

AN EXAMINATION OF THE INFLUENCE OF MOVIES WITH SMOKING SCENES
ON YOUNG ADULTS' ATTITUDE AND RISK PERCEPTION TOWARD SMOKING

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Abstract

Cigarette smoking is one of the leading causes of preventable deaths in the U.S. and a global public health concern. The health effects have been severe among the youth. Smoking among the youth has been attributed to media. Movie in particular, is perhaps the most successful advertising on cigarette. Research shows that greater exposure to smoking in movies predicts increased likelihood of trying smoking. The purpose of this experimental study was to explore the relationships of smoking exposure in movies and young adults' attitude, intention, and risk perception toward smoking. The theory of reasoned action (TRA) and the Attitude Accessibility Concept served were used in the study. The experiment was conducted at 70 Kansas State University students and examined the extent to which young adults' memory/experience on smoking are triggered by watching smoking scenes; and whether young adults had different reactions based on the level of dosages of onscreen smoking. The results showed that the relationship of onscreen smoking and young adults' memory/experience on smoking is not significant, as well as the relationship of media exposure and young adults' attitude to smoke. However, the study found that nonsmokers contain considerable anti-smoking attitude and significant risk perception to smoke. The anti-smoking attitude is highly associated with the risk perception. The study presented theoretical implications, which includes the proposal to incorporate risk perception in the model of TRA, made recommendations to future anti-smoking campaigns targeted on young adults, and suggested areas of further research.

Table of Contents

List of Figures.....	vii
List of Tables	viii
Acknowledgements.....	ix
Chapter 1-Introduction.....	1
Problem Statement.....	4
Significance of the Study.....	8
Organization	8
Chapter 2-Literature Review	10
Smoking as Public Health Issue	10
Smoking among Young People	12
Media Contribution to Smoking Behavior	14
Moives and Smoking Behavior	15
Influence of Onscreen Smoking on Youth	17
Smoking Regulation on Movie.....	18
The Smoke Free Movie Principles.....	18
The Motion Picture Association of America	19
Tobacco Regulation.....	20
Health Communication Campaigns.....	23
Anti-Smoking Advocacies.....	27
Theoretical Framework.....	29
Theory of Reasoned Action	29
Intention of Smoking	30

Subjective Norms.....	31
Risk Perception toward Smoking Behavior.....	32
Attitude Accessibility Concept.....	33
Attitude and Young Adults' Memory/Experience on Smoking.....	34
Hypothesis.....	35
Research Question.....	35
Chapter 3- Methodology.....	36
Quantitative Research.....	36
Experimental Study.....	38
Variables.....	39
Independent Variables.....	39
Dependent Variables.....	41
Sample Selection.....	43
Data Collection Procedure.....	43
Stimuli.....	43
Group A.....	44
Group B.....	44
Questionnaire.....	44
Procedure.....	45
Data Anlysis.....	46
Chapter 4-Findings.....	47
Descriptive Analysis.....	47
Principle Components Factor Analysis.....	49
Onscreen Smoking and Memory.....	51

Onscreen Smoking and Intention to Smoke	52
Media Exposure and Attitude	54
Onscreen Smoking and Risk Perception.....	55
Attitude and Risk Perception	57
Subjective Norms and Smoking	58
Chapter 5-Discussion and Conclusion	60
Discussion.....	60
Recommendation	64
Limitations	66
Conclusion	67
References.....	69
Appendix-Movie and Smoking Survey	82

List of Figures

Figure 1 Model of TRA	30
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List of Tables

Table 1 Factor Loadings Using a Principal Components Factor Analysis	50
Table 2 Smoking Scenes and Memory Trigger	51
Table 3 Smoking Scenes and Memory Trigger t-test	52
Table 4 Smoking Scenes and Intention to Smoke	53
Table 5 Smoking Scenes and Intention t-test.....	53
Table 6 Attitude on Smoking.....	54
Table 7 Media Exposure and Attitude	55
Table 8 Movie Watching Frequency	56
Table 9 Risk Perception and Smoking.....	57
Table 10 Movie Exposure and Risk Perception.....	57
Table 11 Attitude and Risk Perception toward Smoking	58
Table 12 Subjective Norms' Influence on Smoking.....	59

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Chapter 1-Introduction

Cigarette smoking is among the leading causes of preventable deaths in the U.S., and a global public health concern. World Health Organization (WHO) (2009) predicts that tobacco smoking will kill a billion people by the end of this century. The Centers for Disease Control and Prevention (CDC, 2011a) estimated approximately 443,000 deaths in the country each year. The number of people who smoked daily increased from 16.4 % to 21.8 % from 2005 to 2010 (King, Dube, Kaufmann, Shaw, & Pechacek, 2011).

Cigarette smoking is considered as a high health risk because of its severe harm to the human body. For instance, research shows that it increases the risk of coronary heart disease by 2 to 4 times, stroke by 2 to 4 times, and dying from chronic obstructive lung diseases (such as chronic bronchitis and emphysema) by 12 to 13 times (CDC, 2011b).

Though the health effects are experienced across all ages, they have been severe among young people. In the United States, extant evidence shows that the number of young cigarette smokers has steadily increased over years (Hines, Saris, & Throckmorton-Belzer, 2000; Sax, 1997). Secondhand smoke is an equal health risk to both smokers and nonsmokers and is believed to cause premature deaths, heart diseases and lung cancer (U.S. Department of Health and Human Services, 2010; Zhu, et al., 2003) among other health risks. More than 6 million young people are believed to be exposed to secondhand smoke daily (CDC, 2007a). The CDC also estimated that adults aged from 18 to 24 take 21.8 % of adults who are current smokers and 16.2 % of current smokers have an undergraduate or a postgraduate degree in the U.S. (CDC, 2011a). Educating the public about health risks of cigarette smoking through communication and promotion of

healthier lifestyles regardless of age and other demographic factors is a key component in behavior change.

Several attempts have been made to reduce smoking behavior by explaining the health risks to young adults with limited or no success. For instance, the American Nonsmokers' Rights Foundation (2011) estimated that at least 586 colleges and universities in the U.S. have enacted 100 % smoke-free campus policies with no exemptions. However, comprehensive tobacco cessation programs are not widely found on college campuses (American Lung Association, 2008) and even on the campuses with 100 % smoke-free policies, there is no guarantee that the policies are in effect (American Nonsmokers' Rights Foundation, 2011).

Smoking among the youth has been attributed to several factors, which include advertising directed to children; tobacco marketing through sports, events, use of promotional events related to cigarettes, easy access to purchasing cigarettes (Hines, Saris, & Throckmorton-Belzer, 2000), and the depiction of smoking in popular movies (Cin, Gibson, Zanna, Shumate, & Fong, 2007; Rigotti et al., 1997).

Advertising in particular is a rather important tactic for tobacco industry to promote its products (Richards et al., 1996), and an effective approach to reach the youth. The industry recognized that young adults are going through a transition period in their life, moving from high school to college or to work, a prime time for developing new behaviors, including smoking (American Lung Association, 2008). Tobacco companies spend billions of dollars on advertising and promotion campaigns every year (Institute for Adolescent Risk Communication, 2002). These campaigns often have special appeal to young people. For instance, about 86 % of young smokers choose the three most heavily advertised brands (CDC, 2007a). As a result of the cigarette advertisements particularly

directed to young adult, the smoking among them in the U.S. had been increased (Hines, Saris, & Throckmorton-Belzer, 2000). However, the cigarette industry insists publicly that their advertising and promotional strategies aim to affect current smokers' brand preference (Hamilton, Turner-Bowker, Celebucki, & Connonly, 2002).

Perhaps the most successful advertising by tobacco industry happens on the silver screen, where product placement and smoking scenes in popular films often reach hundreds of millions of young audiences worldwide (Hache, 2010). Research shows that greater exposure to smoking in movies predicts increased likelihood of trying smoking even after accounting for potential confounding factors (Cin, Gibson, Zanna, Shumate, & Fong, 2007). Many of the movies contain smoking scenes will be later shown times on TV, including some movies produced for underage (Richards et al., 1996). For instance, about 70 % of contemporary movies made in the U.S. contain smoking scenes (Heatherton & Sargent, 2009).

Movies have particularly been criticized because of their broad youth appeal (Stern, 2005) and the potential to influence behavior in the youth (Omidvari et al., 2005). However, studies also indicate that anti-smoking advertisement had higher awareness of smoking in movies, and lower levels of approval of smoking in movies and smoking in general. The idea of including anti-smoking advertisements before films with smoking has already been implemented partially in the U.S. (Glantz, 2010). For example, in a review of a media-based anti-smoking campaigns implemented in five states (California, Massachusetts, Florida, Oregon and Arizona), Wakefield and Chaloupka (2000) concluded that young people displayed high levels of exposure to and recall of paid advertising, and general improvement in beliefs and attitudes. As health communication campaign strive to prevent health risks associated with cigarette smoking among young

adults an understanding of how such exposure to cigarette advertising influences their short-and long-term attitudes and actual smoking behaviors is critical in the design of age-appropriate messages to motivate change in attitudes and behaviors and promotion of a healthier lifestyle.

Problem Statement

Studies have found nicotine to be highly addictive (CDC, 2007a) and tobacco smoke as “biologically active” or carcinogenic, which implies it contains carcinogens, or substances that can cause cancer (Glantz, Barnes, Bero, Hanauer, & Slade, 1995) among other health risks. Smoking has been considered as a public health issue, but it is especially a problem for young adults who are still in college/university (Wolburg, 2006). A longitudinal study at one university reported that over the course of 4 years almost 90 % of daily smokers continued to smoke (Wetter et al., 2004). Smoking is a crucial problem of young adults in college/university because they don't really perceive it as a harmful behavior and do not fully comprehend the associated risks (Murphy-Hoefer, Alder, & Higbee, 2004), which implies a serious need for adequate and effective anti-smoking messages that target young adult smokers and potential smokers with the goal of understanding their attitudes toward smoking, actual smoking behaviors and the role of cigarette advertising, particularly in movies play in shaping them as well as other factors that contribute or deter smoking behaviors and practices.

While several prevention interventions are in place (CDC, 2007b; U.S. Department of Health and Human Services, 2010; WHO, 2011a), there is limited or no impact in attitude and behavior change among young adults. Rather they express defiance to perceived attempts to interfere with their lives and limit their freedom (Wolburg, 2006). Others think they can smoke for a few years and then quit but have been unsuccessful

(Arnett, 2000). Wolburg also noted that when asked for responses to current anti-smoking messages, college students who are smokers often responded with anger, defiance, denial and other negative responses. For instance, for the college-age smokers who find the information annoying, the messages are ineffective at behavior change and provide no new information for the ability to deal with addiction.

There are many reasons why some anti-smoking campaigns produced almost no positive effects on the health behaviors of young adults. Perhaps the most elemental problem is the inability of the campaigns to reach the audiences and attain adequate exposure to the messages (Atkin, 2001). The campaigns failed to adequately theorize how audiences will interpret or decode the health messages (Johnson, Oliffe, Kelly, Bottorff, & LeBeau, 2009). Other key barriers include the audience's misperception of susceptibility to negative outcomes, deflection of persuasive appeals, denial of applicability to self, rejection of unpalatable recommendations, and inertia (Atkin, 2001). In general, although efforts in cigarette control and regulation have been put in process, an estimated 46.6 million adults in the U.S. still smoke (CDC, 2010a), which still demonstrates a lack of success in behavior change in spite of substantive efforts in health communication campaigns.

In addition to anti-smoking health campaigns, several efforts are in put place to decrease smoking prevalence via a broad range of policies and activities such as tobacco tax and price increases, bans on tobacco advertising, large graphic health messages on tobacco package, and providing mass media campaign to promote cessation (Van Baaren, 2003). For example, in 2009, Smoke-Free Movies and other advocacy organizations and professional societies developed and promoted recommendations to reduce teen exposure to tobacco imagery in movies (Berlyne, 2011).

Similarly, in response to pressures from anti-smoking groups and public health organizations, the Motion Picture Association of America (MPAA) announced that it would begin to consider cigarette smoking as a criterion when rating a movie (Motion Picture Association of America, 2007). However, in practice, the MPAA has not actually changed the ratings of films that contain smoking scenes. Youth-oriented films released by the MPAA's member studios have generally not been affected (Berlyne, 2011). In a 2010 report of CDC (2010b), nearly half of popular movies still contained tobacco imagery in 2009, including 54 % of those rated PG-13.

In 2009 (FDA, 2011), the Family Smoking Prevention and Tobacco Control Act became law, which gives the Food and Drug Administration (FDA) the authority to regulate the manufacture, distribution and marketing of tobacco products. One authority of the law is restricting tobacco product advertising and marketing to youth by directing FDA to issue regulations. FDA also encourages companies to develop innovative products that help people stop smoking. However, the limitations of FDA's authority are inevitable. For example, FDA cannot ban an entire class of tobacco products or ban sales in any particular type of sales outlets. In a word, it is difficult to regulate the whole tobacco market even by laws and authorities.

While these steps represent real progress, they are limited in many fronts. First, there are various outlets of movie besides theaters such as movie channels on TV, DVDs, and Internet websites etc. Although the anti-smoking campaigns have been promoted on silver screen, other accesses to movie haven't been covered. To date, the bulk of the advertisements have been on youth-rated DVDs distributed only in the US-Canadian market and they have not yet been included on newer Blu-ray disks, video-on-demand, satellite, cable or network television showings or internet downloads (Glantz, 2010).

