

HEC Montréal
Affiliée à l'Université de Montréal

Three Essays on Pro- and Anti- Behavioral Messages in a Preventive Context

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Thèse présentée à la Faculté des études supérieures et postdoctorales
en vue de l'obtention du grade de Philosophie Doctor (Ph.D.)
en Administration
option marketing

Juillet 2012

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Cette thèse intitulée:

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in a Preventive Context**

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Résumé

Cette thèse s'articule autour de trois articles traitant de l'effet interactif des messages pro et anti-comportements dans un contexte de prévention.

Dans le premier article, nous mettons en évidence que les modèles de persuasion sur lesquels reposent la majorité des campagnes de prévention des problèmes liés aux jeux de hasard et d'argent (JHA), ignorent deux éléments importants. 1) Les objectifs préventifs des campagnes de sensibilisation se heurtent aux objectifs commerciaux des campagnes de promotion du jeu et 2) les budgets alloués à la promotion des JHA sont largement plus importants que ceux alloués à la prévention des problèmes qui y sont liés. Sur la base de cette constatation, nous proposons de considérer les messages préventifs non plus comme des outils visant à persuader mais comme des moyens d'accroître la résistance aux efforts promotionnels. Cette proposition est fondée sur la théorie de l'inoculation (Mc Guire, 1964).

Le deuxième article s'intéresse à un problème d'actualité, celui de l'existence de messages préventifs financés directement par l'industrie des JHA. La question qui se pose est celle de l'effet, sur les joueurs, de ce double discours, préventif versus promotionnel. Deux thèses s'opposent : la théorie du fruit défendu (Christenson, 1992) et le paradigme du « two-sided communication » (Crowley and Hoyer, 1994). Pour la première, le message préventif permet de réduire l'effet néfaste des publicités promotionnelles alors que pour la deuxième il pourrait accroître l'efficacité des messages publicitaires. Dans une première partie, nous montrons que les publicités commerciales affectent positivement les attitudes des joueurs envers le jeu et l'industrie du jeu et augmentent, de ce fait, leur intention de jouer. Nous mettons ensuite en avant que les messages préventifs, développés par l'industrie, réduisent les intentions de jouer

des joueurs lorsqu'ils sont placés avant des publicités du jeu. Cependant, lorsque ces messages préventifs apparaissent seuls (c'est-à-dire en absence de publicité du jeu), ils agissent comme des messages promotionnels en augmentant les attitudes positives envers le jeu, l'industrie du jeu ainsi que les intentions de jouer des joueurs.

Le troisième article élargit l'analyse au cas de la sécurité routière et de la promotion des comportements de conduite à risque au sein des films. En se basant sur le concept du *priming*, la première expérimentation montre que les films comportant des scènes de vitesse « priment » l'idée que les conducteurs dangereux ont un haut niveau de confiance en eux et augmentent, de ce fait, les attitudes positives des jeunes hommes envers la conduite à risque. Nous démontrons cependant, au sein de la deuxième expérimentation, que cet effet peut être contrebalancé par l'insertion, avant le film, d'un message préventif présentant une image négative des conducteurs dangereux. Les résultats viennent confirmer l'effet de *priming* des films tout en prouvant que cet effet peut être enrayé par la mise en place d'une campagne de sécurité routière adaptée. Cette recherche est la première à tester l'effet des campagnes de sécurité routière en compétition avec les messages contraires véhiculés par les médias.

Mots-clés : Prévention, Comportements à risque, Media, Résistance à la persuasion, Jeu excessif, Sécurité routière, Jeunes conducteurs, Priming, Théorie de l'inoculation, Two-Sided Communication.

Abstract

This dissertation is structured around three papers dealing with the interactive effect of pro- and anti-behavioral messages in a preventive context.

The first paper highlights the fact that persuasion models currently used in prevention campaigns to fight gambling addiction largely ignore two elements. First, prevention campaigns objectives compete with those of gambling corporations. Second, commercial advertising budgets are much larger than those of prevention. We develop a theoretical model that takes into account these two elements. Our goal is to propose another way of conceptualizing prevention in terms of resistance to gambling advertising appeals rather than in terms of persuasion. This model is based on the Inoculation Theory (McGuire, 1964). It explains why and under which conditions a message-induced resistance to gambling ads may be more efficient than an awareness-raising message based on gambling related risks.

In the second paper, we test two opposing theses regarding the effects of pro and anti-gambling ads both funded by the gambling industry: The tainted fruit theory (Christenson, 1992) and the two- sided persuasion paradigm (Crowley and Hoyer, 1994). The tainted fruit theory posits that anti-gambling ads will cancel the effect of pro-gambling ads, whereas the two-sided persuasion paradigm posits that anti-gambling ads will make pro-gambling ads even more effective. In the first experiment, we analyse the direct effect of pro-gambling ads and we show that gambling ads enhance gamblers' positive beliefs toward gambling which, in turn, increase gamblers' gambling intent. In the second experiment, we deal with the interactive effects of both types of ads and we

show that anti-gambling ads cancel the effect of pro-gambling ads on gambling intent if gamblers are exposed to them prior to gambling ads. Paradoxically, when solely exposed to anti-gambling ads, gamblers' positive attitudes toward the gambling industry and gambling intent increase.

The third paper explores the priming effect of reckless driving scenes in movies on young male viewers and the ability of anti-speeding advertisements to counterbalance this effect. In the first experiment, we expose a sample of young male drivers to the presence (versus absence) of reckless movie driving scenes. We show that reckless driving scenes enhance perception of reckless drivers' self-confidence, which in turn enhances positive attitudes toward reckless driving behavior. The second experiment aims to test the interactive effect of reckless driving scenes in movies and anti-speeding advertisements showing negative features of reckless drivers. Anti-speeding ads are shown to counterbalance the effects of reckless driving scenes on young male drivers' positive beliefs about reckless drivers and attitudes toward reckless driving. The results support the priming effect of reckless driving scenes in movies and prove that young male drivers' beliefs can be effectively repositioned through an appropriate communication road safety strategy. This research is the first one to test the effects of anti-speeding ads in *competition* with contradictory messages delivered by media.

Keywords : Prevention, Media Impact, Resistance to persuasion, gambling-related problems, Road Safety, Young Drivers, Priming Theory, Inoculation Theory, Two-sided communication

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À JB mon ami...

Remerciements

Rédiger une thèse de doctorat ce n'est pas seulement un travail académique c'est également un travail personnel que je n'aurais pu réaliser sans l'appui des nombreuses personnes qui m'ont entourée. Ces pages leurs sont destinées.

Je sais par où commencer mais je ne sais pas par où continuer tellement la liste des personnes qui m'ont soutenue et accompagnée est longue.

Tout d'abord et du plus profond de mon cœur j'aimerais remercier mon directeur, M. Jean-Charles Chebat qui a cru en moi, m'a rassuré dans les moments difficiles et m'a transmis avec dévotion sa passion pour la recherche. Les mots ne sont pas assez grands pour exprimer ma gratitude. Il a été un modèle, un mentor, un facilitateur et un soutien primordial au long de ces quatre années de doctorat. Je remercie la destinée de nous avoir fait nous rencontrer. J'aimerais également dire un grand merci à François Bellavance pour ses précieux conseils et le temps qu'il m'a consacré. Merci de m'avoir transmis vos connaissances et d'avoir contribué à améliorer grandement cette recherche. Merci aussi à Elisabeth Papineau, de l'INSPQ, sans qui une partie de cette thèse n'aurait pu voir le jour.

Je remercie également tous mes amis du doctorat et notamment les membres du « Rizzuto » sans qui je n'aurais pas survécu. De façon toute particulière j'aimerais dire un grand merci à Laurence et Fred qui m'ont accompagnée, soutenue et aidée tout au long de cette aventure, à Mina, Nasser et Mostafa qui m'ont fait découvrir une nouvelle façon de penser et de vivre et bien entendu à Narjes, ma confidente, qui a toujours été là pour m'écouter.

De plus j'aimerais remercier mes amis de Montréal et notamment Geneviève (dit Géné), Alexandre et Xavier qui ont toujours été là pour me faire rire, me changer les idées et contribuer par leur présence à ensoleiller mes journées.

Je n'oublie pas pour autant mes amis de France qui, malgré la distance, ont su rester à mes côtés. Merci à Karol, Kristell, Estelle, Manue et Anne d'être restées les mêmes après toutes ces années. Merci aussi à Kévin qui m'a vu grandir, a forgé les bases de la personne que je suis maintenant et sans qui cette thèse n'aurait jamais commencé.

J'aimerais également exprimer toute ma gratitude à ma famille. Ma mère Roselyne, qui m'a appris à être forte, à persévérer et à ne pas fuir devant l'adversité, qui m'a aidée et m'a soutenue quelque soit les choix que je prenais. Mon père, Briec, qui m'a donné, par son exemple, le goût d'apprendre et m'a accompagnée dans toutes les étapes importantes de ma vie. Mes sœurs adorées, Céline et Nadine, qui m'ont toujours encouragée et m'ont donné le goût de la découverte et de l'aventure.

Enfin et pour terminer, un grand MERCI à toutes les personnes qui de façon directe ou indirecte, ont permis à cette thèse de devenir une réalité.

Introduction

Objectifs, Originalité et Fondements Théoriques de la Thèse

Un conflit d'intérêts. C'est en ces termes que certains chercheurs définissent la situation dans laquelle se retrouve la majorité des gouvernements qui, en souhaitant prévenir les comportements excessifs à l'égard des jeux de hasard et d'argent, semblent oublier qu'ils en sont également les principaux promoteurs (Blaszczynski, 2003; Derevensky et Gillespie, 2005). C'est sur la base de ces termes que cette thèse s'est développée. Du conflit d'intérêts nous n'avons gardé que le premier terme « conflit » pour étudier, de façon plus large, le contexte dans lequel se retrouvent, la plupart du temps, les messages préventifs développés par l'état ou les organismes à but non lucratifs en vue de prévenir l'adoption de comportements dangereux.

En effet, que ce soit dans le cas du tabac, de l'alcool ou en ce qui nous concerne plus précisément ici, l'addiction aux jeux de hasard et d'argent et la sécurité routière, il apparaît clairement que les comportements mis à mal par les campagnes de prévention sont paradoxalement ceux qui sont glamourisés par les médias. Cette situation de conflit voir de compétition dans laquelle se retrouvent les messages préventifs n'a, de façon surprenante, été que très rarement analysée. Hormis quelques recherches dans le domaine du tabac et notamment celles de Golmier, Chebat et Gélinas-Chebat (2007) et de Pechmann and Shih (1999), les messages préventifs sont majoritairement développés et testés dans un vacuum, comme si ils étaient la seule voie de la raison et que l'ensemble des discours contraires étaient inexistants. Or l'évidence et une observation rapide de l'univers médiatique nous dressent un panorama tout à fait différent.

Les messages médiatiques faisant la promotion des comportements à risque sont omniprésents. Pour être cool, populaire il faut fumer (Pechmann, 2001), pour faire la fête, s'amuser, il faut boire (Agostellini and Grube, 2002), pour être riche, réaliser ses rêves, il faut jouer (Mc Mullan et Miller, 2009), pour être viril, confiant il faut prendre des risques au volant (Bullens, Ro, Van den Bulck, 2011). La diffusion de ces messages n'est pas sans conséquence. En effet, les médias sont devenus aujourd'hui un mode de partage, d'échange et de transmission des valeurs culturelles au même titre que les pairs ou les parents (Bandura, 1988). Leur impact sur les enfants et les adolescents, tant d'un point de vue attitudinal que comportemental a fait l'objet de nombreuses recherches. Certains comportements à risque comme des comportements violents voir criminels, le développement d'une sexualité précoce ou encore la consommation de drogues, ont été directement reliés aux messages véhiculés par les médias (Strasburger et Donnerstein, 1999). La démonstration de ces effets a amené certains chercheurs à considérer l'environnement médiatique au sens large comme un système de communication culturelle devant être analysé comme tel (Binde 2007, Mc Mullan et Miller, 2009). En partant de ce point de vue, il a notamment été démontré que plus un enfant ou un adolescent était exposé aux publicités portant sur l'alcool ou le tabac, plus il était susceptible de commencer ou de vouloir commencer à fumer ou à boire de l'alcool (Strasburger et Donnertsein, 1999). Les médias influencent les valeurs, les attitudes, ils véhiculent des stéréotypes susceptibles d'affecter les modes de consommation et les

comportements (Agostellini et Grube, 2002; Birde, 2007; Golmier, Chebat et Gélinas-Chebat, 2007; McMullan et Miller, 2009, Pechmann, 2001).

Le premier objet de cette thèse est de montrer que les effets démontrés dans le cas de l'alcool ou du tabac, sont également valables dans le cas des jeux de hasard et d'argent (JHA) et de la prise de risque au volant.

En ce qui concerne les JHA, bien que de nombreuses études, notamment qualitatives, pointent du doigt le contenu potentiellement dangereux des publicités de la loterie, la relation entre exposition à ces publicités et développement d'attitudes dangereuses envers les JHA n'a jamais été démontrée de façon expérimentale. Cette thèse se propose donc, entre autre chose, de combler cette lacune en analysant au sein d'un environnement expérimental contrôlé, les effets de la publicité de la loterie.

Dans le domaine de la sécurité routière, rares sont les études s'étant penchées sur l'effet potentiellement négatif de la valorisation, au sein des films, de la prise de risque au volant. Quelques études de contenu mettent en avant que la conduite dangereuse est très souvent glamourisée et récompensée au sein des films (Bullens, Ro, Van den Bulck, 2010; 2011) sans cependant être en mesure de déterminer quel peut être l'impact, sur les spectateurs, de cette valorisation. Nous proposons comme dans le cas des JHA, de remédier à ce manque, par l'utilisation d'un devis expérimental nous permettant d'étudier l'impact de ces contenus sur les attitudes et les croyances des jeunes conducteurs de sexe masculin.

Le deuxième objet de cette thèse est de prendre en considération l'omniprésence de ces messages contraires dans le développement et la mesure d'efficacité des messages préventifs. En ce sens nous souhaitons nous éloigner des modèles généralement utilisés au sein des recherches en communication préventive. En effet, l'utilisation des modèles PMT (*Protection Motivation Theory*; Rogers, 1983) ou encore HBM (*Health Belief Model*; Becker, Haefner, Kasl, et al., 1977) que Pechmann (2001) nomme Risk Learning Models, semble tout à fait adaptée à une situation de non concurrence, lorsque le message préventif est seul à faire référence au comportement potentiellement dangereux. Ces modèles expliquent alors que les individus auront d'autant plus tendance à éviter d'adopter un comportement dangereux, à s'en protéger, qu'ils sont conscients du risque qui lui est associé, de leur susceptibilité à ce risque et de leur capacité à l'éviter. Le message préventif doit par conséquent permettre d'accroître ces trois éléments. Cette stratégie, efficace en situation monopolistique, semble cependant relativement sans effet lorsque le message doit se battre contre des discours contraires. Dans le cas des jeux de hasard et d'argent par exemple, certaines recherches ont mis en évidence que les messages de sensibilisation permettaient d'accroître la connaissance des risques associés au jeu excessif et des moyens permettant d'y remédier (Messerlian et Derevensky, 2006; Williams, West et Simpson, 2007). Ils n'avaient, cependant, aucun impact sur les croyances positives qui pouvaient y être associés telles que la possibilité de gagner de l'argent rapidement ou de pouvoir réaliser ses rêves, thèmes forts des publicités faisant la promotion des jeux (Messerlian et Derevensky,

2006; Monaghan, Derevensky et Sklar, 2008). Leur impact global était donc quasi nul (Messerlian et Derevensky, 2006; Williams, West et Simpson, 2007).

Dans le premier article, notre volonté est de montrer qu'il est possible de tirer partie de l'existence de ces discours contraires afin d'augmenter l'efficacité des messages de sensibilisation destinés à la cible jeune. En nous basant sur la théorie de l'inoculation (McGuire, 1964), nous proposons d'aborder la communication préventive non plus comme un outil destiné à persuader, mais plutôt comme un moyen d'accroître l'aptitude des personnes et notamment des plus jeunes, à résister aux efforts de persuasion entrepris par l'industrie du jeu.

