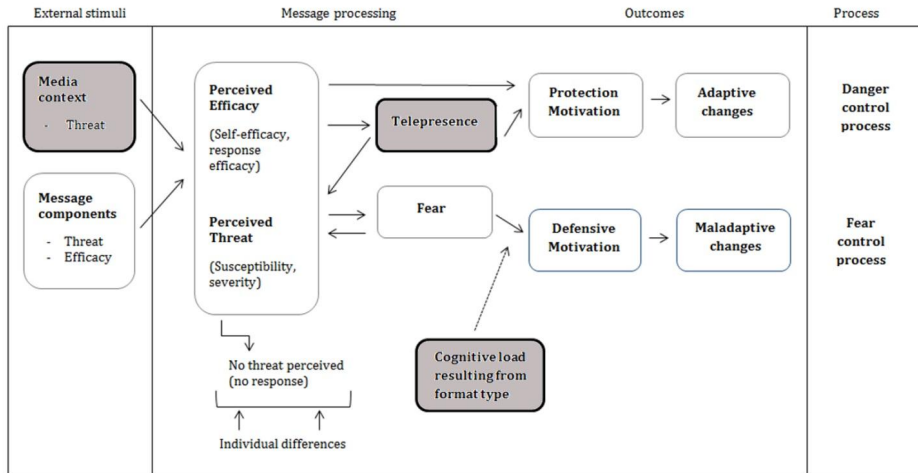


Figure 1: Revised version of Witte's Extended Parallel Processing Model

## 2.2 Persuasion Knowledge Model

The second theoretical framework is the Persuasion Knowledge Model of Friestad and Wright (1994), which addresses how people's persuasion knowledge influences their responses to persuasion attempts. This model postulates that consumers develop knowledge about persuasion and use this knowledge to 'cope with' persuasive attempts in a critical manner. In our research, we focused on children since they are a highly vulnerable target group, with a rather low ability to critically process (even traditional) persuasive messages. The results from chapter four, in which we empirically investigated children's use of persuasion knowledge and its influence on children's susceptibility to advertising, lead us to two main conclusions.



First, our results confirm that, due to the integrated and interactive nature of new advertising formats such as advergames, children have more difficulty (i.e. lower persuasion knowledge) to understand the commercial nature of advergames than traditional ad formats such as television commercials. This conclusion does not only confirm previous research results making the same claim (e.g. Mallinckrodt & Mizerski, 2007; Owen et al., 2010), but it also suggests that the frameworks on which research regarding persuasion knowledge has relied has to be adapted.

Persuasion knowledge research is often based on frameworks developed by cognitive psychologists (e.g. Piaget, 1929). In this point of view, people's understanding of advertising tactics and intentions develop together with their general cognitive capacities and information processing skills (John, 1999; McAlister & Cornwell, 2009; Moses & Baldwin, 2005). However, although this is one of the most influential development theories, it does –just like the Persuasion Knowledge Model- not take into account the recent changes in the media environment. Due to their integrated and interactive nature, the cognitive load of new ad formats is often substantially higher than the load of traditional ad formats, leaving little cognitive capacity available to recognize and process the commercial nature of the format – or commercial elements in the game (Campbell & Kirmani, 2000; Van Reijmersdal, Rozendaal & Buijzen, 2012). Therefore, next to the level of cognitive development of the target audience, we suggest that the cognitive load of the ad format itself should also be taken into account as well.

The second conclusion that can be drawn is that, compared to traditional commercials, the way new advertising formats persuade is different. While the underlying mechanism of the persuasion process seems to be in line with the cognitive defense view for traditional ads, new formats such as advergames appear to persuade more implicitly. By means of a fun and engaging format, these advertising techniques try to evoke positive affective reactions with the audience, thereby bypassing their cognitive persuasion knowledge.

Our findings even show that the content of a digital game (commercial vs. non-commercial) does not have an influence on persuasion knowledge activation, suggesting that in a gaming context, children's defense mechanisms simply do not influence their behavioral outcomes. The same conclusion was drawn by Van Reijmersdal, Rozendaal and Buijzen (2012), stating that the persuasive process does not necessarily depend on

whether children understand the commercial and persuasive nature of a game. It is possible that, even if they understand its persuasive nature, they do not use this knowledge as a defense against the game's effects due to its appealing nature. Therefore, it is highly important for theoretical models regarding persuasion knowledge to include the role of people's affective reactions towards the advertising format next to the traditional, cognitive aspect, as confirmed by Rozendaal and colleagues (2011).