More monitoring and controlling of smoking on cigarette advertising and movie are needed.

The current study aimed to explore *the relationship of smoking exposure in movies and young adults' attitude and risk perception toward smoking*. To illustrate, this study examined the extent to which young adults' previous memories/experiences on smoking get triggered by watching smoking scenes; the relationship of smoking exposure in movies and the young adults' intention to smoking behavior; and the relationship of onscreen smoking and young adults' risk perception. The study also applied a dosage-control measurement to explore whether young adults had different reactions with different dosage of smoking scenes.

Previous studies have focused on the depiction of smoking in print and motion media and its influence young adults' smoking tendency/behavior, or how the smoking exposure on screen related to young adults' smoking attitude (Hache, 2010; Sargent et al., 2005). However, few studies have addressed how previous experiences of smoking influence young adults' current attitude/tendency to smoke and how their attitude/tendency to smoke interacts with the triggered memory of smoking. This study focuses on observing the extent to which previous memories/experiences of smoking are triggered by exposure to smoking scenes in movies; the association between such exposure and attitudes; and the relationship of smoking exposure in movies and young adults' intention to smoke. What's more, few studies have examined the relationship of young adults' risk perception to smoke and movie exposure. The current study examines if there is any connection between these two factors.

The theory of reasoned action (TRA) (Ajzen & Fishbein, 1975; 1980) and attitude accessibility concept (Fazio & Roskos-Ewoldsen, 2005) were applied as the

theoretical frame of this study. The theory of reasoned action has been used to accurately predict young people smoking (Primack et al., 2006). Based on this theory the study examined college students' intention toward smoking in general and how that related to their exposure to smoking in movies.

Significance of the Study

Since smoking exposure in movies significantly predicted the establishment of smoking in long-term and follow-up (Dalton et al., 2009), the study adds to the existing literature and knowledge of the connection between previous memories/experiences of smoking and current intention to smoke with different dosages of exposure to smoking scenes. This study also contributes to current literature of the connection between smoking exposure in movie and the attitude toward smoking. The study adds to the literature on young adults' perception of risks associated with smoking behavior as well. Thirdly, the study makes some suggestion to future anti-smoking campaigns target on young adults based on the findings from the study. What's more, the researcher suggests including risk perception to the model of TRA.

Organization

Chapter two reviews the literature that introduces smoking and young people, movie and smoking, smoking regulation, and health communication campaign. It also describes the theories used for the study and the hypotheses and a research question developed from these theories and literature review. Chapter three explains the methodology used in the study, describes the variables tested and the process of data collection. It also explains how participants were recruited to the experiment and the nature of data gathered. Chapter four presents the findings associated with each hypothesis and research question while chapter five discusses the study findings and their

implications on the theory. The chapter also discusses whether the findings of the study support the hypothesis and the research question. It also includes limitations and conclusions along with recommendations to future study and health campaign.

Chapter 2-Literature Review

The main goals of this study were to examine the extent to which young adults' previous memories/experiences on smoking get triggered by watching smoking scenes; the relationship of smoking exposure in movies and the young adults' smoking intention; and the relationship of onscreen smoking and young adults' risk perception. The study also aimed to explore whether young adults made different reactions with different dosages of onscreen smoking exposure. This chapter reviews literature on various topics including smoking as public health issue, young adults' smoking status quo, the relationship of smoking exposure in movie and young adults' smoking attitude/intention, the regulation of smoking in movies, tobacco regulation, health communication and anti-smoking campaigns/advocacies. This chapter also discusses the Theory of Reasoned Action and the concept of attitude accessibility as the theoretical framework for this study.

Smoking as Public Health Issue

Smoking is not only a health issue in the United States but over the world. For example, in New Zealand, the majority smokers start smoking before completing their year 10 at school (Gale et al., 2006). In China, although the studies of tobacco-related mortality have shown that China is still in the early phase of its epidemic of tobacco-caused death, tobacco smoking already accounts for approximately 800,000 deaths annually (Yang et al., 2004).

The Global Youth Tobacco Survey (GYTS) project was developed by WHO and the CDC to track tobacco use among youth in countries across the world (Warren et al., 2000). The project collected data from 12 countries: Barbados, China, Costa Rica, Fiji, Jordan, Poland, the Russian Federation (Moscow), South Africa, Sri Lanka, Ukraine

(Kiev), Venezuela, and Zimbabwe. In the report written by Warren (2000) and other scholars, the majority of young people in most countries reported seeing advertisements for cigarettes in media outlets, but anti-tobacco advertising was rare. The influence of advertising by the tobacco industry is pronounced in most populations. Besides, environmental tobacco smoke exposure was very high in all countries. Particularly, cigarette use is extremely high in two Eastern European urban areas—Moscow and Kiev, where more than one-third of young people aged between 13 and 15 years currently smoke cigarettes. Moreover, young people who wish to buy cigarettes in stores are very rarely refused purchase if they are under age. Even where laws exist which restrict the sale of cigarettes to young people, these laws are seldom enforced.

In the 2011's report of WHO (2011b), tobacco use kills more than 6 million people around the world every year and causes hundreds of dollars in economic damage worldwide. The worse fact is, up to half of all tobacco users will die from a tobacco-related disease based on current cigarette smoking patterns (CDC, 2010a; WHO, 2011a). For instance, an estimated 25 million Americans who are alive today will die prematurely from smoking-related illnesses (CDC, 2011c). However, most tobacco users are not aware of the harms caused by tobacco use. For example, a 2009 survey in China indicated that only 37 % of smokers knew that smoking causes coronary heart disease and only 17 % knew that it causes stroke (WHO, 2011c).

Smoking is currently a very important determinant of cancer mortality (Ezzati, Henley, Lopez, & Thun, 2005). Smoking is one of the leading causes of lung cancer (CDC, 2011b) and about 90 % of all deaths from chronic obstructive lung diseases are caused by this behavior. To specify, the trend in lung cancer reflects past exposure to cigarette smoking (Parkin, Pisani, & Ferlay, 1999). The estimate of the numbers of lung

cancer cases worldwide has increased by 16 % by since 1985. Most eastern countries are still growing a rising trend in incidence of mortality caused by smoking. Tobacco smoking also is currently the most widespread source of exposure to known carcinogens in the world and is causally associated with at least 15 types of cancer (Ezzati, Henley, Lopez, & Thun, 2005).

Besides, for regular smokers, smoking is a habit that usually occurs automatically without conscious awareness (Wagner, Cin, Sargent, Kelley, & Heatherton, 2011). On the other hand, there is no safe level of exposure to tobacco smoke. Any exposure to secondhand smoke is harmful (Surgeon General, 2010) and it will cause lung cancer or heart disease like smoking (CDC, 2011c). It is another smoking consequence that causes mortality and morbidity besides initiative smoking (Gale et al., 2006).

Smoking among Young People

Tobacco use usually gets initiated during adolescence. More than 80 % of adult smokers began smoking before 18 (CDC, 2011d). In Warren and his colleagues' report (2000), among all the countries the program conducted, one-fifth or more of young people begin smoking before 10 years old. This is of concern, since the younger they start to smoke, the more likely they are to become addicted, or become heavy smokers, or die from tobacco-related diseases. In the United States, 89 % of 30- to 39-year-old regular smokers began smoking before age 18 (Gale et al., 2006) and became daily smokers in late adolescence or young adulthood (Harakeh, Engels, Van Baaren, & Scholte, 2007). Young adults are at a high risk for smoking, and the smoking prevalence in young adults is the highest among all age groups at 25.3 % (Song, Ling, Neilands, & Glantz, 2007). This is an especially serious public health problem because the younger one begins to

smoke the more likely one is to become addicted (Laugesen, Scragg, Wellman, & DiFranza, 2007).

Cigarette smoking by young people leads to immediate and serious health problems including respiratory and nonrespiratory effects, addiction to nicotine, and the associated risk of other drug use. Smoking at an early age also increases the risk of lung cancer. What's more, for most smoking-related cancers, the risk rises as the individual continues to smoke (CDC, 2007a). Although research on young smokers shows some hopeful sign for cessation that most young smokers want to quit, unfortunately, few young people find formal cessation programs acceptable and ever fewer will be willing to participate in school-based programs (Redmond, 2002).

There are a few factors associated with young people's smoking behavior such as the lack of skills to resist influences to tobacco use, accesses to tobacco products and the perception that tobacco use is a norm (CDC, 2011d). For example, commercial sources are important to young people who use tobacco. Studies have demonstrated that tobacco can be purchased by youth from a variety of retail outlets (CDC, 1994; Forster & Wolfson, 1998). Besides, substance use among American youth continues to be a major public health concern (Stern, 2005). It has been increasingly clear that the determinants of youth smoking range from individual-level factors to broad societal influences (O'Loughlin, Karp, Koulis, Paradis, & DiFrazia, 2009) such as peer pressure, relatives, community (Doubeni, Li, Fouayzi, & DiFranza, 2009) and media (Stern, 2005). Many youth view smoking as acceptable behaviors and despite their awareness of the risk involved, many young people regard substance use as cool and fashionable (Stern, 2005). To address the influence of media (Polansky, Mitchell, & Glantz, 2010), statistic data indicate that exposure to onscreen tobacco imagery accounts for 180,000 new adolescent

smokers in the United States annually, 90,000 of whom became new smokers by watching smoking scenes in youth-rated movies. What worse is, 60,000 of these new smokers will eventually die from tobacco-induced heart and lung disease or cancer.

Media Contribution to Smoking Behavior

Media have been recognized as significant sources of information about substance use that can influence young people's beliefs and expectations (Stern, 2005), and young people are the primary target of media smoking images, which help reinforce the idea that smoking is a societal norm (Hache, 2010). The substance use among American youth also has a complex effect on the youth self-concept: views of what is "cool", what is attractive, and what is grown-up — all things that young people are trying to be (Heatherton & Sargent, 2009).

Young people acquire smoking imagery from advertising, sales promotion, store displays (Hines, Saris, & Throckmorton-Belzer, 2000), and tobacco usage in movies and other entertainment media, such as video games and music video (Escobar-Chaves & Anderson, 2011) and from peers or siblings (Redmond, 2002). It seems likely that most or all of these factors play some role in initiating and maintaining smoking among young people (Hines, Saris, & Throckmorton-Belzer, 2000).

The media bring billions of images of glamorized smoking to millions of youths through TV, movies, video games, music, the Internet, and advertisement in general (Escobar-Chaves & Anderson, 2011). The media have been the subject of numerous studies related to tobacco use (Ryan & Hoerrner, 2004). Previous experimental studies showed that daily smokers are affected by smoking models in the visual media (Harakeh, Engels, Vohs, Van Baaren, & Sargent, 2010). Young people who watched more than five hours of TV a day were almost six times more likely to start smoking than those who

watched two hours or less a day. Other studies have made similar findings: The more TV young people watch, the more positive they feel about smoking, the more likely they are to begin smoking, and the sooner they start smoking (Escobar-Chaves & Anderson, 2011).

Because most tobacco-related imagery is trying to sell tobacco products to audiences, and in this case, youth (Hamilton, Turner-Bowker, Celebucki, & Connonly, 2002), the tobacco companies have made a huge investment in advertising (Tye, Warner, & Glantz, 1987). Several studies have shown that young people are aware of and influenced by cigarette advertising (Tye, Warner, & Glantz, 1987). Youths who are attracted to the images seen in tobacco advertisements are then more likely to use or wear the corresponding tobacco products and finally are more susceptible to subsequent smoking behaviors (Straub, Hills, Thompson, & Moscicki, 2003). Some studies found that the more a young person smoked, the more likely he or she is aware of cigarette advertising messages. Studies also found that young people who smoke identify a preferred brand very early, and that the most heavily advertised brands are the most recognized among youth (Tye, Warner, & Glantz, 1987). In other words, cigarette brand advertising and promotion are characterized by "user imagery" creative tactics. It is thought that young people are particularly vulnerable to such advertising, as it contributes to self-identity (Donavan, Jancey, & Jones, 2002).

Movies and Smoking Behavior

Studies indicate a causal relationship between exposure to depictions of smoking in movies and youth smoking initiation (Glantz et al., 2011). Exposure to onscreen smoking in movies increases the probability that youths will start smoking. Particularly, young people who are heavily exposed to onscreen smoking are approximately two to

three times more likely to begin smoking than those who are lightly exposed (CDC, 2010b).

Movies, like other mass media, are commonly thought to both reflect and shape social attitudes and behaviors (Stern, 2005). The advertising literature notes that movie product placement is effective if the viewer interprets the brand image according to who the character is and how the brand is used by the character (Distefan, Pierce, & Gilpin, 2004), which is usually portrayed in an appealing way (e.g., good-looking, mature, healthy, successful) and the negative consequences of smoking are absent in the movies (Harakeh, Engels, Vohs, Van Baaren, & Sargent, 2010). In other words, the portrayal of smokers in movies is often unrealistic, with affluent characters accounting for a much larger proportion of the tobacco users in movies than actual U.S. smokers. Smokers in movies are rarely portrayed as having a motive for smoking, and smoking status tends not to differentiate types of characters (e.g., good character or bad character) (Sargent & Worth, 2007).