Dans le deuxième article, nous abordons notre question première relative à l'effet potentiellement contreproductif des messages préventifs développés et véhiculés par l'industrie du jeu elle-même. En nous appuyant sur deux théories, la théorie du fruit avarié (Christenson, 1992; Bushman et Stack, 1996) et le paradigme du « two-sided communication » (Crowley et Hoyer, 1994) nous formulons deux hypothèses contradictoires. Selon la première, le message préventif permet de réduire l'effet néfaste des publicités promotionnelles en « primant » ou rendant saillant une image négative des JHA et pourrait donc avoir un effet bénéfique sur les joueurs. Pour la deuxième, à l'inverse, le message préventif, en donnant une image positive de l'industrie du jeu, augmente l'efficacité des publicités promotionnelles du jeu et par conséquent leur dangerosité.

Dans le troisième et dernier article, nous appliquons notre cadre d'analyse au cas de la sécurité routière. En partant du principe que les médias et plus spécifiquement les films véhiculent un stéréotype positif des conducteurs à risque, nous nous demandons si un message préventif pourrait être en mesure de contrebalancer ses effets. Pour formuler nos hypothèses, nous nous appuyons sur deux théories : la théorie sociale cognitive (Bandura, 1988) et la théorie du Priming (Bargh, Chen et Burrows, 1996; Sabbane, Bellavance et Chebat, 2009). Sur la base de ces théories, nous théorisons que les films avec scènes de vitesse priment ou rendent saillant une image positive des conducteurs à risque qui peut avoir un effet direct sur le comportement des jeunes conducteurs de sexe masculin. Cependant, le négatif l'emportant généralement sur le positif, nous avançons également que le placement d'un message préventif, présentant une image négative de ces mêmes conducteurs, juste avant le film, permet d'annuler ces effets.

Plan de la Thèse

Comme mentionné précédemment, cette thèse est constituée de trois articles. Ces articles sont rédigés en anglais à fin de publications bien que cette introduction soit en français.

Ces trois articles proposent trois angles d'approche différents quant à l'analyse et à la prise en considération de la situation de conflit dans laquelle se retrouve les messages préventifs.

Le premier, conceptuel, co-écrit avec Jean-Charles Chebat, qui sera bientôt publié au sein du Journal of Business Research, présente un modèle théorique. Il vise à expliquer en quoi et dans quelle mesure il pourrait être bénéfique d'appliquer les principes de la théorie de l'inoculation (McGuire, 1964) au développement des messages de sensibilisation aux problèmes liés aux JHA ciblant les enfants et les jeunes adolescents. Cette théorie encore sous-utilisée en communication préventive, semble en effet offrir des voies d'amélioration aux campagnes déjà en cours et pourrait permettre de rendre les jeunes plus résistants face aux efforts de persuasion déployés par l'industrie du jeu.

Le deuxième, soumis pour publication au Journal of Public Policy and Marketing et également co-écrit avec Jean-Charles Chebat, est empirique. Il vise à analyser l'effet potentiellement contreproductif des messages de sensibilisation financés par l'industrie du jeu. Des joueurs adultes ont été exposés à ces messages suivis ou non par des publicités faisant la promotion du jeu et leur attitude envers le jeu, envers l'industrie du jeu et leurs intentions de jouer ont ensuite été évalués.

Le troisième et dernier article, dont les co-auteurs sont Jean-Charles Chebat et François Bellavance, est également empirique. Il vise à être publié au sein du même journal que le précédent à savoir le Journal of Public Policy and Marketing. Le contexte change pour se pencher sur les jeunes conducteurs de sexe masculin et l'effet, sur leurs comportements, des discours contraires véhiculés par les médias. Pour cette recherche, de jeunes hommes, titulaires d'un permis de conduire de moins de 4 ans, ont été invités

à visualiser des scènes de films mettant en valeur la vitesse et la prise de risque au volant. Pour certains d'entre eux, les scènes de film étaient précédées d'un message préventif présentant une image négative du conducteur dangereux. Leur attitude envers la conduite à risque ainsi que leurs croyances à l'égard des conducteurs imprudents étaient ensuite mesurées.

Contributions de la Thèse

Sur le plan académique cette thèse vise à enrichir la littérature en marketing social et en marketing de la santé, en offrant un nouveau cadre d'analyse, plus global. En particulier, ce travail met en lumière le rôle des messages véhiculés par les médias dans l'adoption de certains comportements à risque et l'importance de leur prise en considération dans le développement et l'analyse des messages préventifs. Cette thèse est également la première à étudier, au sein d'un environnement expérimental contrôlé, l'effet des publicités du jeu (Chapitre 2) et des films faisant la promotion de la vitesse (Chapitre 3) sur les individus. Elle vient de ce fait supporter les présomptions issues des analyses de contenus quant aux effets potentiellement dangereux de ces deux types de message médiatiques.

Au-delà des contributions théoriques, les résultats de cette thèse fournissent un certain nombre d'implications managériales susceptibles d'aider les gouvernements et les organisations non gouvernementales dans le développement et la mise en place de campagnes de prévention efficaces. Dans le premier chapitre, nous proposons une nouvelle manière de conceptualiser les campagnes de sensibilisation aux problèmes de

jeu ciblant les plus jeunes. Nous invitons les praticiens à réfléchir non plus en termes de persuasion (comment faire pour persuader les jeunes de ne pas commencer à jouer) mais en termes de résistance à la persuasion (comment faire pour rendre les jeunes plus résistants aux efforts de persuasion mises en place par l'industrie du jeu et leur environnement). Dans le deuxième chapitre, nous démontrons clairement que les messages préventifs financés par l'industrie du jeu peuvent avoir des effets pervers et s'avérer, en fin de compte, contreproductifs. Nous invitons les professionnelles du secteur à prendre ces résultats en considération et à limiter au maximum le développement de tels messages. Dans le troisième chapitre, nous proposons une voie de recours aux effets démontrés des films faisant la promotion de comportements de conduite dangereux. Le placement d'un message préventif, juste avant le film, associant la conduite dangereuse au fait de manquer de virilité et à l'exclusion sociale, semble en effet, efficacement contrebalancer ces effets.

Nous pouvons résumer l'apport de cette thèse autour de quatre contributions majeures :

- La mise en avant de l'impact des médias et des discours qu'ils véhiculent sur le développement et la maintenance de certains comportements à risque.
- La proposition d'un nouveau cadre d'analyse de l'efficacité des messages préventifs prenant en considération l'existence de ces discours contraires véhiculés par les médias.

- L'application de la théorie de l'inoculation au cas de la prévention des problèmes de jeu auprès de la jeune génération.
- La démonstration des effets pervers que peuvent avoir un double discours (préventif vs promotionnel) véhiculé par la même organisation.

Chapitre 1 - Resist or Comply: Promoting Responsible Gambling Among Youth

1.1 Abstract

Persuasion models that are currently used in prevention campaigns to fight gambling addiction largely ignore two facts. First, prevention campaign objectives compete with those of gambling corporations and, second, commercial advertising budgets are much larger than those of prevention. We propose a theoretical model that takes into account these two facts. Our goal is to propose another way of conceptualizing prevention in terms of resistance to gambling advertising appeals rather than persuasion. This model is based on the Inoculation Theory. It explains why and under which conditions message-induced resistance to gambling ads may be more efficient than an awareness-raising message on gambling-related risks.

Keywords: prevention, youth, pathological gambling, resistance to persuasion, Inoculation Theory

1.2 Introduction: Competing for the Young Gamblers' Minds

Gambling revenues have become critical income streams for our economy. In 2009, the worldwide legalized gambling market exceeded \$335 billion (The Economist, 2010). However, these revenues come with a price tag. The growth of legalized gambling involves an increasing number of addicted gamblers with everything that entails: higher indebtedness and bankruptcy rates as well as increased divorces, suicides, and gambling-related crime (Blaszczynski and Nower, 2002). In fact, statistics estimate that two million American gamblers experience serious problems related to their gambling behavior (National Council of Problem Gamblers, 2011).

Many non-profit organizations and governmental agencies are turning to social marketing to counteract the development of this hazardous behavior. Numerous policies restricting gambling advertising and/or developing awareness campaigns are under consideration (Derevensky, Sklar and Messerlian, 2009). An Arkansas senator recently proposed to limit the amount of gambling advertising expenditure and/or to increase the amount of money dedicated to gambling prevention and treatment (Arkansas News, 2011).

Just like for the fight against smoking, the key question is how to prevent youth from developing gambling-related problems. More and more evidence suggests that teenagers are engaging in gambling and developing more gambling-related problems

than any other age cohort. Despite legal age restrictions, 63% to 82% of teenagers over the age of 12 gamble each year (Derevensky and Gupta, 2004). Between 10% and 15% are at risk of becoming pathological gamblers, while 4% to 10% already show serious gambling-related problems (Monaghan, Derevensky and Gupta, 2008). These facts are of particular concern, because the younger people start gambling, the more likely they are to become excessive gamblers in adulthood (Blaszczynski and Nower, 2002).

Mounting research suggests that gambling ads could play a key role in the development of this hazardous behavior (Korn, Hurson and Reynolds, 2003; McMullan and Miller, 2009). They promote a positive image of gambling, which, in turn, could directly impact young consumers behavior (Derevensky, Sklar and Messerlian, 2009; Korn et al., 2003; McMullan and Miller, 2009). Unfortunately, current prevention campaigns do not show the same efficacy. They generally provide youth with information about gambling-related risks and present responsible gambling as a way to avoid these risks (Messerlian and Derevensky, 2006). However, they are seldom if ever designed to compete with the conflicting commercial messages of gambling companies (Binde, 2007). In this paper, we speculate that this asymmetry could explain in part the lack of efficacy of preventive campaigns. We propose that providing counter-information to directly attack and refute the gambling corporations' claims is more effective than providing risk-related information about gambling. This proposition is based on the Inoculation Theory (McGuire, 1964).

Our theoretical model focuses on explaining under which conditions the inoculation approach could counterbalance the effects of gambling advertising and be more efficient than the current prevention approach.

1.3 Inoculation Theory: A Framework for Prevention of Youth Gambling

There are two basic medical approaches to preventing disease. One consists of giving a high level of support in order to protect the individual's immune system (vitamins and/or supplements). The second one is to give a weakened dose of the virus (i.e., vaccine) in order to stimulate the immune system and to develop immunity to later attacks. The second option is called the inoculation process.

McGuire's Inoculation Theory (1964) is based on this biological analogy. Just as people can be made resistant to a virus by being inoculated by a weakened form of that virus, people can be immunized against an attitudinal attack by being inoculated with a weakened form of that attack. Instead of mentioning arguments supporting an existing attitude, McGuire proposes to mention arguments against this attitude (i.e., the weakened form of the attack), and then to explicitly refute them (McGuire, 1964; McGuire and Papageorgis, 1961).

By contrast, a supportive strategy consists of providing arguments in support of an existing attitude and raising the level of attitude acceptance as long as no attack

occurs, that is in a persuasion context (McGuire, 1964; McGuire and Papageorgis, 1961).

Several studies test the immunizing ability of attitudinal inoculation (Compton and Pfau, 2004; McGuire 1964, McGuire and Papageoris, 1961; Pfau and Burgoon, 1988; Pfau et al., 2003; Wan and Pfau, 2004). For instance, Compton and Pfau (2004) expose some college students to an inoculative message titled “DON’T FALL INTO THE CREDIT CARD TRAP”, stating that “credit card companies claim that credit cards keep college students safe by providing financial means in emergencies, like car troubles. However, credit card use can actually be detrimental to student well-being, increasing stress and leading to dangerous anxiety”. Then they assess the impact of a simulated credit card advertising message claiming “it’s early in the semester. We’ll make this easy for your brain” (p.362). The results show that inoculated students better resist credit card marketing appeals than non-inoculated students, as manifested in attitude valence and behavioral intentions.

However, as Pfau and Van Bockern (1994) point out, inoculation “is a strategy appropriate to promote resistance to attitude change, not to change attitudes” (p. 415, emphasis added). Consequently, the inoculation process is a preventive process. It necessitates a prior attitude in favour of the inoculation position. In the case of youth gambling, studies show that most adolescents possess strong attitudes opposing gambling at the time they commence the transition from primary school to secondary

school (Derevesnky et al., 2009, MORI Social Research Institute, 2006). However, “as age increases, the likelihood of thinking that gambling is okay as long as you stick to the limit also increases” (Wiebe and Falkowski-Ham, 2003, p 44).

In the area of smoking and alcohol abuse prevention, resistance to persuasive messages is presented as a way to enhance abstinence (Pfau and Van Bockern, 1994; Godbold and Pfau, 2000; Pechmann and Knight, 2002). In the case of youth gambling prevention, we follow the same logic.

1.4 Persuasive Effect of Gambling Advertising

“All you need is a dollar and a dream” said the commercial for the New York Lottery. Most gambling ads do not directly target youth. However, due to their proliferation, young people are increasingly exposed to them on television, the Internet, billboard and magazines (Derevensky, Sklar, Gupta, Messerlian, Laroche and Mansour, 2007).

According to numerous studies this high level of exposure has led to the normalization and glamorization of gambling behavior. Gambling is perceived as being part of the normal teenage experience just like school, instant messaging and summer vacation (Korn et al., 2003; McMullan and Miller, 2009; Derevensky et al.. 2007).

Content analyses suggest that gambling ads are especially appealing to young people. According to McMullan and Miller (2009), they create “a positive orientation to wins, winning and winners, and lottery products that, in turn, reinforce this form of

gambling as part of youthful consumption practices” (McMullan and Miller, 2009, p 273).

Some researchers ask adolescents directly if gambling ads make them want to gamble. They find that ninety-six percent of 12- to 19-year-old adolescents report having seen TV advertisements for gambling during the year and that a large proportion of them recognize that gambling ads prompt them to gamble (Derevensky et al., 2009). As well, they show that there is a link between college students’ exposure to positive media depiction of gambling and their gambling attitude and gambling behavioral intentions (Lee, Lemanski and Jun, 2008).

In the area of tobacco and alcohol prevention, the demonstration of the potentially harmful effect of advertising led to its strict regulation or to its ban (Monaghan, Derevensky and Sklar; 2008). In the case of gambling advertising, even if some regulations exist (e.g., UK, Australia, Canada, USA), their scope remain largely limited (Monaghan, Derevensky and Sklar; 2008).

1.5 The Effectiveness of Current Prevention Efforts

Gambling prevention campaigns provide information on problems related to gambling, and encourage youth to gamble responsibly without attacking the positive image associated with gambling (Messerlian and Derevensky, 2006). In light of the inoculation theory, it is what we can refer to as a supportive strategy.

Most of the arguments used (e.g., “gambling is just as addictive as tobacco” in Ontario; “Teen gambling is a risky deal” in Oregon) are in line with risk-learning models (Pechmann, 2001) whose efficiency remains open to discussion in a real-world setting (Austin, Pinkelton, Fujioka, 1999; Pechmann, 2001). Indeed, the usual purpose of experiments testing the efficacy of these models is to determine whether subjects exposed to the health message feel more vulnerable to risk, are more aware of the severity of this risk and develop new attitudes toward the risky behavior (Rogers, 1983). However, health messages are seldom tested in competition with their promotional counterparts (e.g., commercial gambling ads) with very few exceptions (Pechmann, 2001; Byrne, Dickson, Derevensky, Gupta and Lussier, 2005).

As pointed out by the extant literature on the effectiveness of such communication, these gambling prevention messages increase perception of risk related to gambling (William, West, and Simpson, 2007). However, they do not significantly impact the positive image of gambling promoted by the gambling industry (Monaghan, Derevensky and Sklar, 2008). Consequently, even if teenagers are more aware of the risk associated with excessive gambling, their attitudes and intentions toward gambling remain unchanged (Korn et al., 2003; Messerlian and Derevensky, 2006).

Teenagers also feel immune to the influence of gambling advertising. In their study on a sample of adolescents, Korn et al. (2003) report that “[A]lmost every participant claimed that advertising had no effect on them and that they were able to

‘see through’ the advertising techniques to the underlying motives. Nevertheless, their comments, anecdotes, and stated intentions about gambling behavior support the hypothesis that gambling advertising does influence them” (pp. 34-35).