On the basis of our findings, the following schematic representation of the Persuasion Knowledge Model is suggested when it comes to children, more specifically seven to ten-year-old children (additional components marked in grey):

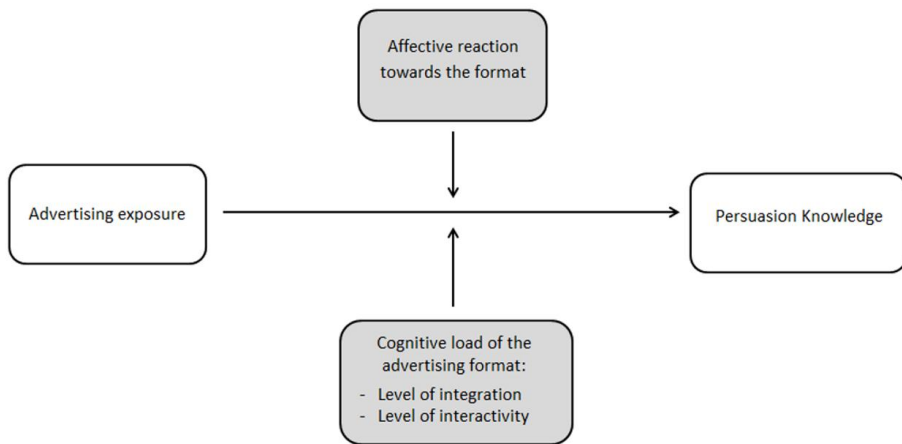


Figure 2: Schematic representation of the revised Persuasion Knowledge Model

### 2.3 Congruence Theory

The final theoretical framework was the Congruence Theory (Mandler, 1982), which investigates the processing (and the resulting affective outcome) of congruent versus incongruent information conditions. The results from chapter five, in which we empirically investigated the processing of ad-program (in)congruence in an iDTV environment during simultaneous exposure and chapter six, in which we investigated

the (in)congruence between a celebrity and a nonprofit organization in an interactive web environment, lead us to two main conclusions.

The results from chapter five show that, in a simultaneous viewing condition, congruence between an ad and a television program leads to more divided attention (more attention switching) but significantly less recall than incongruence. This can be explained by the interference effect which argues that under congruence, elements of the ad and the program melt together, resulting in confusion and lowered recall (Furnham, Bergland & Gunter, 2002; Kumar, 2000). In an attempt to cope with (or avoid) this meltdown, people will try to disentangle and process both information streams, thereby devoting their cognitive resources to attention switching rather than to proper information encoding. Incongruence, on the other hand, leads to less meltdown and thus less fragmented viewing. This allows viewers to devote their cognitive resources to proper processing and encoding of both information sources, resulting in a higher recall. The results from chapter five confirm previous findings (e.g. Moore, Stammerjohan & Coulter, 2005) that during simultaneous exposure, incongruence leads to a more favourable effect on recall than congruence.

We can conclude that while our results support Mandlers' preference for incongruent, rather than congruent conditions, they also show that simultaneous exposure leads to different underlying processing of ad-context congruence than sequential exposure. Mandler argued that in a traditional media environment, congruence is predictable, not note-worthy and easy to process, while incongruence attracts attention, triggers curiosity and increases cognitive elaboration. The results of chapter five suggest that in a simultaneous viewing condition, however, congruence divides attention and decreases cognitive elaboration or information processing compared to incongruence.

Further, it is argued that incongruence results in more positive affective reactions (which may enhance advertising effectiveness) than congruence, but only when this incongruence is successfully processed and resolved (Fleck & Maille, 2010). However, insight is lacking in which factors incite people's processing of incongruent information. While previous studies looked into the effect of both individual characteristics and contextual factors on the processing of incongruent information, there is no research on the moderating impact of new media characteristics on people's processing of

(in)congruent information. Therefore, a study was conducted in which people were exposed to an interactive website for a nonprofit organization which either showed a congruent or an incongruent celebrity endorser (chapter six). This way, (in)congruence between two elements of the same message was manipulated and the viewers were simultaneously exposed to a celebrity endorser who either 'fit' (congruent) or did not 'fit' (incongruent) with the nonprofit organization.