Smoking has appeared in movies since silent films (Lum, Polansky, Jackler, & Glantz, 2008). Studies focusing exclusively on tobacco use have found that most films, both currently and historically, contain at least one instance of cigarettes smoking, with R-rated films most likely to include instances of smoking (Stern, 2005). To illustrate, content analysis looked at the tendency of smoking scenes or tobacco-related imagery depicted in movies displayed in the U.S. From 1988 to 1997, 87 % of the highest-grossing films contained tobacco use, with an average of five occurrences per film. In the top 10 films of 1985 to 1995, 98 % contained at least one “pro-tobacco event” (e.g., consumption of tobacco) (Everett, Schnuth, & Tribble, 1998; Gale et al., 2006). About 74 % to 98 % of the top-grossing movies released during 1985 to 2003 contained at least

one depiction of smoking. Each year, an estimated 13.9 billion smoking images have been delivered by the top 100 box-office hits (Choi, Forster, Erickson, Lazovich, & Southwell, 2011). And between 1994 and 2005, the average number of tobacco incidents per film for the top 50 films released was 19.9, and more than 60 % of the top 100 box-office hits in 2005 depicted tobacco images (Lochbuehler, Engels, & Scholte, 2009). Therefore movies have particularly received attention because of their broad youth appeal (Stern, 2005).

Influence of onscreen smoking on youth

Young adults constitute the largest segment of U.S. movie-goers, with 34 % attending a movie at least once a month, compared with 20 % of the general population (Dortch, 1996). Moreover, studies indicate that young adults spend a great deal of their spare time watching television and videos or DVDs, where they are often exposed to tobacco images in films or programs on a daily basis (Lochbuehler, Engels, & Scholte, 2009).

Young adulthood is an important time during the evolution of smoking behavior, when individuals who started experiencing as teens transition to regular smoking behavior or, alternatively, quit (Shmueli, Prochaska, & Glantz, 2010). Previous cross-sectional and longitudinal studies show that smoking scenes in movies trigger youth to smoke, which may have long-term health effects (Goldstein, Sobel, & Newman, 1999), with dose-response effect: the more smoking scenes youth see, the more likely they are to smoke, with heavily exposed youth about three times as likely to begin smoking as lightly exposed youth (Glantz, 2010). However, some studies say there is a direct link between viewing smoking scenes and immediate subsequent smoking behavior (Shmueli, Prochaska, & Glantz, 2010), even incidental smoking in a short film trailer might

strengthen the attractiveness of smokers in youth who have already tried cigarettes (Hanewinkel, 2009).

The film industry has been criticized because the depiction of smoking in movies has been reported to be increasing since 1990s (Omidvari et al., 2005). Content analysis has established that the % age of adults who smoke in movies is approximately 20 to 25 % of characters. In movies, smoking is rarely associated with negative health outcomes, and that smokers in movies are more affluent than the typical U.S. smoker (Heatherton & Sargent, 2009). About 50 % of R-rated movies contained 124 seconds or more of tobacco use, compared with 26 % of PG-13 and 17 % of PG movies (Tickle, Beach, & Dalton, 2009). Even in G-rated children's animated films, a smoking scene occurs at least once in five to six movies (Ryan & Hoerrner, 2004).

Because R-rated movies have a smaller potential audience than movies rated for younger age groups, some scholars suggest if the rating system were stringent, movie producers would have a financial incentive to remove smoking from PG- and G-rated films, but not from R-rated films (Jones & Rossiter, 2008). What's more, various public health advocacy groups have encouraged the movie industry to take voluntary actions that would reduce exposure, such as giving an R rating to movies with smoking, declaring that no funds have been provided by the tobacco industry, requiring anti-smoking advertisements to run before any film with any tobacco presence, and no longer showing tobacco brands in any movie scenes (Heatherton & Sargent, 2009).

Smoking Regulation on Movie

The Smoke Free Movies Principles

The American Legacy Foundation developed the Smoke Free Movies Principles to address the problem of smoking in movies in a way that will substantively reduce

youth's exposure (Healton et al., 2005). The foundation endorsed these principles along with the WHO; American Medical Association (AMA); American Academy of Pediatrics; L.A. Department of Health Service; American Heart Association; American Academy of Allergy, Asthma, and Immunology; and the Society for Adolescent Medicine. The principles include 1) rate new smoking movies "R"; 2) certify no pay offs; 3) require strong antismoking ads; and 4) stop identifying tobacco brands.

However, a few barriers remain to the implementation of this strategy (Healton et al., 2005). The essential one is that purchasing advertising before movies is expensive and generally not likely to be possible for public health organizations to fund for extensive period of time. Another barrier to implementation is developing a mechanism to determine which movies contain smoking. A selected group would need to prescreen all new movies to determine whether they contained smoking and therefore whether they required an antismoking advertisement.

The Motion Picture Association of America

The Motion Picture Association of America (MPAA), which established in 1968, is the most widely available movie rating system in the United States. It is the only rating that currently appears on DVD/VHS covers, is listed in theaters when movies are released, and appears on all advertising materials for films. Although other rating systems have been being developed and are available on the Internet, the MPAA rating system continues to be the most accessible and visible rating system to parents making decisions about movie appropriateness (Tickle, Beach, & Dalton, 2009).

In 2007, The MPAA declared that it will begin to consider cigarette smoking as a criterion when rating a movie (MPAA, 2007), adding this category to sex, violence and adult language, the only behaviors considered since the inception of the ratings system in

1968 (Sargent & Worth, 2007). For instance, when rating a movie, three questions, including “Is the smoking persuasive?” “Does the film glamorize smoking?” and “Is there an historic or other mitigating context?” will be considered (Berlyne, 2011). However, the MPAA has not actually practiced its announcement. It did not clearly distinguish films based on tobacco use (Tickle, Beach, & Dalton, 2009). To illustrate, in Tickle, Beach and Dalton’s study (2009), analysis showed that the MPAA rating system does statistically differentiate mean levels of smoking, drinking and other risk behaviors, with R rated films containing the highest level of risk behaviors. Particularly with regard to tobacco content, they found that the rating categories do not adequately distinguish the amount of smoking behavior portrayed in a movie. Although the declaration of MPAA in 2007 may make the rating system more informative, the results of the study suggest that anything short of a definitive rating for movies with smoking content is unlikely to clearly differentiate movies based on tobacco use.

Along with the smoking regulations on movie, arguments have been made over whether the amount of tobacco use in movies has decreased over time (Tickle, Beach, & Dalton, 2009) or whether the frequency of smoking in movies has increased (Omidvari et al., 2005). Although no verified statistics indicate whether or not the tobacco use in movies has decreased or increased, the absolute data, 76.6 % of movies contained tobacco use (Tickle, Beach, & Dalton, 2009).

Tobacco Regulation

Tobacco advertising first emerged in the United State in 18th century, when the Lorillard brothers advertised their tobacco products in a New York newspaper (Trager, Russomanno, & Ross, 2007). Two hundred years later, the Lorillard tobacco company was arguing before the U.S. Supreme Court that a Massachusetts law that restricted its

ability to advertise was unconstitutional. The state attorney general created regulations that included attempts to restrict outdoor advertising and point-of-sale ads. The Court first determined that there was a legitimate state interest in regulating tobacco advertising—preventing access to tobacco products by minors.

The progress of tobacco regulation had been taken up by organizations and Congress much earlier than the Court. In 1964, the Surgeon General's Advisory Committee on Smoking and Health released its landmark report: *Smoking and Health* (Schwartz & Hrdy, 2004), established that smoking is a substantial health hazard, associated with increased death rates and severe diseases. This report changed the landscape and gave anti-tobacco interests the upper hand (Stole, 2007). One year later, Congress passed the Cigarette Labeling and Advertising Act (Schwartz & Hrdy, 2004), which required warnings be printed on tobacco packages. However, the law didn't extend to tobacco advertisement (Stole, 2007). In 1967, the FDA issued a report on cigarette advertising that criticized the tobacco industry's Cigarette Advertising Code as being ineffectual. It concluded that cigarette advertising continued to be deliberately targeted at young people (Richards, Tye, & Fischer, 1996). In 1969, the Public Health Cigarette Smoking Act was enacted and one section of the act required a ban of cigarette advertising on broadcast television and radio stations (Trager, Russomanno, & Ross, 2007). In 1970, a federal law banning tobacco advertising from the airway was signed finally (Stole, 2007).

The promotion of restrictions on youth access to tobacco represents a departure for the tobacco policy field as well (Forster & Wolfson, 1998). Tobacco policy movements of the 1970s and 1980s were consumer- and nonsmoker-protection efforts aimed at adults. These efforts resulted in federal warning labels and advertising

restrictions; in local, state, and federal restrictions on smoking in public places and workplaces; and in excise tax increases (Forster & Wolfson, 1998; Johnson, O'Malley, & Bachman, 1992). Modern movements to restrict youth access to tobacco have developed a wide range of policies of increasing sophistication over the past decade. These policies, proposed or implemented at the local, state, and national levels, include restrictions on distribution of tobacco, on means of sale, on sellers, and on buyers (Forster & Wolfson, 1998). There are more than two thirds of states have adopted some restrictions on vending machines. More than 150 local jurisdictions, even as large as New York City, have found it convenient to ban cigarette vending machines or to impose severe restrictions, limiting them to locations such as taverns where minors are not permitted by law (Forster & Wolfson, 1998; Lynch et al., 1994). Now, all states have a law specifying the minimum age for legal sale of tobacco products. For all states but four that age is 18; Alabama, Alaska, and Utah specify age 19, and in Pennsylvania the legal age for cigarette sales is 21 (Welch, 1996).

The tobacco regulation process has been promoted. In 1995, President Clinton instructed the FDA to “initiate a broad series of steps all designed to stop sales and marketing of cigarettes and smokeless tobacco to children” (Trager, Russomanno, & Ross, 2007). In 1998, the Master Settlement Agreement (MSA), which comprised 46 states and five territories (Florida, Minnesota, Texas, and Mississippi settled their tobacco cases earlier and separately) and the major cigarette producers, was signed (Morrison, Krugman, & Park, 2008). This agreement called for the elimination of outdoor advertising that was not at a retail establishment; transit advertising; cartoons in any tobacco advertising, marketing, or packaging; product placement in the media; and tobacco merchandising.

However, the tobacco industry's response to the MSA was modest at best (Hamilton, Turner-Bowker, Celebucki, & Connonly, 2002). Although critics condemn all types of advertising and promotion used to market cigarettes, the industry claimed that advertising is highly overrated as a factor in causing people to smoke (Fueroghne, 1995). The advertisements of tobaccos rarely reflected tobacco dangers (Stole, 2007). Although studies have documented a causal relationship (Sargent, Dalton, & Beach, 2000) between tobacco marketing practices and the initiation of smoking among youth in the U.S. (Hamilton, Turner-Bowker, Celebucki, & Connonly, 2002), the tobacco industry claimed that tobacco advertising and promotion are not aimed at young people (Donavan, Jancey, & Jones, 2002). Rather, it aims to maintain brand loyalty and that it has no role in encouraging adolescents to experiment with smoking. The industry argued that incentives to start smoking come mainly from exposure to other smokers their age and the family network (Evans, Farkas, Gilpin, Berry, & Pierce, 1995; Fueroghne, 1995).

Health Communication Campaigns

Research have shown that mass media campaigns can be effective in preventing smoking among youth if the messages are based on appropriate educational objectives and communicated with sufficient reach, frequency, and duration to high risk youths (Flynn et al., 1992). Literature on the effectiveness of tobacco countermarketing campaigns, current state and national campaign approaches has been reviewed and characterized (Farrelly, Niederdeppe, & Yarsevich, 2003). Farrelly and the colleagues (2003) reviewed several campaigns in the past decades and from state to nationwide. The statewide campaigns reviewed are Minnesota, the first state to implement a statewide anti-smoking campaign (Murray, Prokhorov, & Harty, 1994); California, the first to mount a large, multimillion dollar comprehensive program in 1989 (Pierce et al., 1998);

Massachusetts, the one included an anti-tobacco media campaign targeted primarily to adults but complemented with some youth prevention messages in 1994 (Commonwealth of Massachusetts Department of Education, 2002); Oregon, the one passed Measure 44 that approved an excise tax increase of \$0.30 and allocated 10 % of the revenue to a statewide Tobacco Prevention and Education Program (TPEP) in 1996 (MMWR, 1999); Florida, the state launched an aggressive, youth prevention campaign known as “truth” in the context of a multifaceted tobacco prevention programme that included school and community tobacco influences with hard hitting ads that feature youths confronting the tobacco industry (Bauer, Johnson, Hopkins, & Brooks, 2000); and so on.

Farrelly and the colleagues (2003) commented that although these statewide campaigns have been effective at reducing youth tobacco use, the weaknesses are inevitable. Some campaigns don’t significantly change beliefs or tobacco use behavior because of the lack of widely used school based tobacco prevention program and some don’t have significant relation between the decrease of tobacco use and campaign exposure among either youth or adults.

Nationwide campaigns have been reviewed by Farrelly and the colleagues (2003) as well. In 1998, the Youth Smoking Prevention program, which included a national media campaign known as “Think. Don't Smoke” (TDS), was launched. This campaign’s annual budget was over \$100 million before it was withdraw in 2002. In 1999, the “Tobacco is Whacko, if You’re a Teen” campaign began. It is considered smaller than TDS with an annual budget of \$12-13 million. In 2000, Legacy launched Truth, a national tobacco countermarketing campaign, by an alliance of advertising firms led by Arnold Communication, Legacy staff, and nationwide youth. This campaign was inspired by the Florida “truth” campaign. Legacy spends \$100 million annually on Truth.