1.6 The Process of Inoculation

First of all, what is an inoculative message? An inoculative message encompasses two components: a threat (i.e., a warning about attitude vulnerability to strong attack), and a refutational preemption, (i.e., a sample of potential counter-arguments and their refutation). It is always placed before a counter-attitudinal message and its efficiency is evaluated in regards to this counter-attitudinal message (McGuire, 1964; McGuire and Papageorgis, 1961).

So how could inoculative messages immunize young people against the harmful impact of gambling ads and promote responsible gambling behavior? The extant literature leads us to distinguish two paths of inoculation-induced resistance to persuasion. First, the inoculative message, through the threat (e.g., “The dream can become a nightmare”) increases the individual’s motivation to scrutinize the informational content of the counter-attitudinal message (i.e., the gambling ad). The refutational preemption (e.g., “the gambling industry says that... but in fact the truth is...”) gives the receiver the ability to counter-argue and resist. Since it has been shown that resisting a persuasive attack may make the existing attitude even stronger, this path should bring about stronger attitudes against gambling (Tormala and Petty, 2002).

The process of inoculation-induced resistance could also be more direct. People may resist simply because the inoculative message undermines the credibility of the source of the counter-attitudinal message and therefore its persuasive efficacy (Petty and Cacioppo, 1986; Stephenson, Benoit, Tschida, 2001; Tormala and Petty, 2002). Indeed, researchers find that inoculative messages undermine the credibility of the source of the attack (Pfau and Burgoon, 1988; Compton and Pfau, 2008), however and surprisingly, few works test this detrimental effect in terms of resistance to persuasion (Compton and Pfau, 2008).

In summary, inoculation studies provide strong evidence of the efficacy of inoculative messages, especially in the health field. However, their implications for creating resistance to gambling ads with a persuasive intent have not been examined. Furthermore, conditions under which preventive messages could successfully compete with conflicting messages remain unexplored. To address these questions, we propose a set of research proposals.

1.7 Research Proposals

First, considering the potential harmful effects of gambling advertisements, we propose the following:

P1: Gambling ads enhance positive attitudes toward gambling and intention to gamble.

As it has been demonstrated that resisting a persuasive attack may reinforce the existing attitude, we propose that:

P2: Subjects exposed in a sequence first to an inoculative message, and then to gambling ads, have more negative attitudes toward gambling and a weaker intention to gamble than subjects not exposed to a gambling ad.

Our third and fourth proposals derive from the idea that an inoculation strategy is more effective at counteracting the effects of gambling advertising than a supportive strategy:

P3: When exposed to a gambling ad, subjects who had viewed the inoculative message first show a more negative attitude toward gambling and a weaker intention to gamble than subjects who viewed a supportive message.

Considering the two paths of inoculation-induced resistance to persuasion, we propose that:

P4: When exposed to a gambling ad, subjects who viewed the inoculative message compared with subjects who viewed the supportive message or no preventive message:

P4a: perceive a greater threat.

P4b: generate more counter-arguments in response to the gambling ad.

P4c: perceive the source of the gambling ad as less credible.

Insert Figure 1 about here.

1.8 Discussion

Young consumers are increasingly exposed to messages promoting gambling behavior, which makes gambling a normal and/or glamorous activity. Research shows that a positive attitude toward gambling paired with gambling behavior at an early age represents a significant risk for the development of gambling-related problems. Thus, there is a need for public organizations to develop preventive messages able to counteract the development of positive beliefs toward gambling.

Actual prevention efforts are motivated by the general goal of increasing awareness of gambling-related problems and presenting responsible gambling behavior as a way to avoid these problems. Unfortunately, such efforts are often unsuccessful when competing with ads presenting gambling as a fun, exciting and harmless form of activity.

We theorize that a preventive message that undermines specific claims promoting gambling is more effective in creating *resistance* than a preventive message that gives only information about gambling-related problems.

This type of proposal is consistent with research demonstrating that anti-smoking campaigns directly attacking the positive images associated with smoking (Pechmann and Knight, 2002) and highlighting sneaky marketing tactics used by tobacco companies (Farrelly, 2002) can offset the effects of common tobacco ads.

This theoretical perspective is the first attempt to apply Inoculation Theory to gambling prevention. It is also the first to take into account the joint effect of gambling prevention messages and promotional advertisements.

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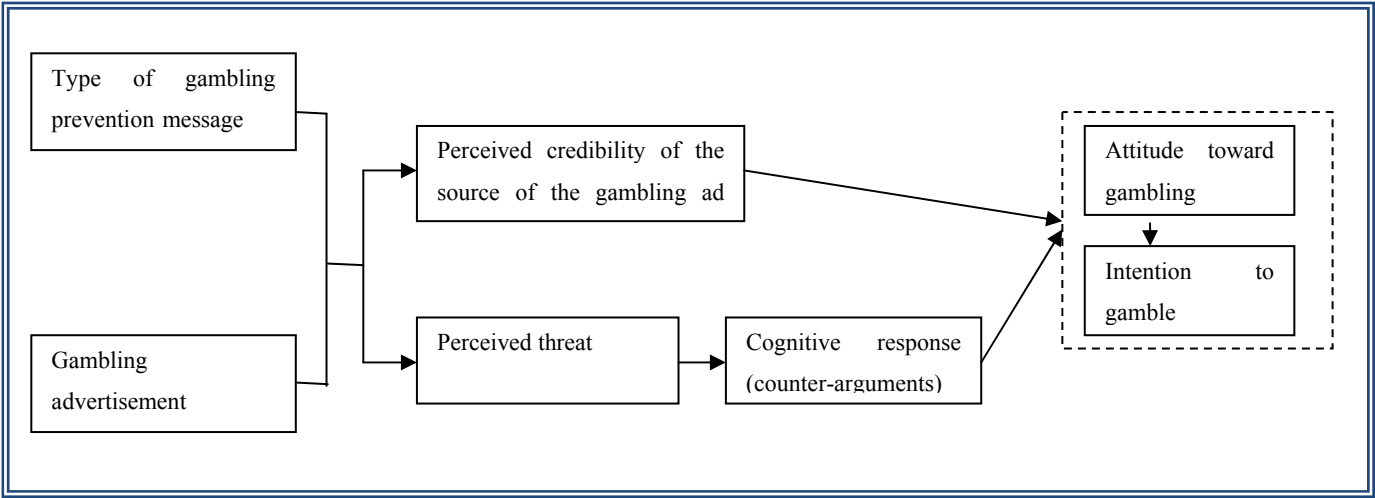
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1.10 Tables and Figures

Figure 1: Proposed model



Chapitre 2 - Temptation and Prevention Provided by the Gambling Industry: Main and Interactive Effects on Gamblers

2.1 Abstract

In this paper, the authors tested two opposing theses regarding the effects of pro- and anti-gambling ads both funded by the gambling industry: the tainted fruit theory and the two-sided persuasion paradigm. The tainted fruit theory posits that anti-gambling ads will cancel the effect of pro-gambling ads, whereas the two-sided persuasion paradigm posits that anti-gambling ads will make pro-gambling ads even more effective. The first experiment, which tests the direct effect of pro-gambling ads, shows that gambling ads enhance gamblers' positive beliefs toward gambling which, in turn, increase gamblers' gambling intent. The second experiment, which tests the interactive effects of both types of ads, shows that anti-gambling ads cancel the effect of pro-gambling ads on gambling intent if gamblers are exposed to them prior to gambling ads. Paradoxically, when exposed solely to anti-gambling ads, gamblers' positive attitudes toward the gambling industry and gambling intent increase.

Key-Words: advertising, gambling, prevention, persuasion, two-sided paradigm, tainted-fruit theory.

2.2 Introduction

I sit on a man's back; choking him and making him carry me, and yet assure myself and others that I am very sorry for him and wish to ease his lot by all possible means - except by getting off his back (Tolstoy, 1891).

The gambling industry has grown significantly over the last decade (Derevensky, Sklar, Gupta & Messerlian, 2010; Lee and Jun, 2008). In 2009, worldwide legalized gambling sales exceeded \$335 billion (The Economist, 2010). Gambling revenues in Canada are estimated at \$13.75 billion a year, which is five times more than in 1992 (Statistics Canada, 2010). The gambling industry is now the biggest revenue generator and employer in the Canadian entertainment field (Canadian Gaming Association, 2008). About 5.5% of provincial government revenues originate from gambling and 267,000 people work directly or indirectly for the gambling industry (Canadian Gaming Association, 2008).

For industry officials and gambling defenders, gambling is an effective way to create jobs and to raise revenue without raising taxes. However, these benefits come with a hefty social and economic price tag. The growing of legalized gambling brings an increase in the number of addicted gamblers with what it all means: higher indebtedness and bankruptcy rates as well as increased divorces, suicides, and gambling-related crimes (Blaszczynski and Nower, 2002). Statistics estimate that

816,000 Canadian adults currently experience moderate to serious gambling behavior problems (Wood and Williams, 2009).

The reasons why gamblers become addicted are complex. There is some research-based evidence that gamblers are influenced by their social and physical environment (Blaszczynski and Nower, 2002). However, non-profit organizations, public agencies, and researchers are focusing their attention on another possible cause of problem gambling development, that is, gambling advertising.

Concerns about gambling advertising have been fueled, in part, by academic research (Derevensky et al., 2010; McMullan and Miller, 2009). Content analyses suggest that gambling ads exploit some factors linked to problem gambling development such as: “the association between wins, winning and winners and the propensity to invest in continuous play; between overselling and overestimating winning returns and the propensity to chase losses, between consumer myth making, faulty thinking and the real statistical probabilities of economic success and social mobility from gambling (...)” (McMullan&Miller, 2009). Indeed, it is now established that heaviest gamblers tend to believe more than regular or non-gamblers that gambling is an easy way to win money and/or that it is possible to influence the result of the game (Orford, Griffiths, Wardle, Sproston and Erens, 2009; McMullan and Miller, 2009).

In response to these accusations, some gambling companies have developed their own prevention program designed to educate people, especially gamblers, about the harmful effects of gambling. In Quebec, current gambling advertising comes from a

monopolistic state-owned gambling corporation. This corporation supports financially a non-profit organization which intends to prevent problems related to excessive gambling behavior. In December 2010, this non-profit organization broadcasted its annual awareness campaign. Obviously, gambling advertising did not stop during this campaign. This situation has been criticized by anti-gambling activists as potential conflict of interests and some questions have emerged: what are the effects of these two types of advertisements? Are current industry-funded anti-gambling campaigns able to counteract the effects of gambling advertising and to develop a more responsible attitude and behavior toward gambling? This article aims to answer these questions.

2.3 What We Know and What We Don't Know About the Impact of Gambling Ads

Despite the increasing awareness of problem gambling and the importance of this issue, little is known about the link between gambling advertising and the development of gambling-related problems (Binde, 2007; Griffiths, 2005, McMullan and Miller, 2009).

Researchers have examined whether the content, design, and exposure of gambling advertising resonate with factors that contribute to problem gambling development. For instance, Griffiths (2005) describes that the use of advertising slogans

in the UK is designed to make people think that they have a good chance of winning (“it might as well be you”), that “it’s easy to win,” and that the impossible could be possible (“Maybe, just maybe”). Monaghan et al. (2009) find an “ethos of winning” in Atlantic Canada’s advertising lottery and Sklar and Derevensky (2011) point out the few references to the actual odds of winning and/or to the negative impact of excessive gambling in Canadian gambling’s advertising. However, these content analyses are limited in their scope. They can highlight the content of gambling ads but they are unable to demonstrate a causal relationship between exposure to those ads and gambling-related problem development.

Other studies have explored the relationship between gambling behavior and recall of gambling ads. For instance, Amey (2001) shows that 89% of the 1500 people he surveyed remember seeing or hearing gambling advertising during the last year. Also, those who gamble more than average report seeing more gambling ads than those who gamble rarely or never (93% compared to 83%). Similar relations are found with a sample of students: those who recall seeing more gambling ads than average have more positive attitude toward gambling, more intention to gamble, and gamble more than average (Lee et al., 2008). Nevertheless, the results of such studies are questionable. On the one hand, ads may enhance positive attitude toward gambling and gambling behavior. On the other hand, gamblers may recall more gambling ads because they

already have a positive attitude toward gambling and gamble more than average (Korn, Hurson and Reynolds, 2003).

Some researchers ask problem gamblers directly if gambling ads induce them to gamble. They find that up to 50% of problem gamblers report that gambling advertising makes them want to gamble (Grant and Kim, 2001; Binde, 2009). However, it has been argued that this effect is marginal and that gambling advertising's impact is far smaller than the impact of other influential factors (Binde, 2009). Also, this type of self-assessment remains open to discussion, as the impact of advertising is mostly unconscious. People can be influenced without being aware of the presence of the ad itself (Binde, 2009; Shapiro, 1999).

Finally, a few studies try to highlight the effects of gambling ads in tracking both gambling media expenditures and gambling sales (Binde, 2007). One of them is *Over- or underadvertising by state lotteries* by Ping Zhang (2004), an economist who examined the impact of lottery advertising expenditure on lottery sales in three American states. Results show that the impact of lottery advertising budget on sales is fairly large compared to other products: a 1% increase in advertising expenditure increases sales by 0.1% to 0.24%. However, these results were challenged by other researchers who conclude that advertising and marketing effort, in general, have little impact on lottery sales once the market has matured (Mizerski & Mizerski, 2001; Mizerski, Miller, Mizerski & Lam, 2004).

Taken together, all these studies suggest that gambling advertising is of particular concern and needs further investigations. However, none of them examines directly the causal effect of gambling advertising on gamblers' beliefs and behavioral intent. In this paper, one of our goals is to address this gap in setting up what appears to be the first controlled experiment dealing with gambling advertising. Gamblers were exposed to gambling ads (or to unrelated to gambling ads in the control condition) and then their beliefs toward the gambling company, toward gambling and their intention to gamble were assessed. Gambling or control ads were inserted into the first commercial break of a popular TV show. In order to detect unconscious effects, none of the questions included in the questionnaire referred directly to the presence of gambling ads.

Because of the literature we reviewed, we formulate the following hypothesis:

H1: Gamblers exposed to a gambling ad should show:

- More positive attitude toward gambling
- More positive attitude toward the gambling industry
- More intention to gamble

2.4 Possible Impact of Industry-Funded “Anti-Gambling” Campaigns

We consider now whether actual anti-gambling advertisements broadcasted by the gambling industry through their own non-profit branch can immunize people against the effect of gambling ads and help to develop more responsible attitude and behavior toward gambling.

Our main goal is to test two rival theses: the *tainted fruit theory* (Christenson, 1992; Bushman and Stack, 1996) versus the *two-sided persuasion paradigm*. The tainted fruit theory posits that anti-gambling ads will offset the effect of commercial advertising and decrease positive gambling attitude and intention. On the contrary, the two-sided persuasion paradigm posits that anti-gambling ads messages will make commercial gambling ads even more efficient and increase positive gambling attitude and intention.

The tainted fruit theory embodies conventional wisdom regarding why it might be beneficial to develop anti-gambling messages. This theory considers an anti-gambling message as a prime. This prime reminds people that gambling can be a dangerous and adverse activity. When, subsequently, people watch gambling ads and/or express their attitude and intention toward gambling activities, they may rely on these preconceived beliefs. As it has been shown that negative beliefs dominate perception, the anti-

gambling message should overtake the impact of gambling ad on people attitude and intention (Baumeister, Bratslavsky, Finkenauer and Vohs, 2001). This theory has received considerable empirical support from the tobacco and alcohol preventive field (Agostinelli and Grube, 2002; Golmier, Chebat and Gelinas, 2007; Pechmann and Knight, 2002). For instance, Pechmann and Knight (2002) demonstrate that effective anti-smoking ads are able to offset the effect of cigarette ads and to reduce positive beliefs toward smoking and intention to smoke.