In light of today's important role of the Internet as communication tool, we chose to investigate the potential of interactivity as a factor to enhance the processing of incongruence. The results of this sixth chapter show that an incongruent celebrity endorser incites a higher donation intention than a congruent celebrity, but only when the endorser is integrated in a highly interactive website. This is due to the mediating role of involvement evoked by the interactive website. In a low interactive website, congruence had no impact on people's intentions to donate money to the organization.

These findings contradict some traditional models which state that advertising effects can be enhanced under conditions of congruence of message elements (i.e., match-up hypothesis (Kamins, 1990), meaning transfer model (McCracken, 1986) balance model (Heider, 1946)) but are in line with more recent research which argues that incongruence, when resolved, can evoke positive feelings and have a positive impact on advertising effects (Fleck & Maille, 2010).

This leads us to the second main conclusion regarding the Congruence Theory. Besides the fact that in a simultaneous viewing condition, incongruence leads to less divided attention and weakened information processing than congruence, our results also show that incongruence can have a positive impact on advertising effects when placed in an interactive environment, as the aspect of interactivity can potentially stimulate people's processing of incongruent information.

### **3. IMPLICATIONS FOR SOCIAL MARKETING AND PUBLIC POLICY**

Besides the theoretical contributions, the research results of this dissertation also entail some practical, managerial implications. First, our research results are interesting for social marketers who face the challenge of developing social campaigns in today's media environment. For them, it is essential to fully understand the media environment they have to operate in, and to be aware of the main advantages and pitfalls of this context. Furthermore, these practitioners often base their campaign development on traditional, well-established theoretical models such as the ones discussed in this dissertation. The EPPM, for example, is still frequently applied by social marketers when developing campaigns on issues such as speeding, drinking and driving, or wearing a seatbelt and health issues such as tobacco or alcohol use. However, these theoretical models have been developed in a traditional media environment. For this reason, we believe that an updated or re-evaluated vision of the theoretical frameworks provided in this dissertation, can provide valuable insights for social marketers.

Besides social marketers, public policy makers and regulators could also benefit from the findings of this dissertation. They also often base their decisions or regulations on theoretical concepts such as for example the Persuasion Knowledge Model, without realizing that these models are not adjusted to the current media environment. Due to the changing nature of today's media environment, policy makers need to reconsider some of their policies and regulations (for example concerning child-directed advertising), taking into account the changes today's media society brings along. Therefore, we believe that public policy makers could also benefit from the insights provided by this dissertation. Specifically, based on the findings from this dissertation, a few recommendations can be made to this target audience.

Regarding the use of threat appeals in a new media context, our results suggest that in a new media context, threat can be evoked on different levels which interact with each other. Therefore, when integrating a threat appeal in a new media context such as iDTV, an interactive website, a digital game, an interactive app and so on, social marketers should develop and pretest their stimuli in such a way that the 'optimal' level of threat is achieved to generate telepresence. When feelings of telepresence are evoked, this may lead to a higher perceived efficacy and more adaptive behavior. So, when for example a threat appeal is integrated in a website banner, it is important to make sure that the

context (in this case the website content) generates a moderate level of threat so that the threat induced by the threat appeal in the banner evokes feelings of telepresence.

Second, our findings suggest that some media, like for example interactive digital games, can be too cognitively demanding, thereby distracting people from the threat message. This is unfortunate, since interactive games are a very interesting and popular medium to reach specific target groups like children and youngsters. For this reason, social marketers should try to include the threat appeal in the game instead of presenting it to children before they play the game. By integrating the threat appeal in one or more places in the game, the effect of children 'forgetting' the threat message because of the load of the game may be diminished. Taking the previous remark into account, however, one should be careful not to evoke too high levels of threat since this results in fear control.