The CDC's Office on Smoking and Health (OSH) has also produced a series of ads for use in statewide and national tobacco countermarketing campaigns (Farrelly, Niederdeppe, & Yarsevich, 2003). For example, CDC had sponsored an ongoing public service advertising campaign targeting youth (McKenna & Williams, 1993). Its goals are to prevent young people from starting to smoke and to motivate those experimenting with cigarettes to stop before they become addicted. The most common communication strategy has been to counter the image of smoking as sexy, hip, and a sign of maturity and to portray nonsmoking as the prevailing, desired social norm.

OSH conducted a counteradvertising strategy aimed at exposing the predatory marketing tactics of the tobacco industry (McKenna & Williams, 1993). The OSH staff hoped that the hard-hitting campaign, with its focus on tobacco industry advertising practices, would increase its newsworthiness among media reporters and editors. News coverage of public service campaign is important for extending their reach and impact (Erickson, McKenna, & Romano, 1990). The campaign ended in failure because its creative execution was too subtle and sophisticated for the target audience. Offering an insider's view of tobacco industry may remain a valid strategic concept, but perhaps only through a more direct and literal pitch.

Health communication campaigns have been used for decades to combat underage and adult smoking (Farrelly, Niederdeppe, & Yarsevich, 2003). However, only limited evidence indicates that countermarketing is a cost effective strategy and the current literature provides little guidance toward designing successful campaigns. Entertainment media have been used to disseminate information about health and social issues in health communications for years (Elkamel, 1995; Glik et al., 1998; Montgomery, 1989; Shefner & Roger, 1992; Singhal & Roger, 1989; Steckler et al., 1995; Winsten,

1994). On some level, the development of entertainment education on media reflects the growth and development of the commercial entertainment industry, particularly film and television (Glik et al., 1998). Entertainment films and television productions have attained high market penetration (Finney, 1994) and have been effective in shaping audience response (Bryant, 1989), setting specific agendas (Dearing & Rogers, 1996), and shaping culture more generally (Gerbner, Gross, Morgan, & Signorelli, 1994). Audiences have been receiving a great deal of personal and health information from the media (Glik et al., 1998).

Over years, the number of these advocates, characterized as Hollywood lobbyists, has proliferated (Montgomery, 1989; Shefner & Roger, 1992).

Many groups have used boycotts to protest content they deemed offensive (Glik et al., 1998). One strategy that directly appealed to government to regulate the content of television broadcast was especially effective in the anti-smoking movement in regard of advertising (Comstock, 1998). Since the 90's, filmmakers have consciously implemented the entertainment education strategy in films (Brown & Singhal, 1993) and a number of film producers have intentionally sought to educate the public about important social issues (Brown & Meeks, 1997). In the U.S., for example, Randall Frederick, a Los Angeles-based producer, created several entertainment films on topic of alcoholism, drug dependency, and substance abuse (Brown & Singhal, 1993); Steven Spielberg produced *Schindlers List* to address human compassion during the Holocaust; and Jonathan Demme made *Philadelphia* to show his concern about AIDS in the workplace (Brown & Meeks, 1997).

Although entertainment media are one of the most effective means of disseminating development messages to large audiences around the world (Brown &

Singhal, 1993), the attempts to control content of media programs themselves have been met with stiff industry resistance (Comstock, 1998). The U.S. and other nations that export communication and development messages can benefit by learning a number of valuable lessons derived from the past decades of research on entertainment-education media (Brown & Singhal, 1993).

Anti-Smoking Advocacies

Over decades, several national annual events and laws were signed and hosted to advocate against or encourage regular smokers to limit or quit smoking. For example, the Great American Smokeout, held in November of each year since 1976, has helped keep the nonsmoking message alive by creating news for media coverage and serving as a one-day watershed for national and community-based events and programs. The Great American Smokeout buys no media time or space, but has been viewed as one of the best-known national events in health promotion history (Erickson, McKenna, & Romano, 1990). However, the purchase of media time offers clear advantages for short-term efforts, to support specific legislative proposals, and to reach audiences that have yet to hear the anti-smoking message. Paid advertising could be a powerful tool for a number of reasons (Cummings, Sciandra, Davis, & Rimer, 1989). Advertisers can make statements in paid time that they cannot say in free time; media purchases can buy entry to local markets that can be used to supplement national campaigns; and paid advertisements can be used to drive all other aspects of a total communications program that includes advertising, marketing, public relations, and community organization (Erickson, McKenna, & Romano, 1990). Although the Great American Smokeout campaign is overspread and influential, it doesn't use the power of media thoroughly and it is ineffective in raising awareness of the danger of smoking.

To monitor tobacco use in movies, Thumbs Up! Thumbs Down! (TUTD) (CDC, 2010b; Glantz et al., 2011), a project of Breathe California of Sacramento-Emigrant Trails, counts occurrences of tobacco incidents in top-grossing U.S. movies each year. For this analysis, TUTD defined a tobacco incident as the use or implied use of a tobacco product by an actor. The results of this analysis indicate that the number of tobacco incidents peaked in 2005, then declined by approximately half through 2009. In 2010, the number of onscreen tobacco incidents in youth-rated (G, PG, or PG-13) movies continued a downward trend, decreasing 71.0 % from 2005 to 2010. However, the degree of decline varied substantially by motion picture companies. The three companies (half of six members of the Motion Picture Association of America) with published policies designed to reduce tobacco use in their movies had an average decrease in tobacco incidents of 95.8 %, compared with an average decrease of 41.7 % among the three major motion picture companies and independents without policies. However, there is one inevitable limitation in this report. The policies on smoking in movies took effect at different times for different motion picture companies. When the policies came into force, many movies were already in production, a process that typically takes several years. By 2010, all movies released by the three companies with published policies aimed at reducing tobacco use had entered production after the policies were promulgated. What's more, although the three companies have eliminated depictions of tobacco use almost entirely from their G, PG, and PG-13 movies, as of June 2011, none of motion picture companies completely banned smoking scenes or other tobacco imagery in the youth-rated films they produced or distributed.

In 2002, a project named the Smoke-Free Movies at the University of California, San Francisco, began a series of paid advertisements in the West Coast edition of the

New York Times, Variety and other entertainment trade publications stating “Either people in Hollywood are still on the take, in which case they’re corrupt ... or they’re doing Big Tobacco’s dirty work for free — in which case they’re stupid.” In May 2007, MPAA announced a plan to consider smoking as a factor in its movie rating system (Berlyne, 2011). A few voluntary changes were highlighted to movie industry policy in this campaign: give new smoking movies an R rating, require strong anti-smoking ads, and stop identifying tobacco brands (Hache, 2010). However, six months after the policy began, the percentage of G-, PG-, or R-rated movies that contained smoking scenes had not changed much compared with the same period in each of the four previous years (Berlyne, 2011).

In a word, although some of the anti-smoking advocacies more or less influenced people’s attitude to smoking behavior or the movie industry, their effectiveness is limited. To illustrate (Wakefield & Chaloupka, 2000), insufficient dissemination may render some of the campaign messages nearly invisible, while messages lacking key qualitative features often fail to capture the attention of most receivers. Thus, audiences are easy to lose at each stage of message response and the campaigns will end in ineffectiveness.

Theoretical Framework

The theory of reasoned action (TRA) (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) will serve as the core theory applies to this experimental study and the attitude accessibility concept (Fazio & Roskos-Ewoldsen, 2005) will be another crucial support to help illustrate the method being used.

Theory of Reasoned Action (TRA)

TRA is an expectancy value model with emphasis on attitudes, subjective norms, intentions, and behaviors directed to a specific focus (Blue, 1995). Ajzen and Fishbein

(1980) developed the TRA model (Figure 1), which has been used to describe risk-taking behaviors in relation to attitudes, and intentions and subjective norms. Rather than focus on all steps of the model, the current study applies attitude, intention, and subjective norms in understanding smoking behavior among the youth. These three factors constructed the main hypotheses in this study and were particularly discussed.

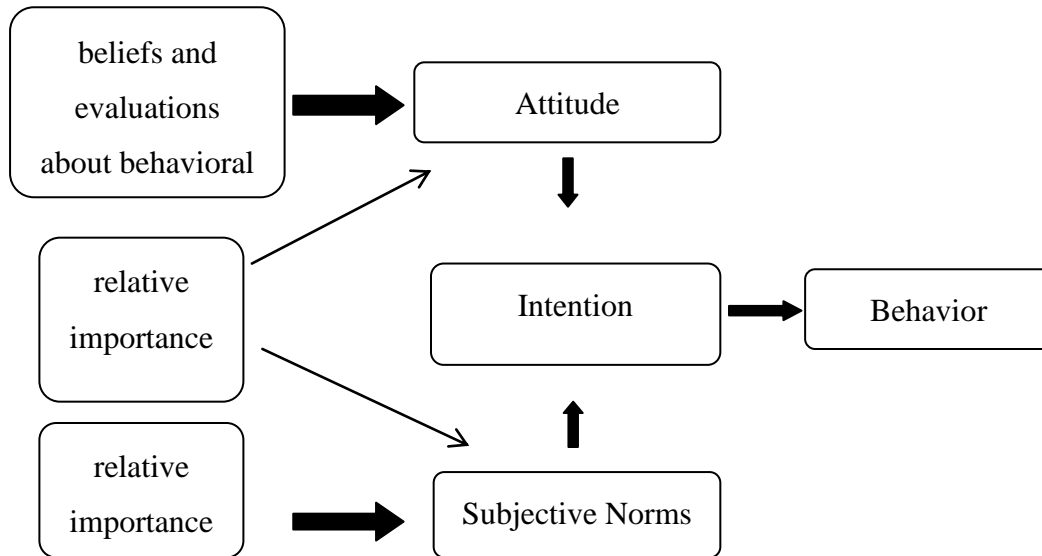


Figure 1. Model of TRA

Intention of Smoking

According to the TRA, behavioral intentions (BI) are the best single predictor of a person's behavior (B). Behavioral intentions are a function of attitude toward performing the behavior (A) and the subjective norm (SN), which expresses the person's perception of whether relevant others think one should or should not perform the behavior (Ajzen & Fishbein, 1980). What's more, intention to act in a certain way is the immediate determinate of behavior. If intention is measured adequately, and if there is correspondence between the measure of intention and the measure of behavior, then intention will provide the best predictor of behavior. Measuring intention as close as possible in time to the behavioral observation helps to maximize accurate prediction

(Poss, 2001). The goal of the TRA is to be able to predict and understand directly observable behaviors that are primarily under the control of the individual (Fishbein & Middlestadt, 1989).

In the current experimental study, the TRA was used to observe and explain young adults' intention to smoke after watching smoking scenes. The audiences' immediate reaction after being exposed to onscreen smoking (whether they want to smoke or not) were recorded and illustrated. To illustrate, young adults who participate in the experiment completed a questionnaire in the end with statements (Cox, Tiffany, & Christen, 2001; Hanewinkel, 2009; Harakeh, Engels, Van Baaren, & Scholte, 2007; Shmueli, Prochaska, & Glantz, 2010) such as "I intend to have a cigarette right after watching the movie clips" and "I expected to buy cigarettes after watching the movie clips". The participants were asked to rate the statements with the five-point Likert scale (from 1-strongly disagree to 5-strongly agree).

Subjective Norms

Subjective norms are beliefs about whether significant others think the target individual should engage in the behavior (Higgins & Conner, 2003). Social norms represent a perception that other people are encouraging an individual to perform the behavior (Schofield, Pattison, Hill, & Borland, 2003). To specify, people actively participate in creating and activating social norms of the groups to which they belong. Social group norms influence intention among those who strongly identified with their social group (Schofield, Pattison, Hill, & Borland, 2003). Some study (Van Den Putte, Yzer, & Brunsting, 2005) found that the subjective norms are the rather relevant social influence variables. Smokers are more stimulated to quit smoking by social norms of what ought to be done than by social norms that indicate what is done by other people.

Researchers have applied the TRA to a wide variety of behaviors over the years, including the consumption of automobiles, computer software, coupons, detergents, soft drinks, and fast food restaurants, among others products and services (Bagozzi, Wong, Abe, & Bergami, 2000). Also, the TRA has been used to accurately predict young people's smoking. According to this theory, an individual's behavior is determined by his or her intention to perform the behavior, which is in turn predicted by his or her attitudes and norms involving smoking (Primack et al., 2006). Some research on this theory, which includes pro-smoking attitudes, perceived social norms regarding smoking and self-efficacy to resist smoking, reveals that these cognitions may play a relevant role in progression in smoking after experimental or recent onset (Hanewinkel, 2009).

In the current study, the TRA was used to test and verify whether media and other subjective norms associated with positive attitude towards smoking. To collect the data, questions (Droomers, Schrijvers, & Mackenbach, 2004; Higgins & Conner, 2003; Schofield, Pattison, Hill, & Borland, 2003) such as "Where do you usually get movie content from?" "Where do you usually get information about smoking?" and "Are there any other factors that influence you on your attitude to smoke?" were designed to measure the variables.