Thus, the tainted fruit theory leads to hypothesize that:

H2a: The effects of gambling ads on attitude toward gambling, attitude toward the gambling industry and intent to gamble are *reduced* by the presence of industry-funded anti-gambling ads

And

H3a: Gamblers exposed to an industry-funded anti-gambling advertisement should show:

- Less positive attitude toward gambling
- Less positive attitude toward the gambling industry
- Lower intention to gamble

A rival view is derived from the two-sided persuasion paradigm (Crowley and Hoyer, 1994). Because anti-gambling messages originate from organizations currently involved in the gambling market, they could have an opposite effect. They could paradoxically improve the efficacy of pro-gambling messages as well as gambling attitude and intention. In fact, negative information about a brand or a product is not necessarily detrimental to this brand or product, especially when it comes from the brand or the product industry itself. For instance, customers exposed to a message revealing both positive and negative attributes of a pain reliever are more certain of their attitude toward the product and have more intention to buy it than those exposed to the message containing only the positive attributes (Rucker et al., 2008).

According to the two-sided persuasion paradigm, negative information incorporated into a commercial message can enhance advertiser's image. It may show its high level of honesty as the message seems to go against its own interests (Crowley and Hoyer, 1994). Positive messages regarding the product or the brand sent by this advertiser are rendered, then, more efficient.

The counterproductive effect of preventive messages has already been demonstrated in the case of other industry-funded prevention campaigns. Research finds that exposure to tobacco company Philip Morris' smoking prevention campaigns ("Think don't smoke" campaign) increases intention to smoke and one's favorable attitude toward the tobacco industry (Farrelly, 2002).

Thus, the two-sided persuasion paradigm leads to hypothesize that:

H2b: The effects of gambling ads on attitude toward gambling, attitude toward the gambling industry, and intent to gamble are *increased* by the presence of industry-funded anti-gambling ads.

And

H3b: Gamblers exposed to an industry-funded anti-gambling advertisement should show:

- More positive attitude toward gambling
- More positive attitude toward the gambling industry
- Higher intention to gamble

2.5 Pilot Study: Choice of Gambling Ads for the Main Study

One hundred forty-seven gambling ads broadcasted on TV during the last five years were selected for the pilot study. First, a content analysis was performed on the basis of items borrowed mostly from McMullan and Miller's (2009) study, that is, 6 nominal (product, type of game, and year) and 51 dichotomous items used to describe the characteristics of gambling ads. The 51 dichotomous items identified the intended audience (gender, age and gambling status), the format of the ad (e.g., color scheme, pace, the use of amusement or excitement, camera position, background music,

vocabulary, endorsement), and its themes (focal narratives such as odds of winning, reference to personal need, cognitive distortion, jackpot mention). We developed a codebook with all the item definitions, which was used by two independent judges. Each judge viewed the ad twice. When an item was not coded identically by both judges, they had to view the ad again, until a consensus was reached.

In the next step, we reduced the set of message characteristic items through a factor analysis. Because we were using dichotomous items, we applied *phi* coefficients that were entered in a matrix as the input to the factor analysis. A VARIMAX rotation produced a four-factor solution (see Table I). The first factor labeled *escape* encompassed items such as pursuit of freedom, prestige, escapism, and leisure. The second factor, *gambling ability*, referred to the mention of expertise, control, or level of understanding which can impact on the result of the game. The third factor focused on the social impact of gambling (as social attraction or attachment) and was labeled *socialization*. Finally, the fourth factor, *sensation*, encompassed items such as feelings, thrill, excitement, and ethos of winning procured by the game.

Insert table I about here

In the third step, a cluster analysis was employed in order to classify the ads in several homogeneous groups. We first performed a multi-step cluster analysis based on ads factor scores saved during the factor analysis (Barlett Method) (Bloch, Ridgway and Dawson, 1994; Hair, Black, Babin, Anderson and Tatham, 2005). In the second step of the cluster analysis, we used Ward's method with the Squared Euclidean distance to measure the distance between two ads. The dendogram analysis suggested a five-cluster solution. Finally, we used K-means clustering procedure with the seeds from the Ward's solution to set initial cluster centers. These seeds formed the initial centers of the five clusters.

Table II profiles the five ads clusters by highlighting the specific contents that distinguish each other (Bloch et al., 1994). Each cell encompasses two numbers. The first number represents the *percentage* of ads in the cluster which have a "high presence" of the factor. The ad was coded as having "high presence" of the factor when it encompassed at least two items of the factor. For instance, 100% of the ads included in the first cluster labeled *escape* had a content related to at least two items of the *escape* factor (i.e., refer to pursuit of freedom and escapism). The second number is an *index score* of 100. It represents the number of ads in the cluster coded as having "high presence" of the factor compared to the whole sample. For instance, the cluster *escape* encompasses 1.93 times as many "high presence" ads of the factor *escape* as the number for the total sample (index score = 193).

Insert table II about here

In summary:

1-Cluster 1, *escape*, includes over 33% of sample ads (N1=49) and is distinguished by the higher-than-average number of ads which refer to escape in their content.

2-Cluster 2, *social feelings*, includes 7.5% of sample ads (N2=11) and is distinguished by higher-than-average number of ads which refer to socialisation and sensation.

3-Cluster 3, representing almost 18% of the sample, (N3=26) encompasses more ads than average which refers to sensation and is labeled *the thrill of winning*.

4-Cluster 4, labeled *socialisation*, has more ads than average with a “high presence” of the socialisation factor (N4=37).

5-Cluster 5, *gambling skills*, encompasses almost all ads which refer to a level of expertise or to ability in the game (i.e. gambling ability factor) and represents 16.3% of the total sample (N5=24).

For the main study, we chose to focus on two clusters: the *escape* cluster which encompasses the highest number of gambling ads and the *gambling skills* cluster. The reason for this choice is twofold. First, reference to gambling expertise, control or

gambling ability has been criticized by the literature as a way to enhance gambling-related problems (Blaszczynski and Nower, 2002). Second, the use of gambling as a way to escape daily problems has been presented as a risk to develop gambling-related problems (Blaszczynski and Nower, 2002). The three ads closest to the center in each of these two clusters were preselected. In a pre-test, we asked 32 undergraduate students to evaluate these six ads in terms of reference to expertise and/or to escapism. We assessed reference to escapism and reference to expertise with two seven-point scales (not at all/very much). The ad which scored the most on expertise and the ad which scored the most on escapism were retained for the main study. The first lottery ad features a couple who has just won a hefty amount of money and asks a full-size classic orchestra sitting in their living-room to play less loud in order to not disturb their reading. The other ad for a scratch card shows a woman who won the game due to her intellectual knowledge and skills.

2.6 Study 1: The Impact of Gambling Advertising

2.6.1 Method

2.6.1.1 Overview

In Study 1, we tested the first hypothesis regarding the impact of gambling advertising on gamblers' attitudes and intent. The design was a randomized single factor experiment with two levels. The manipulated factor was the presence versus absence of

gambling ads. The main dependent measures were attitude toward the gambling industry, attitude toward gambling, and gambling intent.

As stated above, gambling ads are expected to positively affect the three dependent variables.

2.6.1.2 Stimulus Advertisements

The two gambling ads selected during the pilot study were used for the main study. Control ads promoted a car and free/local classified ads web sites and were broadcasted at the same period as gambling ads. The filler ads used in both experimental and control conditions promoted a variety of products and services such as home telephone service, bread, and cereal.

2.6.1.3 Subjects

Subjects were randomly recruited through a major online marketing research service and the study was administered online. Only subjects who had some gambling experience were selected as they were more likely to be influenced by gambling ads and to develop gambling-related problems. They had gambled at least once in the previous month and spent more than \$50 on gambling during the previous year.

Ninety-three adult gamblers from Quebec filled the questionnaire. The median age was 45-54 years and the median annual income was C\$40,000-59,999. Fifty-seven percent of them were women. As gender, income, age and gambling behavior could have an impact on our results, we included these variables in the analysis as covariates.

The results were not affected by these covariates so they were dropped from our analyses.

2.6.1.4 Procedure

After completing a brief questionnaire about their gambling behavior (gambling frequency, average money spent on gambling each year), the subjects were randomly assigned to one of the two conditions. Subjects watched an episode of a well-known television show. The stimulus advertisements were shown at the beginning of the TV show and the filler ads were included in two other separate commercial breaks in order to enhance realism. After viewing the television show, the subjects completed the main questionnaire with the dependent measures.

2.6.1.5 Measures

A previously validated 12-item scale was used to assess gambling attitudes (Moore and Ohtsuka, 1997). The subjects responded whether they strongly agree (5), agree (4), not sure (3), disagree (2), or strongly disagree (1) to items such as “moderate gambling is harmless”, and ‘gambling should be controlled by law so people don’t overdo it’ (Cronbach’s $\alpha = .81$).

Attitude toward the gambling industry was measured with a scale adapted from Stayman and Batra (1991), in terms of being good/bad, favorable/unfavorable, agreeable/disagreeable, and pleasant/unpleasant ($\alpha = .80$). A composite measure was made by averaging these 4 items.

Gambling intent was measured using a two-item scale: “In the next two weeks I intend to gamble” and “In the next two weeks I intend to spend more than \$20 on gambling” (scale end points: 1 = surely not, 5 = highly likely). Prior research indicated that these two items provided a reasonably valid measure of future gambling behavior (Moore and Ohtsuka, 1999; Orford et al., 2009). The two items were then averaged ($\alpha = .73$).

2.6.2 Analysis and Findings

To examine the effects of presence versus absence of gambling ad on the three dependent variables (attitude toward gambling, attitude toward the gambling industry, and intention to gamble), we employed a two sample t-test.

The presence versus absence of gambling ads enhanced subjects’ attitude toward gambling (mean_{presence} = 3.50 versus mean_{absence} = 3.23; $F_{1,91} = 4.035$, $p < .05$; 95% confidence interval for the difference = .53 to .00). The presence of gambling ads enhanced also subjects’ attitude toward the gambling industry (mean_{presence} = 4.91 versus mean_{absence} = 4.19; $F_{1,91} = 6.878$, $p < .01$; 95% confidence interval for the difference = 1.26 to .174). This supports the hypothesis that gambling advertising significantly enhances attitudes toward both gambling activity and gambling industry.

The direct effect of presence (versus absence) of gambling ads on intent to gamble was not significant, but “attitude toward the gambling industry” was associated with gambling intent ($p < .03$). Thus, we tested if “attitude toward the gambling industry”

mediated the relation between the presence (versus absence) of gambling advertisement and behavioral intent even if the total effect of gambling ad on behavioral intent was not significant (Zhao, Lynch, and Chen, 2010). We used the bootstrapping macro designed by Preacher and Hayes (2004) and expected an indirect-only mediation (Zhao et al., 2010 p.201). The estimated indirect effect was positive and significant ($a \times b = .2861$), with a 95% confidence interval excluding zero (.0259 to .8108). The presence of a gambling ad positively impact on “attitude toward the gambling industry” ($a = .72$, $p = .01$) which in turn increases people intent to gamble ($b = .4$, $p = .05$). This qualifies “attitude toward the gambling industry” as a mediator in the relation between gambling ads and gambling intent (Zhao et al, 2010).

2.6.3 Discussion

Gambling ads enhance both gamblers' attitude toward gambling and their gambling intent through the activation of positive attitudes toward the gambling industry. Subjects exposed to a gambling ad tend to have more positive attitudes toward the activity of gambling and toward the gambling industry. This led to higher gambling intent. In other words, gambling ads have detrimental effects on gamblers' behavior by increasing behavioral intent through a better attitude toward the gambling industry. In the next study, we deal with the following question: Can current prevention efforts funded and sponsored by the gambling industry counteract these effects?

2.7 Study 2: Impact of Industry Funded Anti-Gambling Messages

2.7.1 Method

2.7.1.1 Overview

Study 2 tests the two latest hypotheses regarding the impact of industry anti-gambling messages on gamblers behavior. The experiment was a 2 (presence versus absence of gambling ad) x 2 (presence versus absence of an industry-funded anti-gambling ad) randomized factorial design. The dependent measures were the same as for Study 1 (attitude toward the gambling industry, attitude toward gambling and intention to gamble).

We hypothesize significant interactions of pro-gambling ads and anti-gambling ads. The tainted fruit theory predicts that anti-gambling ads significantly reduce the effects of pro-gambling ads. The two-sided paradigm predicts that industry-funded and sponsored anti-gambling ads enhance positive attitudes toward the gambling industry, attitude toward gambling, and the intent to gamble.

2.7.1.2 Subjects and Stimulus

We used the 93 subjects from *Study 1* and recruited an additional 97 adult gamblers through the same major online marketing research service for a total of 190 adult gamblers. The socioeconomic profile of the additional participants was similar to those recruited in *Study 1*. It was the same throughout the four conditions of the

experiment. Control, filler, and gambling ads remained the same as for *Study 1*. The two anti-gambling messages selected for this study were those broadcasted on Quebecer TV in the year 2010 (i.e., in December 2010).

Subjects in the anti-gambling ad condition were exposed to one of the two anti-gambling ads. Subjects in the mixed condition were exposed to one of the two anti-gambling ads followed by one of the gambling ads (randomly selected).

2.7.1.3 Procedure and Measures

The procedure and measures were similar to *Study 1*, except for the inclusion of anti-gambling advertisements. The questionnaire was similar to *Study 1* and it was administered online.

2.7.2 Analysis and Findings

A statistically two-way interaction of anti-gambling message X presence (versus absence) of gambling ads on intention to gamble ($F_{1,186} = 6.468, p < .02$) was found. More specifically, in the *presence* of gambling ads, the anti-gambling message reduces gamblers' gambling intent (means = 3.93 versus 4.79; $F_{1,186} = 4.404, p < .05$; 95% confidence interval for the difference = 1.66 to .53) but has no effect on the other two dependent variables ($ps > .10$).

Insert table III about here

On the opposite, in the *absence* of gambling ads, the anti-gambling message enhances the attitude toward the gambling industry (means = 4.89 versus 4.19; $F = 5.284$, $p < .05$; 95% confidence interval for the difference = 1.24 to .10) and quasi-significantly the gambling intent (means = 4.94 versus 4.00, $F = 2.809$, $p < .10$; 95% confidence interval for the difference = 2.05 to -.16). The anti-gambling message has no effect on attitude toward gambling ($p > .10$).

Insert figure 1 and figure 2 about here

2.7.3 Discussion

In summary, in the *presence* of gambling ads, the results supported the tainted fruit theory, whereas in the *absence* of gambling ads, the results supported the two-sided persuasion paradigm. It is reasoned that, in the *presence* of gambling ads, the anti-gambling message *primes* a negative image of gambling behavior, which cancels the impact of gambling ads on gambling intent. In the *absence* of gambling ads, anti-gambling messages funded and sponsored by the gambling industry have an opposite effect: They act as a gambling ad. They paradoxically enhance the gambling industry's image and gamblers' gambling intent, which confirms the two-sided paradigm.

2.8 General Discussion

2.8.1 Two-Step Effect of Gambling Advertising

Our mediation test supports a two-step effect of gambling advertising. In the first step, the gambling ads enhance gamblers' positive attitude toward gambling activities and improve the gambling industry image. In the second step, positive beliefs toward the gambling industry increase people intent to gamble. This study seems to be the very first to demonstrate, in a controlled experiment, the causal effects of gambling advertising.

This two-step model of persuasion can provide important new insights (Brown & Stayman, 1992). Positive attitude toward the gambling industry led to more gambling intent. This positive attitude can originate in part from gambling ads. As gambling ads have no *direct* impact on gambling intent, gamblers can think mistakenly that they have been influenced by other elements such as the social context or the gambling availability, because they are more obvious influential factors (Binde, 2009; Blaszczynski and Nower, 2002). Self-reported effect of advertising on gambling behavior can be misleading. Studies using gamblers' self-reports may underestimate the impact of gambling ads on gambling behavior and may overestimate the effect of other factors (Binde, 2009).