Regarding our insights in the persuasive tactic of new, interactive advertising formats and how this persuasive mechanism differs from traditional advertising, the following recommendation can be made for social marketers. Due to the changed media and advertising environment, children are often confronted with integrated or highly appealing forms of advertising they are not familiar with. However, children and youngsters often do not recognize the persuasive intent of these new formats, which then results in unconscious persuasion. Therefore, social marketers and educators should empower children by educating them on the existence and operation of these new formats. This could be done, for example, by creating a serious game or tablet application which increases childrens awareness of this topic through game play.

Regarding the integration of public service announcements in a congruent versus incongruent new media context, our results suggest that in case of simultaneous exposure, incongruence leads to more favourable cognitive and affective outcomes than congruence. In other words, when shown simultaneously with media content on iDTV or online, this content should be thematically different (e.g. discussing a different social topic) from the content of the public service announcement. This also applies for integrated advertising techniques such as the use of banner ads or integrated streaming

video's on websites or iDTV, where again incongruence between the PSA and the media content is advised.

## 4. LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

In spite of the contributions mentioned above, future research is needed to deal with the limitations of our studies and to further improve our understanding of the traditional theoretical models in a new media context. Although the methodological designs and conceptual underpinnings of each of the studies included in this dissertation were carefully developed, there are some limitations in each study that provide guidance for further research. Limitations and suggestions for further research can be noted from both a methodological and conceptual point of view.

### 4.1 Single exposure

The *first limitation* is that each experiment discusses the results of only one exposure to the stimuli. In the second and third chapter, for example, the respondents were exposed to the threat appeal once. It would be interesting for further research to look into the repetition effect of threat appeals in an interactive context, as previous studies show that the effect of threat appeals may change with repetition or continuous exposure. However, there seems to be little consensus on the specific effects of this repeated exposure. While some studies claim that the desired behavior can increase after repetition of the threat appeal (Rossiter & Thornton, 2004), others argue that repeated exposure to fearful representations may provoke a counterintuitive, maladaptive reaction (Ereaut & Segnit, 2006). Hastings et al. (2004) argue that a law of diminishing returns may appear. In this case, fear approaches need to be made more intense as time goes by in order to produce the same impact on individuals, which immediately raises some ethical concerns. As the repeated exposure effect of threat appeals has not yet

been tested in an interactive new media environment, this creates an opportunity for further research. It is possible that the cognitive load of an interactive context could amplify this law of diminishing returns, but it is also possible that feelings like flow or telepresence could have a postponing effect on it. For this reason, further research is needed to investigate this research question more in depth.

The same remark goes for the fifth and sixth, where the respondents were only exposed once to the (in)congruent information context. It is possible that after repeated exposure, people have more time and opportunity to process the (in)congruent information streams, weakening the interference effect (which we defined as '*the process by which our ability to recollect information is hindered by our exposure to some other information*' (Kumar, 2000, p.155).

In the sixth chapter, for example, we argue that website interactivity could facilitate the processing of incongruent information on that website. However, as the respondents viewed the website only once, we can only make a statement based on a single website exposure. For further research, it would therefore be interesting to investigate the effect of incongruence after repeated exposure, as this gives people more opportunity to resolve this incongruence. To date, it is known that that repetition can affect both learning and attention, and, for example, make game players more confident when playing (Cacioppo & Petty, 1979; 1989). In addition, repetition has a significant positive effect on recall (Burke & Srull, 1988), and repetition benefits recall of both congruent and incongruent information (Besson, Kutas & Van Petten, 1992). However, the effect of repetition on the processing of incongruence has only received limited research attention. Furthermore, although previous studies show that moderate repetition increases message elaboration (Petty & Cacioppo, 1979), it is also important to remark that previous research suggests that the subjects' interest in the information starts to wear out with repetition, and that tedium or boredom can develop at high levels of message repetition (Cacioppo & Petty, 1989; Gorn & Goldberg, 1980), which could again have a negative effect on the processing of incongruence. However, further research should test the repetition effect on (both congruent and incongruent) information processing in today's new, interactive media environment. This is particularly interesting since the cognitively demanding nature of new, interactive media could possibly have an impact in this repetition effect, as Cacioppo & Petty's (1979) model of



message repetition suggest that moderate repetition enhances processing *if* recipients are motivated or able to devote the necessary cognitive resources to think about the issue.