Risk Perception toward Smoking Behavior

Risk concerns both the probability for and the consequences of the event's occurrence (Adams, 1995), especially some probability estimate for the happening of a negative event (Brun, 1994). To some extent, perceived risk is clearly a reflection of real risk, especially when risks are well-known (Sjöberg, 1995). Slovic (2000) investigated smokers and found denial of short-term risks was frequent. The denial was coupled with a tendency observed in other studies for young smokers to underestimate the addictive

properties of tobacco. What's more, research examining smokers' understanding of their smoking risk reveals that smokers acknowledge some risk but often deny or minimize personal risk (Helweg-Larsen & Nielsen, 2009). Youth smokers, in particular, feel that they are not personally at risk because they expect to stop smoking soon (Slovic, 2000).

The TRA is appropriate when the behavior being studied is under the volitional control of the individual (Ajzen, 1988; Ajzen & Fishbein, 1980). As proposed by Ajzen and Fishbein (1980), external variables are related to behavioral intentions and behavior only through their impact on the behavioral and normative beliefs. The core components of the TRA model are beliefs and evaluations about behavioral outcomes, normative beliefs and motivation to comply, attitude, intention, subjective norm and behavior (Ajzen & Fishbein, 1980). However, the model of TRA excludes risk perception as a factor that may affect individual's behavior.

This study used risk perception as a variable and put it into analysis. To illustrate, the analysis associated young adults' risk perception to smoking exposure in movies and whether the relationship is negative or positive. Statements (Brandon & Baker, 1991; Lee, 2010; Murphy-Hoefer, Alder, & Higbee, 2004) include "I think smoking will make me sick" "I think smoking will make me die" and "I think smoking has become a public health issue" were set up to measure the variable. The results were able to add some interesting angle to the existing theory and improve the TRA model at some point.

Attitude Accessibility Concept

Fazio and Roskos-Ewoldsen discussed the attitude-behavior relation (Zanna & Fazio, 1982) and brought out the Attitude Accessibility Concept (Fazio & Roskos-Ewoldsen, 2005).

Attitude and Young Adults' Memory/Experience on Smoking

According to the concept, attitudes can serve as considerably functional tools for individuals. Attitudes that are accessible from memory can guide an individual's behavior in a satisfying direction without the individuals having to engage in conscious deliberative reasoning (Fazio & Roskos-Ewoldsen, 2005).

Fazio and Roskos-Ewoldsen pointed out that one reason that differentiates attitudes based on direct experience from those based on indirect experience is how accessible the attitudes are from memory. *Accessibility*, in this sense, refers to how easily attitudes come to mind (Fazio & Roskos-Ewoldsen, 2005). To clarify, Fazio and Roskos-Ewoldsen (2005) said that there is one way to measure how accessible an attitude is from memory, which is by how long it takes people to answer whether they like or dislike something. In other words, attitudes that are based on direct experience tend to be more accessible (e.g., can be presented more quickly) from memory (Fazio, Chen, McDonel, & Sherman, 1982). Fazio (2000) pointed out that subsequent research on attitude accessibility has explored the functional value of such attitudes and has found that accessible attitudes ease decision making (Blascovich et al., 1993; Fazio, Blascovich, & Driscoll, 1992).

In attitude accessibility concept, one important component is an individual's attitude must be activated from memory if the attitude is to exert any influence over this individual's behavior. If activated, the attitude acts as a filter through which the object is viewed at that moment in time (Fazio & Roskos-Ewoldsen, 2005). Then, in initiation of the attitude-behavior process depends on whether the attitude is activated from memory. Such activation can occur as a result of situational cues (Snyder & Kendzierski, 1982).

One crucial goal of the current experimental study was to explore whether smoking scenes the participants saw trigger their memories or experiences on smoking. According to the attitude accessibility concept, the participants were expected to have some reaction to the smoking scenes shown to them if they had direct previous memories or experiences with smoking. Even if the participants had indirect memories or experiences on smoking, it was still possible that the participants would react to the smoking scenes displayed to them. When doing the questionnaire, the participants were asked to rate statements (Lee, 2010) such as “The movie clips reminded me of movies with smoking scenes I’ve seen previously” and “The movie clips reminded me how I learned about smoking”.

Hypothesis

H1: Smoking scenes in movie clips young adults saw will trigger memories/experiences of smoking.

H2: Watching smoking scenes will influence young adults’ intention to smoke.

H3: Media exposure is positively associated with attitudes toward smoking.

H4: Smoking exposure in movies is negatively associated with young adults’ risk perception of smoking.

H5: The relationship of young adults’ attitude toward smoking and risk perception is negative.

Research Question

RQ: Do subjective norms associate with young adults’ attitude toward smoking?

Chapter 3-Methodology

The main purpose of the current experimental study was to explore the extent to which young adults' previous memories/experiences on smoking were triggered by watching smoking scenes; the relationship of smoking exposure in movies and young adults' immediate intention on smoking behavior; and the relationship of onscreen smoking and young adults' risk perception. The study also applied a dosage-control measurement to explore whether young adults had different reactions with different dosages of onscreen smoking. The chapter discusses the quantitative research approach along with the experiment and explains why the current study is quantitative and experimental. It describes the procedure of the experiment, including the sample of participants, the variables to be tested, and the questionnaire for participants to complete.

Quantitative Research

A quantitative approach was deemed most appropriate for the current study. Quantitative research (Creswell, 2003), or quantitative paradigm (Sale, Lohfeld, & Brazil, 2002), which is based on positivism, also called the postpositivist/positivist research, and empirical science (Creswell, 2003). Quantitative research is based on a positivist philosophy which assumes that there are social facts with an objective reality apart from the beliefs of individuals (Firestone, 1987). In a postpositivist study, the developed knowledge is based on careful observation and measurement of the objective reality that exists "out there" in the world (Creswell, 2003). The current study is somehow related to social/subjective norm of smoking behavior, which means that it requires an objective research process.

French philosopher August Comte suggested in his *A General View of Positivism* (1856) that the most advanced form of thinking was the scientific form (Thomas, 2009). Comte said that social matters could be studied in the same way that scientists studied physics and chemistry where there had been such success with scientific method (Thomas, 2009). Studies have applied this positivistic approach to examine media, particularly movie exposure's influence on smoking behavior (Harakeh, Engels, Van Baaren, & Scholte, 2007; Shmueli, Prochaska, & Glantz, 2010). The current study, which borrows the ideas of these studies, uses a quantitative approach to explore the relationship of smoking scenes in movies and young adults' smoking attitude, behavior, and the risk perception toward smoking.

Traditionally, quantitative research assumptions have governed claims about what warrants knowledge (Creswell, 2003) and the investigator and investigated are independent entities (Sale, Lohfeld, & Brazil, 2002). Phillips and Burbules (2000) give a sense of the key assumptions of quantitative study including research that seeks to develop relevant true statements that can serve to explain the situation that is of concern or describe the causal relationships of interest; and in real studies, researchers collect information on instruments based on measures completed by the participants or by observations recorded by the researchers.

One purpose of the current study is to observe the extent to which smoking scenes trigger young adults' memory/experience on smoking and their intention to smoke after being exposed to smoking scenes. The research examined the relationship of smoking exposure in movie and young adults' smoking intention and collected data under controlled conditions. This was an objective and carefully measured research with the cooperation of voluntary participants. To illustrate, the participants completed a

questionnaire right after watching the movie clips, which included statements (Cin, Gibson, Zanna, Shumate, & Fong, 2007; Hanewinkel, 2009; Harakeh, Engels, Van Baaren, & Scholte, 2007; Shmueli, Prochaska, & Glantz, 2010) such as “I intend to smoke right after watching the movie clips” “I expect to buy cigarette after watching the movie clips” and “If someone offers me a cigarette right now, I’d like to accept it”. The participants were asked to rate the statements with the five-point Likert scale (from 1-strongly disagree to 5-strongly agree).

Experimental Study

Data collection for the study was conducted through an experiment. This is a methodology that cuts across the physical, biological, social, and communication sciences, and is a research method in which an independent variable is manipulated and its effects on the dependent variable are observed. When an experiment is conducted scientifically, the researcher is able to attribute any change in the dependent variable directly to the independent variable and not the extraneous variables or factors unrelated to the study. In other words, the independent variable is said to have caused changes in the dependent variable. In fact, the controlled experiment had been called the most powerful method available for finding out what causes what (Poindexter & McCombs, 2000; Westley, 1981). What’s more, in an experimental study, the investigator is capable of studying a phenomenon without influencing it or being influenced by it. The goal is to measure and analyze causal relationship between isolated variables within a value-free framework (Denzin & Lincoln, 1994).

Previous research that has comment aspects with the current one has been reviewed. For example, Shmueli, Prochaska and Glantz (2010) conducted an experimental study in 2008 to explore the relationship of smoking scenes and immediate

smoking; Ouellete and Wood (1998) implemented a study aimed to explore the relationship of past behavior and future behavior; and Harakeh et al., (2007) conducted a study about imitation of cigarette smoking. The current study borrowed ideas from previous models (Harakeh, Engels, Van Baaren, & Scholte, 2007; Shmueli, Prochaska, & Glantz, 2010) but simplified the procedures previous studies had utilized. The current study followed a screening/watching-questionnaire procedure that aimed to reduce the likelihood that the participants might realize the real purpose of the study and started to guess what the researcher wanted and behaved accordingly. It also tried to limit the entire experiment procedure to 30 minutes to make sure the participants wouldn't be impatient or uncomfortable during the process. It was more likely that the participants would complete the whole process and not quit in the middle of it if they were relaxed and comfortable in the setup. The experiment confirmed this assumption. No participant withdrew in the middle of the experiment and some of them told the researcher afterward that they had had no idea why they were watching the movie clips until they received the questionnaire.

Variables

Independent Variable

The independent variables are movie clips with and without smoking scenes the participants watched. Both groups watched five movie clips each. Group A watched five clips with smoking scenes while Group B saw one movie clip with smoking scene out of all five movie clips.

The reasoning for setting up the independent variables this way is to explore if the smoking scenes in movies trigger young adults' memory and experience of smoking. What's more, setting different dosages of smoking scene for Group A and Group B is to

see whether the strength of smoking exposure in movies influences young adults' smoking attitude/intention differently.

During the questionnaire section, participants would rate statements about the movie clips with the five-point Likert scale (from 1-strongly disagree to 5-strongly agree) (Shmueli, Prochaska, & Glantz, 2010) such as “The movie clips reminded me movies with smoking scenes I've seen previously” “The movie clips reminded me how I felt about smoking in the past” “The movie clips reminded me how I learned smoking?” and “I intend to have a cigarette right after watching the movie clips”.

In Shmueli and his colleagues' study on smoking scenes and immediate smoking (2010), their participants were randomly assigned to watch an eight-minute film montage made up of clips with or without smoking scenes. The current study borrowed the idea from Shmueli and colleagues and adopted it to fit the experiment. The different groups of participants watched different numbers and types of clips. Group A watched five movie clips with smoking scenes in all of them. Group B watched one clip that contained smoking depiction and four others that contained none. The researcher prepared five movie clips containing smoking scenes and four without any. Group A watched the five clips contain smoking scenes, while Group B watched one, along with four clips without smoking scenes. This part of the experiment was designed to test whether smoking scenes the young adult participants saw triggered their memories/experiences about smoking, and whether watching smoking scenes had an immediate impact on smoking intentions. What's more, this process was designed to explore whether there was a dose-response (Glantz, 2010) on young adults' reactions to onscreen smoking. The participants made reactions on the next step and the data were collected later from the questionnaire.

Dependent Variables

Attitude toward Smoking

All the participants completed a questionnaire right after watching the movie clips independently. To specify, statements measuring participants' attitudes (Lee, 2010) include "I will feel uncomfortable when I see/smell smoke" and "I think smoking is cool" were rated by the participants with the five-point Likert scale.

According Fazio and Roskos-Ewoldsen's attitude accessibility concept (2005), attitudes that are accessible from memory can guide an individual's behavior. In the current study, participants' attitudes about smoking were associated with smoking exposure in media, especially in movies.

Intention for Smoking Behavior

In the questionnaire process, participants answered questions about their intentions to smoke right after the display of movie clips. Statements (Cox, Tiffany, & Christen, 2001; Hanewinkel, 2009; Harakeh, Engels, Van Baaren, & Scholte, 2007; Shmueli, Prochaska, & Glantz, 2010) include "I intend to smoke right after watching the movie clips" "I expect to buy cigarettes after watching the movie clips" and "If someone offers me a cigarette right now, I'd like to accept it" were rated by the participants with the five-point Likert scale.

According to the TRA, behavioral intentions are the best single predictor of a person's behavior (Ajzen & Fishbein, 1980). The current study was trying to examine whether young adults' intention to smoke positively associate with their smoking behavior.

Risk Perception toward Smoking

Participants responded questions about their risk perception to smoke.

Statements (Brandon & Baker, 1991; Lee, 2010; Murphy-Hoefer, Alder, & Higbee, 2004) include “I think smoking is not a big deal” “I think smoking will make me die” and “I think smoking has become a public health issue” were rated by the participants with the 5-point Likert scale. Although the TRA is a relevant mature model to study human’s behavior, it excludes risk perception as a factor that may affect an individual’s behavior. The current study tried to add some interesting angle to the existed TRA and develop the model on some level.