2.8.2 Prime Versus Two-Sided Effects of Industry-Funded Anti-Gambling Messages

Industry-funded anti-gambling messages can prime the idea that gambling is a dangerous behavior, which may cancel the effect of gambling ads on gamblers' gambling intent. These results are congruent with studies showing that people are more motivated to avoid negative outcomes than to pursue positive ones, when they face both types of outcomes for a specific behavior (Baumeister et al., 2001). However, it should be noted that this effect appears *only* when the anti-gambling message competes directly with the commercial message and that the anti-gambling message impacts only on gambling intent. In the presence or the absence of industry-funded anti-gambling message, the effect of gambling ads on positive attitude toward gambling and attitude toward gambling industry remains the same.

In contrast, in the *absence* of gambling ads, the industry-funded anti-gambling message impacts positively on attitude toward the gambling industry and on intent to gamble. This finding is of utmost importance. It shows that such anti-gambling messages can serve the gambling industry's interests under the apparent purpose of protecting gamblers from increasing their gambling behavior. Dollars spent by the industry-funded and sponsored foundation benefit the gambling industry's image and, consequently, positively affect gambling intent. This finding is coherent with previous studies in the field of cigarette smoking. For instance, Farrelly, Healton and Davis (2002) found that the exposure to the anti-smoking campaign sponsored by *Philip*

Morris, titled "Think Don't Smoke" "engendered more favorable feelings toward the tobacco industry than we found among those not exposed to 'Think. Don't Smoke' advertisements. (...); the purpose of the *Philip Morris* campaign is to buy respectability and not to prevent youth smoking" (p.906). The same could be said about the present anti-gambling messages of our study.

2.8.3 Limitations and Future Research Directions

One limitation of the study is that we did not measure the link between exposure to gambling ads and actual gambling behavior. To measure this link, we would likely have to expose gamblers to gambling ads during a prolonged period of time and to offer them the possibility to gamble. However, this type of experiment could have a detrimental impact on participants. Fortunately, the measures used in this study to assess gamblers attitudes and intent have been revealed as valid indicators of their future gambling behavior (Moore and Ohtsuka, 1999; Orford et al., 2009).

Another limitation concerns the manipulation itself. It is interesting to note that industry-funded anti-gambling messages may offset the impact of gambling ads on gambling intent. In Study 2, the presence of an industry-funded anti-gambling message presented just before the gambling ad decreased gambling intent. However, this situation is, in reality, quite unusual. Gambling ads and anti-gambling messages have seldom to compete directly. They are broadcasted at different times of the day, on different media, and are rarely inserted in the same TV show. It is possible that the ads

placement used in our experiment influenced the results. Future research could strive to replicate these results in more realistic settings to examine whether these results were influenced by the experiment setting itself. Likewise, future research should examine the effects of different types of ads placement.

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2.10 Tables and Figures

Table I: Advertising Content and Factor Structure

Items	% of advertisements including the item	Factor 1 Escape	Factor 2 Gambling ability	Factor 3 Socialization	Factor 4 Sensation
Prestige	28.6	.80	-.19	-.06	.06
Freedom	40.8	.78	-.30	-.04	.17
Escapism	42.2	.75	-.32	-.10	.00
Leisure	49.0	.69	.26	.08	.01
Identity	36.1	.62	.25	.13	-.11
Gambling skills	22.4	-.07	.86	-.15	-.12
Illusion of Control	22.4	-.11	.83	-.12	.03
Understanding	10.9	.01	.78	-.02	.08
Attachment	20.4	.07	-.17	.62	-.02
Social Attraction	25.2	.02	-.07	.82	-.03
Participation	19.0	-.07	.00	.68	.04
Feelings	25.2	-.06	.15	.12	.77
Excitement	25.9	-.01	-.01	-.07	.75
Ethos of winning	58.5	-.37	-.31	-.08	.58
Eigenvalues		3.37	2.27	1.75	1.50

Table II: Description of Clusters: Percentage of High Scorers by Cluster

Factors	Total sample	Cluster 1 Escape	Cluster 2 Social feelings	Cluster 3 the thrill of winning	Cluster 4 Socialization	Cluster 5 Gambling Skills
1. Escapism	51.7%	100% 193	72.7% 141	15.4% 30	21.6% 42	29.2% 56
2. Gambling ability	17.7%	6.1% 34	0.0% 0	0.0% 0	0.0% 0	95.8% 541
3. Socialization	19.0%	4.1% 22	100.0% 526	0.0% 0	40.5% 213	0.0% 0
4. Sensation	31.3%	32.7% 104	90.9% 290	57.7% 184	0.0% 0	20.8% 66
Cluster Size	147	49	11	26	37	24
% of total sample	100%	33.3%	7.5%	17.7%	25.2%	16.3%

Table III: Cell Means and Standard Deviations for Main Dependent Variables

Dependent variables	Control ad		Gambling ad	
	No anti-gambling message (n=30)	Anti-gambling message (n=36)	No anti-gambling message (n=63)	Anti-gambling message (n=61)
Attitude toward the gambling industry	4.19 ± 1.22	4.89 ± 1.48	4.91 ± 1.22	4.99 ± 1.10
Attitude toward gambling	3.23 ± .62	3.31 ± .60	3.49 ± .57	3.39 ± .60
Gambling intention	4.00 ± 2.13	4.94 ± 2.38	4.79 ± 2.48	3.93 ± 2.18

Figure 1: Impact of Absence vs Presence of Gambling Ads With or Without Anti-Gambling Ads on Gambling Intent

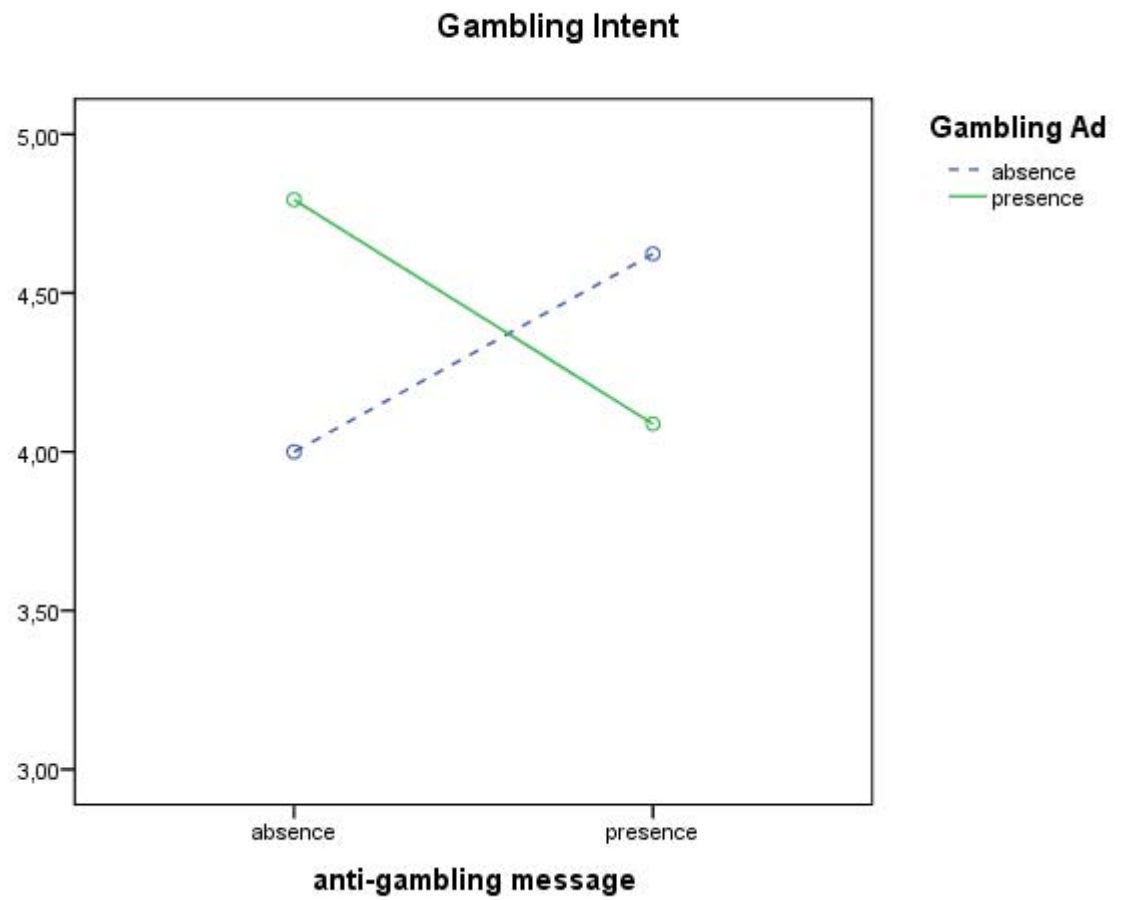
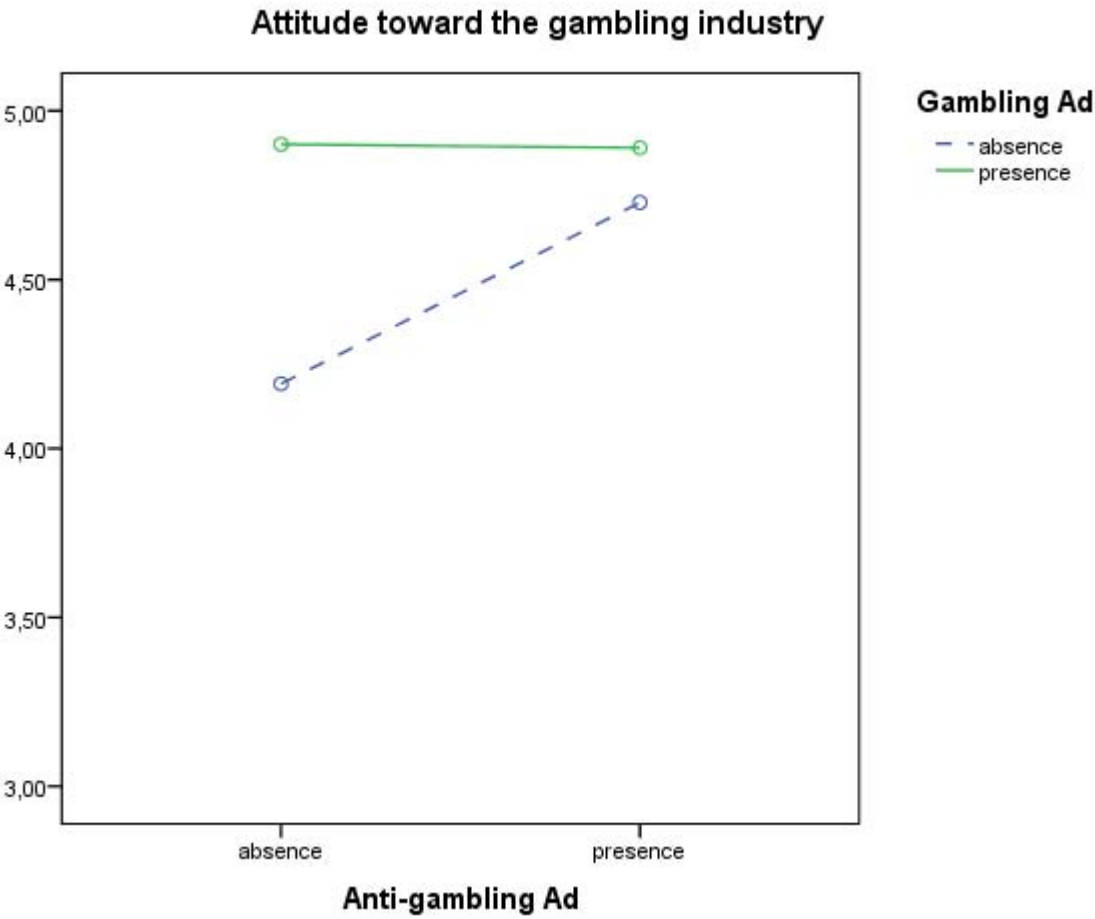


Figure 2: Impact of Absence vs Presence of Gambling Ads With or Without Anti-Gambling Ads on Attitude Toward the Gambling Industry



2.11 Appendix

Appendix A : Code Book : Content Analysis of Gambling Ads

Advertisement

Product: product is the brand name of the lottery in the ad.

Game Type: This is the type of gambling advertised.

- 1=Scratch type like poule aux oeuf d<or
- 2= Drawing type is when numbers or other significant are drawn (supwer 7. 6-49...
- 3= Sports game

Type of game:

- Solitary: solitary games are games played alone like scratch and drawn. Non solitary (1) games involve other players like poker or black jack.
- Strategic: Strategic games involve some competencies or skills like sports bet or card game. Non strategic games are based on luck like scratch game or drawn.

Year: the year the campaign was launched

Medium: the medium used to advertised the game; in the specific context of the present study it should be radio, TV, web or print.

Intended audience:

Gender: Gender of the people targeted by the ad

- Female: When the majority of characters were female or image, images are directed toward female oriented activities or when the main storyline focus on female.
- Male: When the majority of characters were male, images are directed toward male oriented activities or when the main story line focus on male.
- Unspecified gender: Should be coded as female AND male if both are present and both coded as absent if there is no cues about the targeted gender.

Age: Age include group of age of people depicted or targeted in the ad.

- 13-18 / 19-35 / 35 +

Gambler's expertise:

- Experienced gamer: Targets of the message are established gamer of the product (or in general), you can say it is not the first time they are playing a lottery game, by mean of reference, allusion, to other products or through comparison or extension Target know rules of the game or other lotteries available.
- Novice gamer: Targets are not experienced with the advertised game or gaming. They don't seem to possess any reference.

Content Analysis:

Colour Scheme: Concern the display of colours in the ad.

- Bright: Colors are vivid, loud or shiny.
- Dark: Colors are shady, gloomy and dark.
- Contrasting: Presence of bright and dark colors.
- Neutral: Colors are muted, dull and soft.

Camera position: What's the camera plan used in the ad.

- Long shots: Focus of the ad is on the environment.
- Close-ups: Focus of the ad is on a person or an object.

Solicited needs: The individual needs that could be filled through gaming or winning (satisfier) conveyed in the advertisement. The max-Neff human scale development was used for the analysis. See <http://www.alastairmcintosh.com/general/resources/2007-Manfred-Max-Neef-Fundamental-Human-Needs.pdf> for operational definitions and further information. The actual question to ask is in the context of the ad, gaming and winning is positioned as a satisfier for which needs?

- Subsistence: allow to be in good physical and mental health, having food and a shelter, working, feeding ourselves. In a social setting or in a living environment. This corresponds to the physiological needs in the Maslow's Hierarchy of human needs.
- Protection: Maintain physical subsistence; maintain emotional and mental well being.
- Affection: Having self esteem, friends family partners, pleasure, trust, loyalty, respect, beauty and meaning. Having friendships and family. Privacy context, togetherness. Seeing someone taking care of other
- Participation: Receiving and giving. Receptiveness. Association. Contributing, acting in association, having an impact, become affiliated at something. Gaming may allow you to participate at social activity you may never access otherwise.
- Understanding: Being critical and capable, curious. Doing analysis, study, an investigation or meditation. In a familial or academic context, communities. Gaming should make you able to understand new things, new aspect of life, problem or other people.
- Leisure: Imagination tranquility spontaneity. Having fun, remembrance or day-dreaming. Gaming allow you to fulfill your dream
- Creation: Imagination and inventivity. Having some abilities, skills or work technique. The act of inventing, building, interpreting. Interacting with creation a space.

- Identity: self esteem and consistency with the self. Filling some norm, showing certain values. Get to know yourself. Interacting with places you belong to or everyday setting. Winning or gaming allows you to feel as a distinct individual, different than others. Re
- Freedom: having autonomy, passion, self esteem. Be able to do whatever you want

Appeal: the tone and register used to convey the message.

- Amusement: The use of humour or happiness to convey the message.
- Excitement: the use of anticipation and hope of winning in the ad. Emphasis is on the thrill of playing and the winning anticipation.
- Fear: the use of a fear message to convince you to play or to play more often, e.g. if you don't play you might lose your opportunity.

Ad focal theme: The main narrative component of the ad; on what the emphasis is made through the ad.