Finally, the single exposure limitation also applies to the Persuasion Knowledge Model. In the fourth chapter, children were only exposed to the stimuli (a TV commercial or an advergame) once. Further studies should include repeated exposures and study long term effects, since children's persuasion knowledge is developed by advertising experience (Rozendaal, Lapierre & Van Reijmersdal, 2011; Wright, Friestad & Boush, 2005) and may increase after

#### **4.2 Manipulating the level of interactivity**

The *second limitation* relates to the level of interactivity. In this dissertation, interactivity was not examined as a continuous, but as binary variables. In the empirical studies, we used three interactive new media (iDTV, the Internet and digital games), in some cases comparing them to traditional non-interactive media. What we did not do, however, is distinguish or compare between different levels of interactivity. Rather, the three media were considered to be substantially more interactive than traditional, non-interactive media.

Ideally, interactivity should be treated as a continuous variable. In this case, it would be interesting to manipulate interactivity in such a way that it increases gradually, thereby investigating its effect on cognitive, affective and behavioral outcomes. However, as we have mentioned earlier in this dissertation, interactivity can entail a lot of advantages on an affective, cognitive and behavioral level, but this effect is not obvious. When the level of interactivity is too low, there will be no feelings of telepresence or flow evoked, thus no effect on cognitive, affective and behavioral outcomes can be expected (Novak & Hoffman, 1997). On the other hand, the level of interactivity can at a certain point also become too high (i.e. the cognitive 'overload' effect, Fox, Park & Lang, 2007), leading to a decrease in affective, cognitive and behavioral reactions. Therefore, an interesting path for further research would be to investigate this balance between the amount of interactivity and its outcomes. This way, it would be interesting to investigate for each of the three theoretical models discussed

in this dissertation at which point interactivity stops being an added value for information processing and become a disturbing factor which evokes cognitive overload

### 4.3 Measuring behavioral intention instead of behavior

The *third limitation* is that, although the aim of this dissertation was to investigate the effects or changes on people's behavior, this was not always possible due to practical, time-bound or financial limitations. Therefore, behavioral intention was used as a dependent variable in some empirical studies, instead of actual behavior. In chapter two, for example, self-reported behavioral intention was used as the main dependent variable instead of measuring people's actual behavior. However, as this study investigated the effect of threat appeals on reducing people's speeding behavior, it was a very difficult to actually measure this behavior after exposure to the stimuli. As a result, behavioral intention was measured instead. The same applies to chapter six, where people's intention to donate money to a nonprofit organization was measured instead of their actual donation behavior. The reason for this is that, in order to avoid confounds, a non-existing charity organization was used, which makes actual donation behavior impossible. Due to similar limitations, chapter three measured children's intention to improve their dental care instead of the actual changes in their behavior and in chapter four, children's purchase request intention was measured instead of the actual purchase request towards their parents.

Although prior research found a positive and significant correlation between people's intention to speed and their actual behavior (Elliot, 2001; Vogel & Rothengatter, 1984), this correlation is often relatively low. In the second chapter, for example, speeding behavior could be measured through the use of a more real-life video simulator (cf. Walshe et al. 2003). In chapter six, actual donation behavior could be simulated by giving the respondents a certain budget at their disposal, which they could then choose to (partially) donate to the nonprofit organization. In chapter four, an additional validation could be provided for children's self-reported measures by also questioning their parents by means of a follow-up survey. Instead of only measuring children's

purchase request intention, their actual purchase request regarding a specific product or brand could be measured by questioning the parents as well.