Media Exposure

Media exposure was examined as a dependent variable that may influence young adults’ attitude and behavior on smoking. There is research on the TRA involved perceived social norms regarding smoking (Hanewinkel, 2009). In the current study, questions (Wakefield et al., 2006) including “How often do you watch movies?” and “Where do you usually get information about smoke?” were designed to explore the association of media exposure with positive attitude toward smoking.

Subjective Norms

All participants answered questions about subjective norms. They were asked to use the five-point Likert scale to rate items (Droomers, Schrijvers, & Mackenbach, 2004; Higgins & Conner, 2003; Schofield, Pattison, Hill, & Borland, 2003;) “family” “peers” “community” “life pressure” “religious beliefs” “cultural norms” and “media” to indicate how much they thought these items had influenced them on smoking.

According to TRA, a person’s behavior is determined by the intention to perform the specific behavior, in this case, smoking, which is in turn predicted by the

attitudes and norms involving smoking (Primack et al., 2006). The reason to set up the subjective norm question is to explore whether other social elements influenced the participants on smoking besides movie.

Sample Selection

This experimental study with two groups (Group A and B) of people who were randomly assigned to watch five movie clips each. One classroom with screen and projector was set for displaying movie clips. Each group was designed to be made up of 40 participants. Before deciding the group size, the researcher reviewed studies conducted by Shmueli et al., (2010) and Harakeh et al., (2007). Shmueli and the colleagues got significant results with 100 participants, while the other one had 125. The current study decided to make 40 participants for each group; therefore, 80 participants in all would participate in it.

Group A would watch five movie clips contain smoking scene independently and they wouldn't be informed what to pay attention to while watching. Group B would watch one clip with a smoking scene and then four others without any smoking depiction. The reason to measure two groups this way is to explore if the smoking scenes in movies triggered young adults' memory and experience of smoking and to see whether young adults' reactions to onscreen smoking had any association with dose-response (Glantz, 2010).

Data Collection Procedure

Stimuli

The stimuli of the experiment were movie clips the participants watched. To specify, Group A saw five movie clips with smoking scenes in all five, while Group B saw just one with onscreen smoking out of five. The stimulus was the number of smoking

scenes the participants saw. The researcher did analysis and made comparisons of different answers from the questionnaire by connecting them with other variables.

Group A

Group A watched the movie clips in one classroom. They didn't see participants from Group B during the procedure. Participants gathered in a classroom and watched together but had no communication about the movie clips when they were on process. None of the participants was informed to pay attention to anything in particular. They merely watched the movie clips and then proceeded to next step of the study.

Group B

Group B watched the movie clips independently as well. They didn't see any participant from Group A. Participants of Group B gathered in a classroom and watched together but had no communication about the movie clips when they were on process. The reason of conducting Group B is to make comparisons with Group A after doing data analysis from the questionnaires all participants completed. They were not informed to pay attention to anything in particular and moved to the next step of the study directly.

Questionnaire

Participants from both groups anonymously completed a questionnaire after watching the movie clips. Because the participants were randomly assigned to different groups, there were nonsmokers who watched five clips containing smoking and nonsmokers who watched one clip with smoking. This situation applied to daily smokers as well. The questionnaire included questions (Hanewinkel, 2009; Shmueli, Prochaska, & Glantz, 2010) such as "Do you smoke?" "How many smoking scenes did you see in the clips?" and statements such as "The movie clips remind me how I felt about smoking in

the past” “The movie clips remind me movies with smoking scenes I’ve seen previously” and “I intend to smoke right after watching the movie clips”.

The researcher assumed the answers from nonsmokers and smokers would be different. At last, audiences answered some basic demographic questions, such as education level, age, movie watching habit, have you ever tried to smoke, and are you a regular daily smoker or nonsmoker. The questionnaire was designed to see young adults’ attitude, risk perception, and intention on smoking and how media, especially movie has influenced them on smoking.

Procedure

All the participants voluntarily participated in the study. Any of them could withdraw at any time if they experienced any discomfort from participating in the study. The questionnaire used in the study appears at the end of the thesis in the Appendix.

The researcher recruited volunteers from several classes. The teachers offered some extra credit to students who signed up and showed up at the experiment. All participants were randomized to Group A and Group B.

Since the experiment was conducted during the academic semester (spring-2012), not all participants were able to participate in the experiment at the same time of the same day. The researcher conducted the experiment for both groups a few times during a week, based on the participants’ schedules. Each experiment was limited to 30 minutes and it took 3 days to complete them.

Though no participants dropped out of the study, there were several who did not show up after initially signing up to participate in the study. In the end, there were 36 for Group A and 34 for Group B.

Data Analysis

After completing the experiment and data collection, the data were input to Statistical Package for the Social Science (SPSS). A principal components factor analysis was performed to test the factor structures of the items used to measure specific variables. After factor analysis, analyses such as descriptive analysis, correlation and t-test were performed.

Chapter-4 Findings

This chapter framed the findings of the study. A principle components factor analysis was performed. Descriptive statistics and results on hypotheses and research question are presented. T-test and Spearman's Rho Correlation were run on SPSS and the results are explained. On all questions and statements that used the 1 to 5 scale, 1 means strongly disagree, 2 means disagree, 3 means neutral, 4 means agree, and 5 means strongly agree.

Descriptive Analysis

Seventy Kansas State University students participated in the experiment, among who 36 were in Group A and 34 were in Group B. In all participants, 61.4 % were female and 38.6 % were male. On ethnic aspect, 74.3 % are white, 4.3 % are African American, 4.3 % are Hispanic, 10 % are non Hispanic, and 7.1 % are international students. Undergraduates made up 95.7 % and 4.3 % were postgraduates. Twelve out of 70, which is 17.1 %, were smokers and the rest were nonsmokers. Among the 12 smokers, six were in Group A and the other six were in Group B. However, in Group A, among the 30 nonsmokers, 17 students said they tried smoking while the 13 others said they never did. In Group B, among the 28 nonsmokers, 15 students said they tried smoking while the 13 others said they never did.

Too few smokers were in Group A. That means it was hard to do statistical analysis on smokers. When asked about media impact in influencing smokers' (N=6) attitude about smoking, one student strongly disagreed (16.7 %) that media had ever influenced his/her feeling about smoking and one student disagreed (16.7 %) to it. Two students stood neutral (33.3 %) to it while two agreed (33.3 %). In other words, the

students who thought media influenced their attitude about smoking, students who did not think that way and students who stood neutral were even. On the other side, among the six smokers in Group B, five students strongly disagreed (83.3 %) that media had influenced their attitude about smoking while one (16.7 %) agreed to it. In other words, most smokers in Group B did not think media impact was the main fact that influenced their attitude toward smoking. However, because of the tiny sample size of smokers in Group B, it would be hasty to make statistical conclusion about it.

The smokers' intention on smoking after watching the movie clips was also measured with the Likert (1 to 5) scale. In Group A, only one smoker (16.7 %) got a high rating (4.2) on factor Intention. Two smokers (33.3 %) got low ratings (2.4, 2.5) while one (16.7 %) rated 1 and another two (16.7 %) rated 3 and 3.8, which were not high or low. The distribution of factor Intention also indicated that it was hardly likely to draw any statistical analysis on the relationship of smokers and smoking in movie. In Group B, the smokers' intention on smoking after watching the movie clips was also measured with the Likert (1 to 5) scale. One student (16.7 %) rated very low (1.4) on Intention while two (33.3 %) rated high (4, 4). Two (33.3 %) rated low (2.6, 2.2) and the other one made a 3.4 rating on Intention. The distribution of the intention question also indicated that it was unlikely to draw any statistical analysis on the relationship of smokers' intention on smoking and smoking in movie.

When looking at whether smoking scenes in movie clips triggered smokers' memory/experience on smoking with the 1 to 5 scale, one student (16.7%) in Group A rated high (4) on factor Memory. Two (33.3 %) rated low (2.75) while the three others (50%) made neutral ratings (3, 3.75, 3.75). In Group B, one student (16.7%) rated high (4.25) on factor Memory while three (50%) rated very low (1, 1.25, 1.75). One of the

remaining two students (16.7 %) rated low (2) and the other (16.7 %) made a neutral rating (3.25) on it. In other words, in both groups, the distributions of smokers' memory/experience on smoking triggered by smoking scenes in movie would be very dispersive so it was hardly likely to do statistical analysis or get a trend from it.

To summarize, because of the lack of smokers, which is only six out of 36 in Group A and 6 out of 34 in Group B, the researcher was not able to make convincing argument on the relationship of smoking exposure in movie or media or any other factors' contribution to young smokers' smoking intention. However, the sample size of nonsmokers in both Group A and Group B were larger than the sample size of smokers. In other words, it is more likely to do statistical analysis on nonsmokers. The data of nonsmokers were selected and factor analysis was performed. Other analysis such as means, standard deviations, Spearman's Rho Correlations and t-tests were performed after.

Principle Components Factor Analysis

A principle components factor analysis was performed to test the factors structures of the items used to measure specific variables (Table 1), which are "memory triggering" "intention to smoke" "attitude to smoke", and "risk perception to smoke".

Table 1: Factor Loadings Using a Principal Components Factor Analysis

Factors	Component 1	Extraction	Total Eigenvalues	Proportion of Explained Variance (%)
Memory			2.296	57.407
1. The movie clips reminded me of movies with smoking scenes I've seen previously.	.717	.514		
2. The movie clips reminded me how I felt about smoking in the past.	.721	.520		
3. The movie clips reminded me how I learned about smoking.	.789	.623		
4. The movie clips reminded me how I got intended about smoking.	.800	.639		
Intention			4.072	81.431
1. I intend to have a cigarette right after watching the movie clips.	.933	.871		
2. I expect to buy cigarettes after watching the movie clips.	.814	.663		
3. If somebody offers me a cigarette now, I'd like to accept it.	.928	.862		
4. I'd like to smoke a puff or two if I had one now.	.897	.805		
Attitude			2.897	57.950
1. I will feel uncomfortable when I see/smell smoke.	.750	.563		
2. I don't have any specific feeling about it.	.752	.566		
3. I will feel good when I see/smell smoke.	.687	.472		
4. I don't mind trying to smoke sometime. Just for fun.	.819	.672		
5. I think smoking is cool.	.791	.625		
Risk Perception			2.697	67.414
1. I think smoking is not a big deal.	.817	.667		
2. I think smoking will make me sick.	.793	.629		
3. I think smoking will make me die.	.837	.701		
4. I think smoking has become a public health issue.	.836	.699		

Items with factor loadings greater than 0.6 were used to define the factors, which are Memory, Intention, Attitude, and Risk Perception. On factor Memory, the loadings are very high. The analysis indicated the presence of response, accounting for 57.407% of the total variance of the items. On factor Intention, the loadings are considerably high. The analysis indicated the presence of response, accounting for 81.431% of the total variance of the items. On factor Attitude, the loadings are very high. The analysis indicated the presence of response, accounting for 57.950% of the total variance of the items. On factor Risk Perception, the loadings are rather high as well. The analysis indicated the presence of response, accounting for 67.414% of the total variance of the items.

Onscreen Smoking and Memory

Hypothesis one was: Smoking scenes in movie clips young adults saw will trigger memories/experiences on smoking in them. The variables analyzed in this hypothesis are the smoking scenes that students saw in the movie clips and the extent to which their memory/experience on smoking was triggered. Table 2 presents the means and standard deviations of factor Memory that measured participants' memory/experience on smoking and Table 3 presents the t-test results for both Group A and Group B. Among the nonsmokers, 30 were from Group A while 28 were from Group B.

Table 2: Smoking Scenes and Memory Trigger

	Experimental Manipulation	N	Mean	Std. Deviation
Triggering One's Memory	Group A	30	2.75	.740
	Group B	28	1.91	.811

From Table 2 we could tell that the means for factor Memory are significantly different between Group A ($M=2.75$, $SD=.740$) and Group B ($M=1.91$, $SD=.811$).

However, neither the mean of factor Memory of Group A nor Group B is high.

A t-test was conducted to observe the significance levels of the relationships of smoking scenes that Group A and Group B saw and the Memory factor that measured their memory/experience on smoking. Table 3 shows the results.

Table 3: Smoking Scenes and Memory Trigger t-test

		Levene's Test for Equality of Variance		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Triggering Ones' Memory	Equal Variances Assumed	.220	.641	-4.120	56	.000
	Equal Variance Not Assumed			-4.107	54.569	.000

In Table 3, Levene's Test for Equality of Variances shows that the variance for factor Memory was equal. Assuming equally variance, the means for factor Memory in Group A and Group B are significantly different ($t = -4.120$, $df = 56$, $p < .001$).

Onscreen Smoking and Intention to Smoke

Hypothesis two was: Watching smoking scenes will influence young adults' intention to smoke. The variables analyzed in this hypothesis were smoking scenes the students saw in movie clips and their intention to smoking behavior right after. Table 4 presents the means and standard deviations of factor Intention that measured participants'

instant intention to smoke and Table 5 presents the t-test results for both Group A and Group B. Among the nonsmokers, 30 were from Group A while 28 were from Group B.

Table 4: Smoking Scenes and Intention to Smoke

	Experimental Manipulation	N	Mean	Std. Deviation
Intention	Group A	30	1.19	.573
	Group B	28	1.11	.320

From Table 4 we could tell the means for factor Intention were not significantly different between Group A ($M=1.19, SD=.573$) and Group B ($M=1.11, SD=.320$).