- Winning: Emphasis is on winning a jackpot, amount of money, or things that you can have with the money are mentioned and valued. The experience of winning and how it affect your existence is described. Enumeration, fantasizing..
- Normalization: Gaming is part of daily life and a regular consumption product. Emphasis of the ad is made on the routinizing of gaming. Mention of dates, price drawing frequency, mention of the age of a game (for how long it's on the marketplace). Prompt to play as you consume other goods or as part of a daily routine.
- Escapism: Playing or winning at a game can help you escape the boredom and vicissitude of daily life. Not having to work again, fulfill your dream and realize yourself. Message related to work or how daily life is changed by winning. Problem resolution. Show example through before after allusion.
- Community benefits: How playing could contribute to the advancement of a community by way of financing public services, enhance a community quality of life and may contribute to social advancement.

- Prestige: The ad express that playing some games may characterize you as part of elite. The fact that if you win you could be in a higher class of the society, have more prestige, power respect. Reference to materialism.
- Testimonials: If an actual winner, or a character depicted as, express experiences about winning, how he played or how it has affected his life in a testimonial <<tone>>. An example is prize claiming in vie de millionaire.
- Sensation & feeling: The emphasis is made on the sensation and feelings of playing at a certain game or winning a jackpot. If the character in the ad has strong emotional or physical reaction related to gaming or winning.

Vocabulary

- Intellectual or specialized: High level of vocabulary with specialized word. Refined vocabulary that refined people would use.
- Conversational: casual, everyday interactive dialog in a familiar or informal language level.
- Jargon or cultural: level of language familiar to a culture or to members of subculture. EG: sports
- Neutral: The language used in the ad is neither specialized, conversational or cultural.
- No spoken words: in the case of print advertisement or point of purchase advertisement

Background Sound

- Ambient and natural: Naturally occurring sound; not manipulated.
- Electronically manipulated: Sound is electronically enhanced.
- Music: Music is present in the ad, as a central part or in the background.

Sexual connotation: coded if the ad conveyed eroticized portrayals of man and women, gesture , body position or sexy clothing that enhance sexual objectivation

Potential cognitive distortion:

- Superstitious beliefs: ad is conveying the impression that there is some way to manipulate the outcomes of the game. (Mental states, special object, behavioural rituals...)
- Gaming as a skill: Some skills are associated with gambling based on salient cue. The gamer may influence his chance of winning through the possession of specific knowledge.
- Luck as a trait: Some people with certain trait are just lucky and the ad is portraying these people.
- Locus of control : What locus of control about the advertised game is conveyed through the ad.
 - Internal (1) if individuals can influence their luck.
 - External (0) luck is depicted as completely exogenous
- Perseverance: the fact that playing continuously makes you a winner in the long run; some urge to play frequently to have higher chance of winning.

Jackpot amount: Coded if odds of winning are in the ad.

Message endorser:

- Regular people : if the people delivering the message are perceived as regular or ordinary citizen.
- Celebrity: if the people delivering the message are already known celerity.

Appendix B : Stimulus Advertisements

Pro-gambling Advertisements

The Gambling Skills Ad



The Escape Ad



Anti-gambling Advertisements

Anti-gambling Ad 1 : Sophie



Anti-gambling Ad 2 : François



Appendix C: The Mediation Effect of Attitude Toward the Gambling Industry on the Relationship Between the Presence (Versus Absence) of Gambling Advertisement and Behavioral Intent - Bootstrapping Macro

Run MATRIX procedure:

Preacher And Hayes (2008) SPSS Macro For Multiple Mediation

Written by Andrew F. Hayes, The Ohio State University

<http://www.afhayes.com>

For details, see Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies For assessing And comparing indirect effects in multiple mediator models. Behavior Research Methods, 40, 879-891

Dependent, Independent, and Proposed Mediator Variables:

DV = Intentio

IV = Conditio

MEDS = Attitude

Sample size

89

IV to Mediators (a paths)

	Coeff	se	t	p
Attitude	,7194	,2743	2,6225	,0103

Direct Effects of Mediators on DV (b paths)

	Coeff	se	t	p
Attitude	,3977	,2045	1,9443	,0551

Total Effect of IV on DV (c path)

	Coeff	se	t	p
Conditio	,8136	,5316	1,5304	,1295

Direct Effect of IV on DV (c-prime path)

	Coeff	se	t	p
Conditio	,5275	,5436	,9704	,3346

Model Summary for DV Model

R-sq	Adj R-sq	F	df1	df2	p
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,0672 ,0455 3,0988 2,0000 86,0000 ,0502

NORMAL THEORY TESTS FOR INDIRECT EFFECTS

Indirect Effects of IV on DV through Proposed Mediators (ab paths)

	Effect	se	Z	p
TOTAL	,2861	,1814	1,5767	,1149
Attitude	,2861	,1814	1,5767	,1149

BOOTSTRAP RESULTS FOR INDIRECT EFFECTS

Indirect Effects of IV on DV through Proposed Mediators (ab paths)

	Data	boot	Bias	SE
TOTAL	,2861	,2920	,0059	,1883
Attitude	,2861	,2920	,0059	,1883

Bias Corrected and Accelerated Confidence Intervals

	Lower	Upper
TOTAL	,0259	,8108
Attitude	,0259	,8108

Level of Confidence for Confidence Intervals:
95

Number of Bootstrap Resamples:
5000

NOTES

----- END MATRIX -----

Chapitre 3 - The Hero is An Idiot. Effects of Anti-Speeding Ads and Reckless Driving Movie Scenes on Young Male Drivers

3.1 Abstract

In two experimental studies, this article explores the priming effect of reckless driving scenes in movies on young male viewers and the ability of anti-speeding advertisements to counterbalance this effect. In Study 1, a sample of young male drivers is exposed to the presence (vs absence) of reckless movie driving scenes. It is shown that reckless driving scenes enhance perception of reckless drivers' self-confidence, which in turn enhances positive attitudes toward reckless driving behavior. The Study 2 aims to test the interactive effect of reckless driving scenes in movies (same to those of Study 1) and anti-speeding advertisements showing negative features of reckless drivers. Anti-speeding ads are shown to counterbalance the effects of reckless driving scenes on young male drivers' positive beliefs about reckless drivers and attitudes toward reckless driving. The results support the priming effect of reckless driving scenes in movies and prove that young male drivers' beliefs can be effectively repositioned through an appropriate communication road safety strategy. This research is the first one to test the effects of anti-speeding ads in *competition* with contradictory messages delivered by media.

Key-Words : Young drivers, Social Marketing, Priming Theory, Media Impact

3.2 Introduction

A man who was severely injured in a single vehicle car accident in early December has died as a result of his injuries (...). Another man who was in the car at the time of the accident succumbed to his injuries hours after the crash. The accident took place on December 7 at 10:35 p.m.; a 2007 Grand Prix was speeding southbound down 36 St S.E. when it lost control and struck a concrete retaining wall at 12 Ave S.E. The force of the crash ripped the engine from the vehicle and sent it tumbling into a nearby yard. The driver and passenger, both men in their 20's, were ejected from the car. Both were taken to Foothills in critical, life-threatening condition. (<http://beaconnews.ca/calgary/2011/12/young-man-dies-almost-two-weeks-after-southeast-crash/>)

Young male drivers are overrepresented in serious road crashes, which makes road crashes the leading cause of mortality in this population, outstripping suicide and other possible causes of premature death (CEMT, 2006). While some studies point to a lack of driving experiences and knowledge (McKnight and McKnight, 2003) or a general feeling of invulnerability (Steinberg, 2007) as antecedents of these effects, most authors are pointing to prestige seeking and social influence as the main drivers of young male reckless driving behavior (Bird and Tapp, 2008; Chen et al., 2000; Williams, 2007; Ouimet, 2010). Indeed, many studies convergently show that young drivers' crash risk is significantly increased by the presence of peers in the car, particularly if both the driver and passengers are men (CEMT, 2006; Chen et al., 2000; Williams, 2007; Ouimet et al., 2010). Young male drivers seem to try to impress their friends by driving fast and recklessly because they perceive reckless drivers as popular and well respected (Bird and Tapp, 2008; Courtenay, 2000; Schmid et al., 2008).

What could be the explanation of such a behavior? Following the Social Cognitive Theory, the primary mechanism by which a behavior is acquired is through observing and imitating others (Bandura, 1988). Positive role models, that are individuals who seem to possess socially desirable qualities and are rewarded for their behaviors, can inspire young people in the adoption of their own behavior (Lockwood and Sadler, 2004). While live models, particularly family and peers, are likely to have the most influential impact (Bandura, 1988), we posit that another influential factor should be considered : mass media portrayal of reckless driving.

Indeed, content analyses suggest that risky driving is prevalent on prime time television and action movies and that risk associated with such behaviors is rarely depicted (Beullens, Roe, VandenBulck, 2011; Greenberg and Atkin, 1983). Major positive outcome for the driver such as “impressing other people, escaping pursuers, power and emotional satisfaction” can also be explicitly presented (Beullens, Roe, Vanden Bulck, 2011; Greenberg and Atkin, 1983). Therefore, several authors have expressed their concern regarding the way in which reckless driving is portrayed on television and movies (Beullens et al., 2010; 2011; Greenberg and Atkin, 1983, Potts et al., 1994). However and surprisingly, the potential attitudinal and behavioral impact of such portrayals has been neglected by the literature.

To discourage young drivers to drive recklessly, many non profit organizations and governments agencies turn to social marketing (Bird and Tapp, 2008). However, evidence regarding the impact of such initiative is still lacking.

In the present article, we are especially interested in anti-speeding ads that are meant to inoculate young male drivers against harmful beliefs such as: reckless drivers are cool, popular or well-respected. An exemplary advertisement of this type comes from Australia and has been launched in June 2007 in New South Wales. The *Pinkie Campaign* is presented as “the most successful road safety campaign ever” (Watsford, 2008). “Australian safety campaigners have decided to hit young speeders where they are vulnerable-between the legs. The latest TV campaign to encourage drivers to respect speed limits features young women wiggling their little fingers at passing speedsters. The gesture represents a small penis in youth culture but in the ads, even an elderly woman uses the signal. So, too, do other younger men who are not in the driver’s seat.” (Bird and Tapp, 2008, p. 20). The goal of this campaign was to convince young male drivers that speeding and reckless drivers are not cool (Watsford, 2008). We speculate that anti-speeding ads of this type may suggest that reckless drivers have undesirable characteristics and by this way counter the effect of reckless driving portrayal in movies. However such assumption remains to be tested.

We aim to answer two major questions. First, what are the effects of films portrayals of dangerous driving behavior on young male drivers’ beliefs and attitudes toward reckless driving? Second, can anti-speeding ads featuring a negative social image of reckless drivers counterbalance such effects and trigger more negative attitudes and beliefs toward reckless driving among young male drivers?

3.3 Media Impact: the Priming Effect

During the past decade increased attention has been paid to the effects of media promoting risky behaviors on beliefs and attitudes toward risk. For instance, Fischer et al. (2008) show that participants exposed to risk promoting pictures and film sequence (vs risk neutral pictures and risk neutral film sequences) report a higher accessibility of risk-promoting cognitions and a more positive attitude toward risk taking. Similar relations are found for programs that portrayed justified violence. Violent programs increase the accessibility of violent thoughts and the readiness of the viewer to aggress (Anderson et al., 2003; Bushman, 1998; Freedman, 2002).

In the field of health-related consumption, such as alcohol or cigarette, effects of this type are also highlighted. Movies portraying a positive image of drinking increase significantly positive beliefs and attitude toward alcohol consumption (Atkin et al., 1994; Austin et al., 2006; Kulick and Rosenberg, 2001). Young participants exposed to movie scenes depicting cigarette smoking in a positive way report more favorable beliefs about smokers and higher intention to smoke than young participants not exposed to such scenes (Golmier, Chebat and Gelinas, 2007; Pechman and Shih, 1999).

Social Cognitive and Priming Theories can explain these effects (Bushman, 1998; Golmier et al., 2007). A growing body of research has shown that media present role models which play a significant role in youth's learning process. They prime or make salient role models which can bias people's perceptions and impact on their

intentions and behaviors. For instance, Golmier et al. (2007) show that a smoking scene in a film primes positive smoking-related stereotype, which in turn, impact on youth smoking related attitudes and intention toward smoking.

A prime is defined as a stimulus which boosts the salience of information already stored in the long term memory (Pechmann and Knight, 2002). In the case of smoking scenes, Golmier et al. (2007) explain that young people hold two opposite sets of beliefs toward smokers: one positive (e.g. they are cool, popular etc.) and one negative (they are engaging in a unwise, unhealthy, unattractive behavior). The smoking scene, in priming a positive image of smoker, makes young viewer to retrieve only their positive beliefs, which biases their perception about smokers and their intention to smoke (Golmier et al., 2007; Pechmann and Knight, 2002; Pechmann and Shih, 1999).

Despite mounting evidence of young male drivers' recklessness and the importance of this issue, little is known about the link between exposure to films promoting risky driving behavior and the development of harmful attitudes and beliefs toward reckless driving among young male drivers (Beullens et al., 2010; 2011).

We reason that reckless driving scenes may function similarly to violent or smoking scenes in a movie and we propose that:

H1: Young male drivers exposed to reckless driving scenes (versus non-reckless driving scenes) should manifest:

- More **positive beliefs** toward reckless drivers
- More **positive attitudes** toward reckless driving

3.4 Possible Impact of Anti-Speeding Ads: the Context of Competing Messages

Can anti-speeding ads featuring a negative social image of reckless drivers immunize young male drivers against movie reckless driving scenes' harmful effects and help to develop safe driving attitudes? Following the priming paradigm, we expect this type of advertisement to prime the idea that reckless drivers are neither "cool" nor "popular". We speculate that subjects exposed to this type of ads generate negative beliefs about reckless drivers which result in less positive attitudes regarding reckless driving.

Such a speculation has received considerable empirical support in the tobacco preventive field (Golmier et al., 2007, Pechmann and Knight, 2002, Pechmann and Shih, 1999). For instance, Pechmann and Knight (2002) show that teenagers exposed to anti-smoking ads depicting smokers as uncool, unattractive and unpopular (versus unrelated to smoking ads) develop negative attitudes toward smokers (e.g immature, unglamorous) and have more negative beliefs regarding smoking.

A key problem in the development of anti-speeding ads is that they are developed and tested as though drivers are not exposed to any other source of influence (Bird and Tapp, 2008). In this study, we test our anti-speeding ads in *competition* with movies scenes where reckless driving is shown. In doing so we aim to answer the question: what might be the interactive effects of two opposite messages, one depicting a negative image of reckless drivers and the other one depicting them in a positive way?

We reason that anti-speeding advertisements presenting a negative social image of reckless drivers will counter the impact of reckless driving scenes in the film. Indeed, negative information has been proved to have an exceptional impact on perceptions, surpassing those of positive one (Baumeister et al., 2001). Research consistently shows that undesirable traits have more impact in impression formation about a person or a group of persons than desirable ones. Once an unfavorable characteristic is acquired as part of a stereotype, this unfavorable characteristic dominates perceptions regarding this stereotype (Pechmann and Knight, 2002; Baumeister et al., 2001; Golmier et al., 2007).

Consequently, we propose the following hypothesis:

H2: Young male drivers exposed to a suitable anti-speeding advertisement before a movie with or without reckless driving scenes should show:

- Less **positive beliefs** toward reckless drivers
- Less **positive attitudes** toward reckless driving

3.5 Study 1: The Priming Effect of Movies Reckless Driving Scenes

3.5.1 Method

3.5.1.1 Overview

In *Study 1*, we test the first hypothesis regarding the impact of reckless driving scenes in a movie on young male drivers' beliefs toward reckless drivers and attitudes toward reckless driving. The manipulated factor is presence versus absence of reckless driving scenes. The main dependent measures are beliefs about reckless drivers and attitudes toward reckless driving. As stated above, reckless driving scenes are expected to affect positively the two dependent variables.

3.5.1.2 Movie Scenes

Two films were selected for the main study: *The Bourne Identity* (2002) and *Death Proof* (2007). These movies were chosen because they have young male oriented themes, such as pursuit of freedom, breaking rule or mastery. Main characters, young males, drive recklessly in many scenes without negative consequence. Nine short scenes (1 minute each) were preselected from each movie. Three of them featured the main characters driving recklessly. For each movie six of these scenes were compiled into two previews that lasted 6 minutes.