#### **4.4 Limited variety among respondents**

The *fourth limitation* is that all the empirical studies are conducted in Belgium and thus only Belgian, more specifically Flemish respondents are included. This implies that potential cultural differences influencing information processing, or the processing of interactivity, are not included in this dissertation. In the fifth chapter, for example, people's eye movements were studied by means of eye-tracking in order to investigate the processing of (in)congruent information during simultaneous exposure. As mentioned earlier, only Flemish respondents were used. According to the study by Rayner and colleagues (2007), there is a strong tendency for consistency in eye movement behavior across different cultural groups, suggesting that it would not be highly interesting to compare these results across different cultures. However, other studies do suggest some cultural differences in information processing. Boduroglu, Shah and Nisbett (2009) for example also investigated cultural differences in attention allocation and found that cultural background actually influences how attention is distributed when viewing scenes. Their results suggest that East Asians allocate their attention more broadly than Americans (attention allocation differences), which is in line with other cross-cultural investigations of cognitive differences which argue that different cultures have different cognitive styles (e.g. East Asians tend to be more holistic and Western cultures tend to be more analytic, Nisbett & Masuda, 2003; Nisbett & Miyamoto, 2005). Similarly, Park and Huang (2010) conclude there is limited evidence that cultural experiences affect brain structure and considerably more evidence that perceptual processing is affected by culture. As a result, further research testing the basic assumptions of the three theoretical models in an interactive environment should compare these results among different cultures, as it is possible that there are differences in the way individuals process information due to cultural experiences.

## 5. ADDITIONAL RESEARCH PATHS

After discussing the main limitations of this dissertation, and the research opportunities which result from these limitations, some additional research paths might be interesting to mention as well.

First, we chose to situate this dissertation in a social marketing context, investigating the effect of different persuasive appeals on people's processing of information, and finally their behavioral change. This behavioral change was interpreted in terms of socially desirable behavior such as not speeding or donating money to charity. Therefore, we cannot extrapolate the results and findings of this work to a commercial marketing context. Although social and commercial marketers often use the same marketing techniques, both contexts are nevertheless fundamentally different. While commercial marketing pursues financial gain by selling goods and services, social marketers pursue societal gain by promoting the adoption of a behavior that will improve the well-being of the target audience or of society as a whole (Evans, 2006). As a result, it can be expected that people's processing of information will differ in a commercial media context. For example, the Persuasion Knowledge Model (Friestad & Wright, 1994) argues that once people recognize the persuasive intent of a message, a defense mechanism is activated which makes them process this message in a more critical way (Knowles & Linn, 2004). However, different kinds of messages may provoke different resistance strategies. Taking into consideration that commercial advertising can more easily be recognized as an attempt to persuade because of the self-interest of the commercial advertiser, as well as the fact that with social persuasive messages (e.g., from a health organization), the source acts out of public interest and wellbeing and thus has little self-interest, we can assume that social persuasive messages might evoke less defensive reactions with the recipients than commercial ones. Since a public service announcement may raise less suspicion of ulterior motives, this may evoke less critical message processing than commercial messages, which might, in turn, affect persuasion. However, it would be interesting if further research would investigate the effect of persuasion knowledge on people's processing of persuasive communication in both a social and a commercial marketing context. In this dissertation, we have briefly compared the underlying persuasive mechanism for commercial versus social messages, but only with children

(chapter four). Further research should elaborate on this research topic, comparing the processing of commercial and social messages with adults, as well as investigating the effect of persuasion knowledge on the processing of threat appeals, (in)congruent information streams, simultaneous exposure to media content and (commercial or social) advertising content, etc.

Second, it would be interesting for further research to focus on other new media characteristics and their relation to different persuasive appeals, thereby studying additional new media and new advertising formats than the ones included in this dissertation. In this work, we mainly focused on interactivity as new media characteristic. However, as we discussed in the introductory chapter, there are several other important characteristics of new media like the degree of personalization, the effect of social and peer influences and so on. It would be interesting, for example, to investigate the effect of personalization on different persuasive appeals, such as threat appeals. In this respect, it would be interesting to focus on more personalized ad formats such as mobile messaging, location-based mobile applications, direct mailings, and personalized advertisements on social networks, the Internet or iDTV.

Finally, further research should test the basic assumptions of other persuasive appeals or theories in an interactive new media environment. In this dissertation, we focused on the Congruence Theory, the Persuasion Knowledge Model and the Extended Parallel Processing Model. However, there are also other persuasive strategies which are used in social marketing. Therefore, further research could investigate the applicability of other frequently used persuasive appeals such as guilt appeals) or commercial marketing, other persuasive strategies like message framing or other models such as the Elaboration Likelihood Model (Petty & Cacioppo, 1986), the Affect Infusion Model (Forgas, 1994, 1995) and so on in an interactive new media context.



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