What's more, both groups' intention to smoke after watching smoking scenes in movie clips is low.

Table 5 presents the t-test table for both Group A and Group B. It shows the significance level of the relationship of smoking scenes that both groups saw and the factor Intention that measured their instant intention to smoke.

Table 5: Smoking Scenes and Intention t-test

		Levene's Test for Equality of Variance		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Intention to Smoke	Equal Variances Assumed	1.563	.216	.646	56	.521
	Equal Variance Not Assumed			.658	46.071	.514

In Table 5, Levene's Test for Equality of Variances shows that the variance for factor Intention was equal. Assuming equally variance, the means in Group A and Group B of factor Intention are not significantly different ($t = .646, df = 56, p < .521$).

Media Exposure and Attitude

Hypothesis three was: Media exposure is positively associated with attitudes toward smoking. The variables analyzed in this hypothesis were media outlets where students got information related to smoking and their attitude toward smoking behavior. Table 6 presents the mean and standard deviation of factor Attitude that measured participants' attitude on smoking. Considering that this hypothesis was testing young adults' previous media exposure and attitude toward smoking, which already existed before the experiment, the researcher put two groups' data together.

Table 6: Attitude on Smoking

	Valid	Missing	Mean	Std. Deviation
Attitude	57	1	2.02	.777

From Table 6 we could tell the mean for factor Attitude that measured participants' attitude on smoking is low ($M=2.02, SD=.777$). In other words, the participants had a negative attitude against smoking behavior.

To measure media exposure, the students were asked to circle however many outlets from which they considered they got information of smoking. The media outlets listed for students to pick were movies, TV shows, TV commercials, magazines, and online content. When inserting data to SPSS, digit 1 means circled and digit 0 means not circled. In other words, digit 1 means yes and digit 0 means no. The researcher counted the number of outlets each participant picked in both groups. For example, if the

participant picked all the items of the outlets listed, he/she got a 5; if the participant picked one of the outlets listed, he/she got a 1; and if the participant picked nothing, he/she got a 0. The results show that, 5.2% (N=58) participants did not pick any media outlet as smoking information accesses while 5.2% picked all the five outlets. Only one (1.7%) participant picked one outlet, 13.8% picked two, 29.3% of the participants picked three outlets and 44.8% picked four.

Another fact the researcher noticed is that 72.4 % (N=58) of the participants did not circle movies as a source for smoking information. About 40 % of participants did not think television shows gave them much smoking information. On the media outlet of TV commercial, 42.3 % participants did not circle it. For magazine outlets, 58.6 % participants did not circle it. For Internet access, 63.8 % participants did not choose it.

In testing hypothesis three a Spearman’s Rho Correlation was done. It correlated media outlets where students got information about smoking and their attitudes toward smoking behavior. Table 7 shows the correlation of media exposure and attitude.

Table 7: Media Exposure and Attitude

		Media Exposure to Smoke	
Spearman's rho	Attitude	Correlation Coefficient	-.165
		Sig. (2-tailed)	.219
		N	57

In Table 7, results show the Spearman’s Rho Correlation of movie as an outlet of information on smoking and factor Attitude that measured participants’ attitude on smoking is not significant, $\rho = -.165$ and the significance level is .219

Onscreen Smoking and Risk Perception

Hypothesis four was: Smoking exposure in movie is negatively associated with young adults’ risk perception of smoking. There were not many participants who

considered movie as a source for smoking information: 70 percent (N=30) students in Group A did not circle movie as a source for smoking information while the result was 75 percent (N=28) in Group B. The variables analyzed in this hypothesis were the frequency of students watching movies and students' risk perception toward smoking behavior. Students were asked to pick one option from "once a year" "a few times a year" "monthly" and "weekly" to indicate how often they watch movies. The researcher regarded the students who picked "once a year" and "a few times a year" as the ones who seldom watched movies and the other students who picked "monthly" and "weekly" as the ones who frequently watched movies. Considering that this hypothesis was testing young adults' previous movie exposure and risk perception toward smoking, which already existed before the experiment, the researcher put two groups' data together.

Table 8 presents the frequency of students who watched movies seldom and frequently in both groups.

Table 8: Movie Watching Frequency

	Frequency	Percent
Seldom	4	6.9
Frequent	54	93.1
Total	57	100.0

Most students in both groups watched movies frequently (93.1%, N=58). Only a few students seldom (6.9%) watched movie a year.

Table 9 shows the mean and standard deviation of factor Risk Perception that measured participants' risk perception on smoking

Table 9: Risk Perception on Smoking

	Valid	Missing	Mean	Std. Deviation
Risk Perception	56	2	4.15	.753

From Table 9 we could tell the mean for factor Risk Perception that measured participants' risk perception on smoking is rather high ($M=4.15$, $SD=.753$). In other words, the participants were aware that smoking is a health-risk behavior.

In testing hypothesis four a Spearman's Rho Correlation was done. It correlated movie exposure and participants' risk perception toward smoking behavior. Table 10 shows the correlation of movie exposure and risk perception.

Table 10: Movie Exposure and Risk Perception

			Risk Perception
Spearman's rho	Movie	Correlation Coefficient	-.013
	Watching	Sig. (2-tailed)	.927
	Frequency	N	56

In Table 10, results show the Spearman's Rho Correlation of movie exposure and factor Risk Perception that measured participants' risk perception on smoking is not significant, $\rho = -.013$ and the significance level is .927.

Attitude and Risk Perception

Hypothesis five was: The relationship of young adults' attitude towards smoking and risk perception is negative. The variables analyzed in this hypothesis were students' attitude and risk perception toward smoking behavior, which represented by factor Attitude and Risk Perception. Considering that this hypothesis was testing young adults' previous attitude and risk perception toward smoking, which already existed before the experiment, the researcher put two groups' data together.

From the results on hypotheses three and four, the researcher found that the participants had a negative attitude ($M=2.02$, $SD=.777$) but considerable high risk perception ($M=4.15$, $SD=.753$) toward smoking behavior.

Table 11 indicates Spearman's Rho Correlation of hypothesis five. It correlated participants' attitude and their risk perception toward smoking behavior.

Table 11: Attitude and Risk Perception toward Smoking

			Risk Perception
Spearman's rho	Attitude	Correlation Coefficient	-.607
		Sig. (2-tailed)	.000
		N	55

In Table 11, results show the Spearman's Rho Correlation of factor Attitude and Risk Perception that measured participants' attitude and risk perception on smoking is very significant, $\rho = -.607$ and the significance level less than .001. In other words, participants' attitude and risk perception are significantly related to each other.

Subjective Norms and Smoking

There are several other elements that influence young adults' thought about smoking such as family, peers, community, pressures from life, religious belief, cultural norms, and media. The researcher set up a research question to measure these elements: Do subjective norms associate with young adults' attitude toward smoking? Each element was measured on the five-point scale. Considering that this research question was testing how these elements had influenced young adults' attitude toward smoking behavior, which happened before the experiment, the researcher put two groups' data together. The findings are shown on Table 12.

Table 12: Subjective Norms' Influence on Smoking

	family	peers	community	media	pressures from life	religious belief	cultural norms
Mean	3.66	2.98	2.67	2.50	2.50	2.28	2.79
Std. Deviation	2.132	1.227	1.276	1.341	1.341	1.519	1.321

Table 12 shows that the mean of participants who thought family ($M=3.66$, $SD=2.132$) played a role in influencing them on smoking is the highest among all the elements listed. Peers ($M=2.98$, $SD=1.227$) took second place. The means of factors of community ($M=2.67$, $SD=1.276$), pressures from life ($M=2.33$, $SD=1.316$), religious belief ($M=2.28$, $SD=1.519$), and cultural norms (e.g., people's attitude toward smoking in my culture) ($M=2.79$, $SD=1.321$) are close to each other and low. The mean of media ($M=2.50$, $SD=1.341$) as subjective norm that influenced young adults on smoking is low.

In addition, there was one question set up for nonsmokers: Have you ever tried to smoke, even just one or two drags? In all, 32 out of 58 students said yes, which is 55.2 % of nonsmokers. Since media was not a subjective norm that influenced nonsmokers on smoking very much, it is possible that family and peers, who made higher means on the influence about smoking, played a heavier role on nonsmokers' occasional smoking behavior.

Chapter 5-Discussion and Conclusion

The study was aimed to explore the extent to which young adults' previous memories/experiences on smoking were triggered by watching smoking scenes under dosage-control; the relationship of smoking exposure in movies and young adults' immediate intention on smoking behavior; and the relationship of onscreen smoking and young adults' risk perception. The study also looked at the association of young adults' attitude to smoke and risk perception. The researcher made some suggestion to future anti-smoking campaigns targeted at young adults based on the findings from the study. Additionally, the researcher suggested including risk perception to the TRA model.

Discussion

Hypothesis one stated that smoking scenes in movie clips young adults saw will trigger memories/experiences on smoking. The results on t-test of variables "onscreen smoking" and "memory/experience triggering", which formed hypothesis one were significant. Group A got a higher mean on factor Memory than Group B, which means the students who watched five movie clips containing smoking scenes made a more significant reflection on their memory/experience about smoking than the students who watched only one movie clip with a smoking scene out of five. However, when looked at the mean of factor Memory in Group A ($M=2.75$) and Group B ($M=1.91$) separately, the means of factor Memory are actually low. The results are not strongly supporting hypothesis one. Previous study (Ouellete & Wood, 1998) argues that when the supporting features of current environment is similar to those contexts in which the experiences were learned and practiced previously, the response sequence will proceed quickly without limiting processing capacity to the extent. However, the current study did not get

consistent results with previous ones. Maybe it is because of the low dosages of smoking exposure, which is five movie clips with smoking scenes, and may not be strong enough to trigger an individual's memory/experience; although it did make significant difference between Group A and Group B. It is also possible that because these students were nonsmokers, they wouldn't have paid much attention on onscreen smoking, or had much reflection on it.

Hypothesis two stated that watching smoking scenes will influence young adults' intention to smoke. The results on t-test of variables "onscreen smoking" and "smoking intention," which formed hypothesis two were not significant. The findings indicate that there was no significant difference of students' intention to smoke between Group A and Group B. Additionally, for both groups the intention to smoke after watching smoking scenes was low. Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) argues behavioral intentions (BI) are the best single predictor of a person's behavior (B) (Ajzen & Fishbein, 1980). In other words, if there was no significant sign of an individual to intend to conduct some particular behavior, we may say, it is not very likely that this individual will perform this behavior. Although some studies say there is a direct link between viewing smoking scenes and immediate subsequent smoking behavior (Shmueli, Prochaska, & Glantz, 2010), even incidental smoking in a short film trailer might strengthen the attractiveness of smokers in youth who have already tried cigarettes (Hanewinkel, 2009). In this study, the results on analysis of variables "onscreen smoking" and "smoking intention" don't stick with former studies and are not supporting hypothesis two. Maybe it is because these students were nonsmokers that they hadn't had intention on smoking. If the movie clips did not

trigger their memory/experience much, they wouldn't cause the nonsmokers' smoking intention.

Hypothesis three stated that media exposure is positively associated with attitudes toward smoking. The results on Spearman's Rho Correlation of variables "media exposure" and "attitude," which formed hypothesis three, were not significant. When looking at factor Attitude which measured participants' attitude to smoke, the degree of young nonsmokers' anti-smoking attitude was quite positive but these students did not regard movies as a frequently used source for smoking information. The relationship of media exposure and young nonsmokers' attitude toward smoking is weak. These findings are not supporting previous studies (Hanewinkel, 2009; Stern, 2005) either, which argue that even incidental smoking in a film trailer could have an effect on attitudes on young people and the relationship between viewing tobacco use in movies and young people's attitude toward smoking. Additionally, on Fazio and Roskos-Ewoldsen's (2005), Attitude Accessibility Concept, *Accessibility* refers to how easily attitudes come to mind. Accessed attitude from memory can guide an individual's behavior. In the current study, the weak relationship between media exposure and young nonsmokers' attitude toward smoking could be because of the high number of nonsmokers whose attitudes did not change simply because they saw smoking scenes.

Hypothesis four stated that smoking exposure in movie is negatively associated with young adults' risk perception of smoking. The results on Spearman's Rho Correlation of variables "onscreen smoking" and "risk perception," which formed hypothesis four were not significant. Students who watched movie monthly or weekly were treated as the ones who frequently watch movie. Stern (2005) found that most films, both currently and historically, contain at least one instance of cigarettes smoking.

Previous research has shown that each year an estimated 13.9 billion smoking images have been delivered by the top 100 box-office hits (Choi, Forster, Erickson, Lazovich, & Southwell, 2011) and the more frequently young people watch movies, the more likely they see smoking scenes on screen. Studies have also shown that the more smoking scenes youth see, the more likely they are to smoke (Glantz, 2010). This implies that it was likely that their risk perception toward smoking would be low if they watched movies often. However, the results in this study showed that the nonsmokers who watched movie frequently had considerable high risk perception toward smoking. Thus, on the t-test of “onscreen smoking” and factor Risk Perception, the significance level is low and it is not supporting hypothesis four or previous study. In spite of this significant finding, the TRA (Ajzen & Fishbein, 1980) model does not include a risk perception component as an influencing factor in an individual’s decision to engage in risky behavior, in this case, smoking.