In the control condition subjects were exposed to one of the two movie previews (randomly selected) with the six non-driving scenes. In the reckless driving condition,

three of these scenes were replaced by the three reckless driving scenes from the same movies.

3.5.1.3 Subjects

89 young male drivers were recruited through a major online marketing research service and the study was administered online. Only male subjects between 18 and 24 years of age and with less than 4 years of driving experience were selected since they are more likely to engage in reckless driving behavior (CEMT, 2006). Approximately half of them are less than 20 years old and have less than 3 years of driving experience.

3.5.1.4 Procedure

After completing a brief questionnaire about their driving behaviour, subjects were randomly assigned to one of the two conditions, i.e. subjects watched one of the previews with (n=35) or without (n=54) reckless driving scenes. After viewing the preview, subjects completed the main questionnaire.

3.5.1.5 Measures

Beliefs toward reckless drivers

To assess subjects' beliefs toward reckless drivers, we asked them to indicate "*how does a young male who has the tendency to exceed speed limits and to take risks when he is driving, look to you?*". Subjects rated a young male reckless driver on 18 items (e.g. cool, successful, attractive) adapted from Pechmann and Knight, (2002) and Langford and McKinnon (2000) (scale from 1= strongly disagree to 5 = strongly agree). The belief

measures were subjected to a factor analysis. The 23 items loaded on two factors, which explained 50.1% and 23% of the variance, respectively. The first factor was named *attractiveness* (funny, attractive, sexy, desirable to date, smart, popular, cool, successful, virile, strong, athletic, loyal, responsible, responsive, patient; $\alpha = .93$) and the second factor was named *self-confidence* (confident, assertive, strong personality, forceful, willing to take a stand, independent, willing to take risks, defends own beliefs; $\alpha = .90$).

Attitudes toward reckless driving

We assessed subjects' attitude toward speeding and subjects' attitude toward fun riding because both types of attitudes has been presented as predictors of future reckless driving behavior (Lawton et al., 1997; Ullberg and Rudmo, 2003). We used two previously validated scales (Ullberg and Rudmo, 2003). Subjects' attitude toward speeding was measured by a 5-item scale: *"I think it is OK to speed if the traffic conditions allow you to do so"*, *"If you have good skills, speeding is OK"*, *"Driving 5 or 10 miles above the speed limit is OK because everyone does it"*, *"If you are a safe driver, it is acceptable to exceed the speed limit by 10 km/h in areas permitted to drive in 80 to 90 km/h"* and *"It is acceptable to drive in 100 km/h on a straight road if there are no others vehicles in a miles distance"* ($\alpha = .87$).

To assess subjects' attitude toward fun riding we used a 3-item scale: *"Adolescents have a need for fun and excitement in traffic"*, *"Speeding and excitement*

belong together when you are driving”, “Driving is more than transportation, it is also speeding and fun” ($\alpha = .82$).

Subjects indicated whether they “strongly agree” (5), “agree” (4), “not sure” (3), “disagree” (2) or “strongly disagree” (1) with each statement.

Prior Driving Behaviour

A previously validated 10-item scale was used to assess Prior Driving Behaviour (Ullberg and Rudmo, 2003). Subjects were asked to indicate how often they engaged in different acts of risk-taking such as “*Exceed the speed limit in build-up areas (more than 10 km/h)*”, “*Bend the traffic rules in order to get ahead in traffic*” or “*Drive on a yellow light when it is about to turn red*”. 5-point scale ranging from “never” to “very often”. ($\alpha = .84$).

3.5.2 Analysis and Findings

We employed a two sample t-test to examine the effects of presence versus absence of reckless driving scenes on the four dependent variables (i.e., belief about reckless drivers’ self-confidence and attractiveness, and attitudes toward speeding and fun riding). The socioeconomic profile of participants was similar in both conditions.

Insert table I about here

The results support the hypotheses related to priming effects of reckless driving scenes. The presence (versus absence) of reckless driving scenes enhanced subjects' beliefs about reckless drivers' self-confidence (mean_{presence} = 3.1 versus mean_{absence} = 2.5, $p=.012$). These scenes had no statistically significant direct effect on either subjects' beliefs about reckless drivers' attractiveness, or on attitude toward speeding and attitude toward fun riding (*see table 1*). As subject's "Prior driving behavior" could have an impact on our results, this variable was included as a covariate in a one-way analysis of covariance. It did not affect the findings so it was dropped.

Subjects' beliefs about reckless drivers' self-confidence was significantly related to attitude toward fun riding ($r = .23$, $p = .033$). Thus, we tested if "beliefs about drivers' self-confidence" mediated the relation between the presence of reckless driving scenes (versus absence of reckless driving scenes) and attitude toward fun riding even if the total direct effect of reckless driving scenes on fun riding was not significant (Zhao et al., 2010). We used the bootstrapping macro designed by Preacher and Hayes (2004) with 10,000 bootstrap resamples and expected an indirect-only mediation (Zhao et al., 2010 p. 201). The estimated indirect effect is positive and significant ($a \times b = .1370$) with a 95% confidence interval excluding zero (.0119 to .3810). The presence (versus absence) of a reckless driving scenes cause subjects to believe more that reckless drivers have self-confidence ($a = .57$, $p=.012$) which in turn enhances their attitude toward fun riding ($b=.24$, $p = .046$). This qualifies "Beliefs about reckless drivers' self-confidence"

as a mediator in the relation between presence of reckless driving scenes and attitude toward fun riding (Zhao et al., 2010).

3.5.3 Discussion

Reckless driving scenes alter subjects' beliefs about reckless drivers' self confidence. Young male drivers exposed to a preview with reckless driving scenes (versus non reckless driving scenes) are more likely to accept that reckless drivers are highly self-confident, which leads them to a more positive attitude toward fun riding. In other words, reckless driving scenes have detrimental effects on young male drivers' attitude by increasing positive attitude toward fun riding through enhancing viewers' perception of reckless drivers' self-confidence.

In the next study, we ask: Could anti-speeding advertisements, showing negative features of these reckless drivers, counter balance the effects of reckless driving movie scenes?

3.6 Study 2: Interactive Effects of Reckless Driving Scenes and Anti-Speeding Ads

3.7 Method

3.7.1.1 Overview

Study 2 tests the last hypothesis regarding the simple and interactive effects of an anti-speeding advertisement featuring a negative image of reckless drivers. The design was a 2 (presence versus absence of reckless driving scenes in the preview) X 2 (presence versus absence of an anti-speeding advertisement).

We hypothesized significant interactions of reckless driving scenes and anti-speeding ads. We predicted that the presence of an anti-speeding advertisement reduced significantly the priming effect of reckless driving scenes.

3.7.1.2 Subjects and Stimuli

We used the 89 subjects from *Study 1* and recruited an additional 58 young male drivers through the same major online marketing research service for a total of 147 young male drivers. The same questionnaires were administered online. The additional participants were similar to those recruited in *Study 1* in terms of socio-demographic profile. The reckless driving scenes conditions (presence versus absence) remained the same as for *Study 1*, and the two anti-speeding ads were those broadcasted in Australia during *the Pinkie Campaign* in 2007.

As in *Study 1*, the 58 subjects were randomly assigned to one of the two previews with or without reckless driving scenes and were exposed to one of the two anti-speeding ads (randomly selected) prior to viewing the movie preview.

3.7.1.3 Procedure and Measures

The procedure and measures were the same as *Study 1* except for the inclusion of the anti-speeding ad condition.

3.7.2 Analysis and Findings

A significant two-way interaction of anti-speeding message x presence (versus absence) of reckless driving scenes on beliefs about reckless drivers' self-confidence was found ($p = .051$). In the presence of reckless driving scenes, the anti-speeding ad counterbalanced young male drivers' beliefs about reckless drivers' self-confidence (see *table 2* and *figure 1*). Although the interaction was not statistically significant ($p = .201$; see *table 2* and *figure 2*), followed-up analyses of subjects who saw one of the two previews with reckless driving scenes revealed that the anti-speeding advertisement (absence versus presence) significantly reduces the effects of reckless driving scenes on attitude toward fun riding (mean = 2.7 versus mean = 2.1, $p = .038$; 95% C.I. of the difference: .03 to 1.1).

Insert table II about here

The main effect of anti-speeding advertisement on attitude toward speeding was also significant in such a way that the anti-speeding advertisement led to less positive attitude toward speeding with or without presence of reckless driving scenes ($p = .003$; $\text{mean}_{\text{absence}} = 3.7$ versus $\text{mean}_{\text{presence}} = 3.3$; 95% C.I. of the difference: .15 to .73).

Insert Figure 1 and 2 about here

3.7.3 Discussion

The findings support the last hypothesis. A suitable anti-speeding advertisement showing negative features of reckless drivers cancels the effect of reckless driving scenes in a movie on young male drivers' positive beliefs about reckless drivers and attitude toward fun riding. The presence of this anti-speeding advertisement also significantly reduces young male drivers' attitude toward speeding in the presence *or* absence of a preview showing reckless driving behaviors.

3.8 General Discussion

3.8.1 The Priming Effect of Movie Scenes

Our results further substantiate the priming effect of media portrayal of reckless driving. First, reckless driving scenes enhance young male drivers' positive beliefs

about reckless drivers. They prime the positive belief that reckless drivers are self-confident. Second, these positive beliefs about reckless drivers enhance young males' attitude toward reckless driving and especially toward fun riding. Taking risks in traffic become a way to show off and to receive some emotional rewards (Beullens et al., 2010; Bird and tap, 2008; Greenberg and Atkin, 1983; Watsford, 2008).

This priming effect of movies can provide important new insights (Fischer et al., 2008). Movies, in showing a positive image of reckless drivers, can lead young drivers to think mistakenly that taking risks in traffic is a socially valued behavior. These thoughts may lead to develop some harmful attitudes regarding driving and the use of the car as a way to having fun.

3.8.2 The Counter-Balancing Effect of Anti-speeding Advertisements

Movies can prime the stereotype that reckless drivers are self-confident, assertive or strong. However, our findings show that young male drivers' beliefs are malleable through an appropriate communication strategy. An anti-speeding ad featuring a negative image of reckless drivers (they are not "cool", not "strong", they lack self-confidence), shown before a movie promoting reckless driving behaviors, can efficiently counterbalance these beliefs. It can cancel the priming effect of the movie and help to develop a safer driving attitude.

The anti-speeding advertisement may also work alone efficiently, that is, without interacting with a movie promoting reckless driving behaviors. The anti-speeding advertisement may prime the idea that speeding is not a valued behavior and reduce young male drivers' attitude toward speeding.

3.8.3 Implications

“The first central task for a social marketing programme would be to attack the current norm that reckless driving is something to be admired” (Bird and Tapp, 2008). To date there is no evidence regarding the efficiency of current road safety campaigns directed toward young male drivers (Bird and Tapp, 2008; Lewis et al., 2007).

The key problem is that the existing ads are designed and tested in a vacuum, as though they are not in competition with media conveying opposite messages. In this study, we show that an anti-speeding advertisement designed to counteract positive depiction of reckless driving can have a positive impact of young male drivers' perceptions and attitudes and offset the effect of reckless driving glorification.

Public officials in charge of road safety policy ought to take into consideration the finding that movies' portrayal of reckless drivers may affect young male drivers' beliefs toward reckless drivers and reckless driving.

To the best of our knowledge, this is the first research to show: 1) that media portrayal of reckless drivers may bias' young male perceptions of reckless drivers and

2) that this harmful effect can be efficiently counterbalanced by the presence of an anti-speeding advertisement designed specifically to counteract this effect.

3.8.4 Limitations and Future Research Avenues

One limitation of our research is that we do not measure behavioral intentions and driving behavior. However, current measures of reckless driving intentions have not been proved to be efficient. Studies using such types of measures show mixed and inconsistent findings (Taubmann et al., 1999). Fortunately, the measures we used to assess subjects' attitude toward reckless driving have been revealed as valid indicators of their future driving behavior (Ullberg and Rudmo, 2003). Nevertheless, it would be important to test the impact of anti-speeding advertisements and movies' portrayal of reckless driving on real driving-behaviour. In working toward this goal, it would be beneficial to replicate this study in a laboratory equipped with a driving simulator.

Another limitation is the use of previews rather than full-length movies because the online administration of the questionnaire as well as copyright law did not allow us to do so. We reasoned that the previews were meant to bring about the major themes developed in movies. However, future research can examine if a larger set of reckless driving scenes and exposure to full-length movies would lead to the same results.

Finally, we did not test different types of ads placement. The anti-speeding ads were always shown before the preview. Although it is how it is currently done in a movie theatre, future research could strive to replicate these results with different types of ads placement (before, during and after the movie) in order to make these findings applicable in a more general context, i.e. when the movie is displayed on TV screen at home.

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3.10 Tables and Figures

Table I: Descriptive Statistics and Results of Two Sample t-test for Study 1

		Mean $\pm$ SD			
		Beliefs about reckless drivers		Attitude toward	
		self-confidence	attractiveness	speeding	fun riding
Preview with reckless driving scenes	Yes (n=54)	3.1 $\pm$ 1.1	2.4 $\pm$ 1.2	3.8 $\pm$ 0.8	2.7 $\pm$ 1.2
	No (n=35)	2.5 $\pm$ 0.9	2.2 $\pm$ 1.0	3.7 $\pm$ 0.8	2.5 $\pm$ 1.0
Results of the two sample t-test					
t-test (d.f. = 87)		2.58	1.05	.68	.76
p-value		.012	.295	.499	.452
95% C.I. of the difference		.1 to 1.0	-.2 to .8	-.2 to .5	-.3 to .7

Table II: Descriptive Statistics and Results of Two-Way ANOVA for Study 2

Condition		Mean $\pm$ SD			
Preview with reckless driving scenes	Anti-speeding ad	Beliefs about reckless drivers		Attitude toward	
		self-confidence	attractiveness	speeding	fun riding
Yes	No (n=54)	3.1 $\pm$ 1.1	2.4 $\pm$ 1.2	3.8 $\pm$.8	2.7 $\pm$ 1.2
	Yes (n=25)	2.5 $\pm$.9	2.0 $\pm$ 1.1	3.4 $\pm$.7	2.1 $\pm$.9
No	No (n=35)	2.5 $\pm$.9	2.2 $\pm$ 1.0	3.7 $\pm$.8	2.5 $\pm$ 1.0
	Yes (n=33)	2.6 $\pm$ 1.1	1.8 $\pm$ 1.0	3.1 $\pm$ 1.1	2.4 $\pm$ 1.0
Results of the two-way ANOVA					
Interaction	F(1,143)	3.863	.064	.609	1.648
	p-value	.051	.800	.437	.201
Reckless driving scenes	F(1,143)	1.705	1.287	2.497	.072
	p-value	.194	.259	.116	.788
Anti-speeding ad	F(1,143)	2.418	4.686	9.067	2.812
	p-value	.122	.032	.003	.096

Figure 1: Effects of Movie Previews and Anti-Speeding Ad on Beliefs About Reckless Drivers' Self-Confidence