Hypothesis five stated that the relationship of young adults’ attitude toward smoking and risk perception is negative. The results on Spearman’s Rho Correlation of variables “attitude” and “risk perception” showed a significant relationship. This implies that those who have a negative attitude toward smoking also have a high risk perception. In other words, the findings are supporting hypothesis five. This hypothesis did not focus on the influence of media but the relationship of attitude and risk perception toward smoking behavior. The role of attitude in individual behavior is addressed in the TRA (Ajzen & Fishbein, 1980). However, as indicated above, the theory excludes risk perception as a factor that may influence an individual’s behavior. As Helweg-Larsen and Nielsen (2009) argue, smokers tend to deny or minimize personal risk even though they understand their smoking risk. One possible reason that the current study is not consistent

with that former one is that the results were from nonsmokers not smokers. These nonsmokers may contain higher risk perception to smoke than smokers do.

The research question is: Do subjective norms associate to young adults' attitude toward smoking? On the research question, there were a few interesting outcomes on subjective norms. Most students chose family as the main element that most influenced what they thought about smoking. Peers took second place. Instead, media were not outlets students thought they got their knowledge about smoking. Studies show that social norms represent a perception that other people (parents, friends, etc.) are encouraging an individual to perform the behavior (Schofield, Pattison, Hill, & Borland, 2003). Regarding the findings on hypotheses that media moderately influenced these nonsmokers attitude, intention, and risk perception on smoking, which is possible that their family and peers played a more important role in influencing their thoughts and attitudes toward smoking behavior.

Recommendation

The current study found that the relationship of young adults' (in this case, nonsmokers') memory/experience on smoking and onscreen smoking is not strong and their intention to smoking behavior wasn't enhanced by smoking scenes. Additionally, media exposure is not significantly associated with nonsmokers' attitude and risk perception toward smoking. These findings did not support previous studies that found significant relationships (e.g., Glantz, 2010; Hanewinkel, 2009; Shmueli, Prochaska, & Glantz, 2010). The researcher assumes that this may be due to the tobacco countermarketing campaigns (Farrelly, Niederdeppe, & Yarsevich, 2003), smoke-free air policies in many institutions particularly college campuses (American Nonsmokers' Rights Foundation, 2011), movie regulations (Healton et al., 2005; MPAA, 2007),

tobacco regulations (Schwartz & Hrdy, 2004), and anti-smoking advocacies (CDC, 2010b; Glantz et al., 2011) that were conducted and targeted at young people have influenced them on their attitudes toward smoking that their interest to smoking behavior reduced and their risk perception toward smoking increased. It is also possible that the majority of participants in this study were nonsmokers who did not have much intention to smoke whether they watched smoking scenes in movies or not. Another explanation is that a small dosage of smoking exposure in movies (Group A got five and Group B got one) may not be enough to trigger nonsmokers' memory or enhance their intention to smoke.

On the other hand, rather than related to media, attitude and risk perceptiveness themselves are significantly associated in this study. The less favored the students' attitude toward smoking, the higher their risk perception toward it. By connecting the other findings that the nonsmoking students did not have much intention to smoke, the researcher assumes that when evaluating an individual's intention toward some particular behavior, in this case, smoking, it is important to include risk perception as a factor.

Thus, the researcher recommends that when designing anti-smoking campaigns targeting young adults, especially nonsmokers, the designers may consider positively using media outlets as bridges to deliver messages about the importance of not starting smoking or even try smoking. Specifically, health campaigns can design messages and images such as "a smoke-free party is harmless and fun" "treat your lung well" and "you can make your campus more beautiful" and promote them by campus posters, TV commercials, as well as social networking homepages. Moreover, to make the campaigns more effective or have long-term impacts, risk perception should be included into anti-smoking health campaign. From the finding of this and previous studies, attitude and risk

perception were found to be related. Since attitude has been a crucial element that previous health campaigns addressed heavily, risk perception should be addressed in health campaigns as well. Particularly, the researcher assume that the risk perception should be added to the Theory of Reasoned Action (TRA) since it is another influential factor in individuals' decision on whether to perform a behavior or not besides attitude, subjective norms, and intention. In addition, the researcher found that family and peers were regarded by young adults as factors that had influenced them on smoking other than media. It may help enhance the efficiency of health campaigns if family and peers were included in campaign design. For example, when delivering anti-smoking information to young adults, it may be a good idea to deliver the information to young adults' families and their social groups. Last but not least, further research may look at the relationship of risk perception and attitude toward smoking behavior and how risk perception influences young adults' decide whether to smoke to not.

Limitations

The study had inevitable limitations as well. The sample sizes for both Group A and Group B were not large enough to make further conclusions. The percentages of smokers in both groups were too small to draw any statistical analysis. The main reason is that the researcher couldn't ask only smoking students to participate in the experiment. That would have been very likely made them aware of the purpose of the experiment and they may have performed in favor of the researcher's expectation. The researcher had to conduct the experiment on all students who showed up, and it was basically luck how many smokers there would be. Another reason the researcher couldn't get enough participants is that the researcher had very little budget for the experiment. The researcher provided drinks and snacks at the experiment at her own expense. The students who

participated in the experiment would get extra credit from their professors. Other than that, there was nothing else the researcher was able to offer. Referring to the current study, 12 out of 70 (17.1 %) students were smokers. Assuming that the researcher planned to get 50 smokers for each group, she had to at least get 584 students from Kansas State University, which exceeded the researcher's budget.

Conclusion

In spite of the limitations, several conclusions can be made from this study. The study found that although the nonsmokers' memory/experience on smoking were triggered somehow by onscreen smoking, the effect was not significant. Smoking exposure in movies did not heavily trigger these nonsmokers' memory/experience on smoking. Nor did the smoking scenes enhance the nonsmokers' intention toward smoking. Media exposure to smoking is not significantly associated with nonsmoking students' attitude or risk perception to smoking behavior. However, these students got considerable high risk perception on smoking and their anti-smoking attitude was significant. Their attitude and risk perception to smoking behavior were negatively associated in an optimistic way. The researcher recommends that anti-smoking campaigns targeting young adults should think about how to positively use media outlets as bridges to deliver messages the important of not starting smoking or even to try smoking. What's more, the researcher suggests that risk perception should be included into a good health campaign because attitude and risk perception are actually related to each other. Particularly, the researcher assume that the risk perception should be added to the model of Theory of Reasoned Action (TRA) since it is another influential factor in individuals' decision on whether perform a behavior or not besides attitude, subjective norms, and intention.

Additionally, the researcher assumed that it may help enhance the efficiency of health campaigns if family and peers were included in health campaigns target young adults.

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Appendix

Movie and Smoking Survey

The purpose of the study is to examine movie and smoking behavior. This is an academic research conducted by a graduate student in the A.Q. Miller School of Journalism and Mass Communications at Kansas State University. Your anonymous responses will be confidentially kept and will be used in this study only. No physical or mental injury will occur on any respondent during or after. However, you can withdraw from the study at any time if you experience any discomfort while completing the survey. Your honest responses are extremely important for this study. So **please complete the questionnaire as honestly as possible.**

Part 1: Start Questions

1. Do you smoke?

- a. Yes. → Skip to Q. 3
- b. No.

2. If you chose “No.” for question 1, please answer this question. If your answer is “Yes.”, please move to Part 2 directly.

Have you ever tried to smoke, even just one or two drags?

- a. Yes.
- b. No.

Part 2: If you answered “Yes.” in Question 1, please complete this part. If your answer is “No.”, please move to Part 3 directly.

3. About how many cigarettes you usually smoke per day?

- a. Less than one.

- b. 1-4
- c. 4-8
- d. 9 and above.

4. Please answer these questions to indicate if you ever thought of, or attempted to quit smoking. 1) Yes 2) No 3) NA

- 1) I never thought about it. 1) 2) 3)
- 2) I've thought about that but never put it into practice. 1) 2) 3)
- 3) I've tried but gave up afterward and never tried again. 1) 2) 3)
- 4) I've tried more than once but still can't make it. 1) 2) 3)

5. This section is about your capacity to manage/control your smoking habit. Please use this 5-point scale to indicate how the statements apply to you.

- 1 Strongly disagree 2 Disagree 3 Neutral 4 Agree 5 Strongly agree
- a. I will smoke whenever I want to. 1 2 3 4 5
 - b. Sometimes I won't smoke even I want to. 1 2 3 4 5
 - c. I have a daily-quota-of cigarette myself. 1 2 3 4 5
 - d. I can smoke less than I usually do daily if I want to. 1 2 3 4 5

Part 3: All participants, please complete this part whether you smoke or not.

6. Please use this 5-point scale to indicate how your personal thoughts about smoking.

- 1 Strongly disagree 2 Disagree 3 Neutral 4 Agree 5 Strongly agree
- a. I think smoking is not a big deal. 1 2 3 4 5

- b. I think smoking will make me sick. 1 2 3 4 5
- c. I think smoking will make me die. 1 2 3 4 5
- d. I think smoking has become a public health issue. 1 2 3 4 5

7. Please use this 5-point scale to indicate how you feel about smoking.

1 Strongly disagree 2 Disagree 3 Neutral 4 Agree 5 Strongly agree

- a. I will feel uncomfortable when I see/smell smoke. 1 2 3 4 5
- b. I don't have any specific feeling about it. 1 2 3 4 5
- c. I will feel good when I see/smell smoke. 1 2 3 4 5
- d. I will think about the health effect of smoking when I do. 1 2 3 4 5
- e. I don't mind trying to smoke sometime. Just for fun. 1 2 3 4 5
- f. I think smoking is cool. 1 2 3 4 5

8. Please use this 5-point scale to indicate if any of the listed factors influence how you feel about smoking.

1 Not at all 2 Slightly influenced 3 Neutral 4 Moderately influenced 5 Strongly influenced

- a. Family members 1 2 3 4 5
- b. My Peers 1 2 3 4 5
- c. My Community 1 2 3 4 5
- d. Pressures from life (e.g., work, economy, etc.) 1 2 3 4 5
- e. My Religious beliefs 1 2 3 4 5
- f. Cultural norms
(e.g., people's attitude towards smoking in my culture) 1 2 3 4 5

g. Media 1 2 3 4 5

h. Other _____ 1 2 3 4 5

9. How often do you watch movies?

- a. Once a year
- b. A few times a year
- c. Monthly
- d. Weekly

10. Where do you usually get movie content from? (multiple choice)

- a. Movie Theater
- b. Television
- c. DVDs
- d. Online (free, usually contains commercial)
- e. Online (paid, usually is commercial clean)
- f. Other _____

11. Where do you usually get information about tobacco/smoke? (multiple choices)

- a. Movies
- b. Television Shows
- c. TV Commercials
- d. Magazines
- e. Online
- f. Other _____

Part 4: This part is about the influence of movie on smoking behavior. All participants are required to do this part.

12. How many smoking scenes did you see in the movie clips you just watched?

- a. None.
- b. One – two.
- c. Three – Four.
- d. More than fore.
- e. Don't know

13. This section is about movies and prior memories of smoking. Please use this 5-point scale to indicate how the statements apply to you.

1 Strongly disagree 2 Disagree 3 Neutral 4 Agree 5 Strongly agree

- a. The movie clips reminded me movies with smoking scenes I've seen previously. 1 2 3 4 5
- b. The movie clips reminded me how I felt about smoking in the past. 1 2 3 4 5
- c. The movie clips reminded me how I learned about smoking. 1 2 3 4 5
- d. The movie clips reminded me how I got intended about smoking. 1 2 3 4 5
- e. The movie clips reminded me how I actually started smoking. 1 2 3 4 5
- f. The movie clips reminded me why I started smoking. 1 2 3 4 5

14. The following statements are about what you intend soon after the study:

Please use this 5-point scale to indicate how the statements apply to you.

1 Strongly disagree 2 Disagree 3 Neutral 4 Agree 5 Strongly agree

- a. I intend to have a cigarette right after watching the movie clips. 1 2 3 4 5

- b. I plan to smoke right after watching the movie clips. 1 2 3 4 5
- c. I expect to buy cigarettes after watching the movie clips. 1 2 3 4 5
- d. If somebody offers me a cigarette now, I'd like to accept it. 1 2 3 4 5
- e. I'd like to smoke a puff or tow if I had one now. 1 2 3 4 5

Part 5: Open questions. All participants are required to do this part.

15. Do you remember any movies you watched contain smoking scenes? If so, please write their names down and indicate which movie(s) you think influenced you in smoking. Also, please use this 5-point scale to indicate how much the movies(s) influenced you in smoking. 1 2 3 4 5

16. Do you remember any anti-smoking campaign/advocacy on movies which target on young adults? Any comments on it/them? What do you think is important when designing and conducting a health communication campaign on smoking behavior?

Part 6: Demographic Questions

17. Please indicate your education level.

- a. Freshman
- b. Sophomore
- c. Junior

- d. Senior
- e. Post-graduate

18. Please indicate your age: _____

19. Please indicate your sex.

- a. Male
- b. Female

20. How many movies you have watched out of the clips you saw today?

21. What is your ethnicity?

- a. White
- b. Black/African American
- c. Asian (permanent U.S. resident or U.S. citizen)
- d. Hispanic
- e. International Student (non permanent U.S. resident or U.S. citizen)
- f. Other: _____