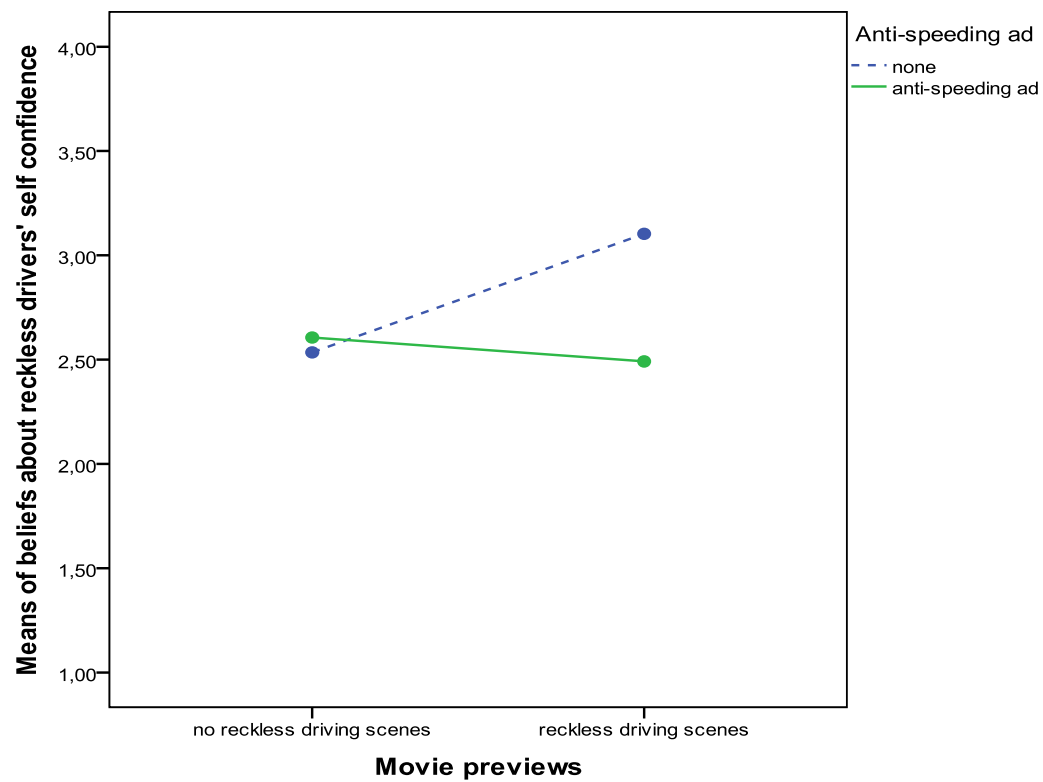
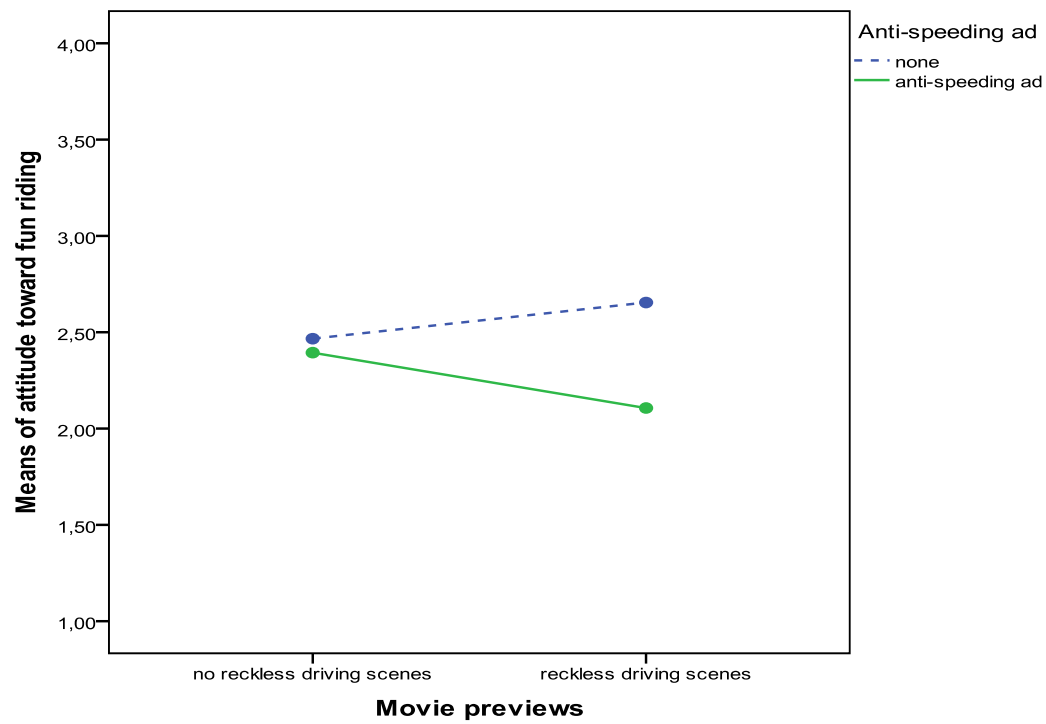


Figure 2: Effects of Movie Previews and Anti-Speeding Ad on Attitude Toward Fun Riding



3.11Appendix

Appendix A: Factorial Analysis – Beliefs Toward Reckless Drivers

Matrice des composantes après rotation^a

	Composante	
	1	2
Amusant	,768	
Attirant	,874	
Sexy	,895	
Désirable	,864	
Intelligent	,906	
Populaire	,706	
Cool	,745	
Sûr de lui		,780
Téméraire		,758
Supérieur	,790	
Forte personnalité		,777
Viril	,762	
Fort	,712	
Énergique	,555	,641
Athlétique	,731	
Capable de prendre position	,593	,573
Indépendant		,691
Capable de prendre des risques		,806
Défend ses idées	,592	,611
Responsable	,902	
Loyal	,852	
Sensible	,865	
Patient	,879	

Méthode d'extraction : Analyse en composantes principales.

Méthode de rotation : Varimax avec normalisation de Kaiser.

a. La rotation a convergé en 3 itérations.

Appendix B: The Mediation Effect of Beliefs About Reckless Drivers' Self-Confidence on the Relationship Between the Presence (Versus Absence) of Reckless Driving Scenes and Attitude Toward Fun Riding - Bootstrapping Macro

Run MATRIX procedure:

Preacher And Hayes (2008) SPSS Macro For Multiple Mediation

Written by Andrew F. Hayes, The Ohio State University

<http://www.afhayes.com>

For details, see Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies For assessing And comparing indirect effects

in multiple mediator models. Behavior Research Methods, 40, 879-891

Dependent, Independent, and Proposed Mediator Variables:

DV = DrivingA

IV = GRCONDIT

MEDS = Stereoty

Sample size

89

IV to Mediators (a paths)

	Coeff	se	t	p
Stereoty	,5685	,2204	2,5793	,0116

Direct Effects of Mediators on DV (b paths)

	Coeff	se	t	p
Stereoty	,2409	,1187	2,0289	,0456

Total Effect of IV on DV (c path)

	Coeff	se	t	p
GRCONDIT	,1877	,2484	,7553	,4521

Direct Effect of IV on DV (c-prime path)

	Coeff	se	t	p
GRCONDIT	,0507	,2533	,2002	,8418

Model Summary for DV Model

R-sq	Adj R-sq	F	df1	df2	p
,0519	,0298	2,3536	2,0000	86,0000	,1011

NORMAL THEORY TESTS FOR INDIRECT EFFECTS

Indirect Effects of IV on DV through Proposed Mediators (ab paths)

	Effect	se	Z	p
TOTAL	,1370	,0851	1,6095	,1075
Stereoty	,1370	,0851	1,6095	,1075

BOOTSTRAP RESULTS FOR INDIRECT EFFECTS

Indirect Effects of IV on DV through Proposed Mediators (ab paths)

	Data	boot	Bias	SE
TOTAL	,1370	,1338	-,0031	,0884
Stereoty	,1370	,1338	-,0031	,0884

Bias Corrected and Accelerated Confidence Intervals

	Lower	Upper
TOTAL	,0119	,3810
Stereoty	,0119	,3810

Level of Confidence for Confidence Intervals:

95

Number of Bootstrap Resamples:

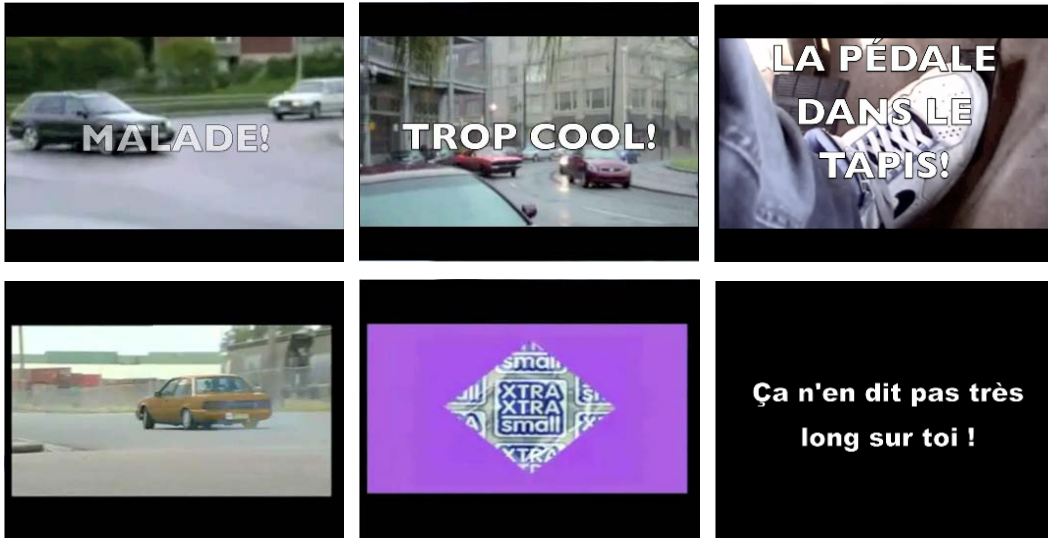
10000

***** NOTES

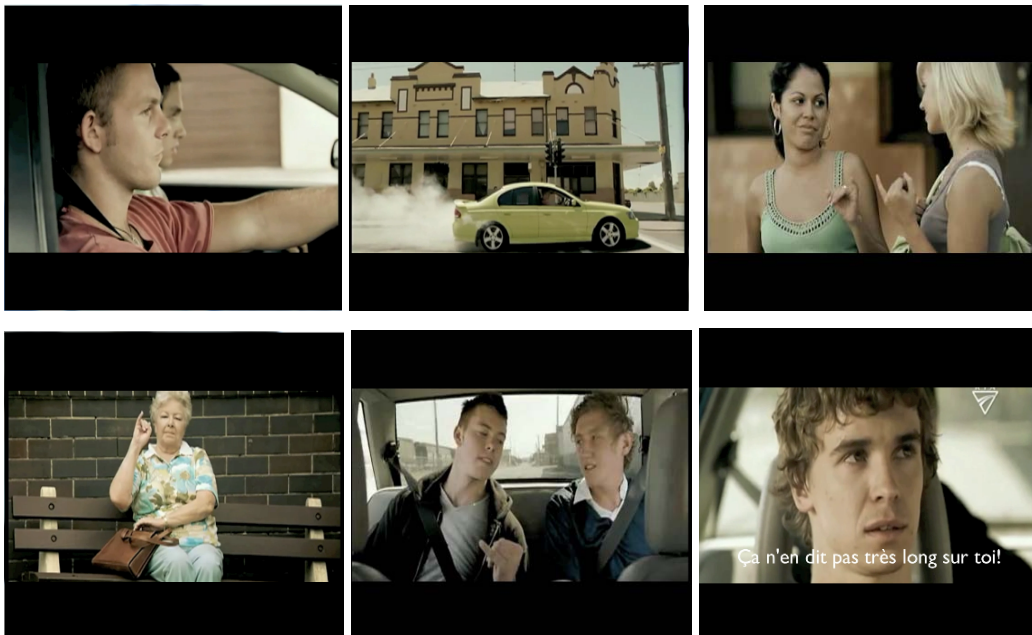
----- END MATRIX -----

Appendix C: Anti-Speeding Ads

Anti-speeding ad 1 : Condom xtra xtra small



Anti-speeding ad 2 : Little finger



Conclusion

Les fondations de cette thèse reposent sur un constat simple : les messages préventifs développés par les pouvoirs publics et les organisations à caractère sociale n'évoluent malheureusement pas seuls au sein de l'univers médiatique. Ils sont encerclés de messages commerciaux qui, bien souvent, véhiculent un discours contradictoire. Ce constat nous a amené à nous poser trois questions majeures : quel peut être l'impact de ces messages contraires? Quel est le message, préventif versus commercial, qui sort vainqueur de cette confrontation? Comment prendre en considération cette réalité médiatique dans le développement des messages préventifs?

Le premier article apporte des éléments de réponse. En prenant pour base les jeunes et les comportements de jeu à risque, il propose de ne plus subir l'existence des publicités du jeu mais au contraire d'en tirer partie. En se fondant sur la théorie de l'inoculation (Mc Guire, 1964), il avance que les campagnes de sensibilisation au jeu excessif, ciblant les jeunes, pourraient gagner en efficacité en décidant d'attaquer directement l'industrie du jeu et les messages qu'elle véhicule. Cette conception de la prévention, non plus en termes d'outil de persuasion mais en termes de moyen d'accroître la résistance aux efforts persuasifs, reste encore peu usitée et demande à être davantage développée. Quelques recherches ont démontré empiriquement son bien fondé (Compton and Pfau, 2004; McGuire 1964, McGuire and Papageoris, 1961; Pfau and Burgoon, 1988; Pfau et al., 2003; Wan and Pfau, 2004) mais aucune d'entre elles ne

s'est attardée à la prévention des problèmes de jeu chez les jeunes. Une lacune que cet article a souhaité combler.

Le deuxième article pose les bases d'un problème d'actualité : l'existence de messages de prévention financés directement par l'industrie des JHA et le potentiel conflit d'intérêt pouvant en découler. Il peut apparaître, en effet, relativement contradictoire que ce soit l'industrie qui promeut les JHA, en vante les mérites par le biais de ces messages publicitaires, qui en prévienne également les conséquences négatives.

Pour comprendre les effets de cette contradiction, des joueurs adultes ont été exposés à une série télévisée débutant par une pause publicitaire, au sein de laquelle, pour certains d'entre eux, une publicité du jeu et/ou un message préventif financé par l'industrie avait été inséré. Les résultats montrent que le message préventif, lorsque présenté directement après une publicité du jeu, permet de contrer les effets de la publicité commerciale sur les intentions de jouer des joueurs. Cependant et de façon assez paradoxale, lorsque le message préventif apparaît seul, c'est-à-dire en absence de publicité du jeu, celui-ci agit comme une publicité commerciale en améliorant les attitudes des joueurs à l'égard du jeu et de l'industrie du jeu et en augmentant, de ce fait, leur intention de jouer.

Cet article montre clairement que les messages préventifs, surtout lorsqu'ils sont directement reliés à leur contrepartie commerciale, peuvent avoir des effets contre

productifs. Ces résultats déjà mis en avant dans le cas, notamment, du tabac et de la campagne « Think don't smoke » de Philipps Morris (Farrelly et al., 2002), n'avaient jamais été démontrés dans le domaine des JHA.

Le troisième article ouvre une nouvelle porte, celle de la sécurité routière et des films valorisant la prise de risque au volant. Les questions posées sont de deux ordres : Quels sont les effets de cette valorisation sur les croyances et les attitudes de jeunes conducteurs? Est-ce qu'un message préventif venant directement attaquer l'image positive des conducteurs à risque est en mesure de contrebalancer ces effets? Pour répondre à ces questions, de jeunes conducteurs ont été invités à visionner un « preview » comprenant ou non des scènes de vitesse et au début duquel, pour certains d'entre eux, un message préventif avait été inséré.

Les résultats mettent en avant deux éléments majeurs :

- 1) Les films, en valorisant des comportements de conduite dangereux priment ou rendent saillant une image positive des conducteurs à risque qui influe directement sur les croyances et les attitudes des jeunes conducteurs.
- 2) Cet effet peut être efficacement contrebalancé par l'insertion, avant le film, d'un message préventif venant directement attaquer cette image positive.

De manière concise nous croyons que cette thèse a contribué de façon importante à l'avancée des connaissances en marketing social et de la santé et que les

implications tant pratiques que théoriques des résultats obtenus ouvrent la voie à de nouvelles opportunités de recherches.

Ces contributions peuvent se résumer en quatre points :

- Appliquer la théorie de l'inoculation au cas de l'addiction aux JHA et de la prévention des problèmes liés aux JHA chez les jeunes
- Mettre en avant l'effet contre-productif de certains messages préventifs développés par l'industrie des JHA en appliquant le paradigme du « two-sided communication ».
- Démontrer l'effet de priming des films faisant la promotion de la conduite à risque.
- Tester et valider empiriquement l'effet neutralisant d'un message préventif présentant clairement une image négative des conducteurs à risque.

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