The Moderating Effect of Social Desirability and Self-Efficacy on the Relationship between Message Framing and the Communication Effects for the Smokers

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Abstract

This study examined the communication effects of smoking cessation using the two variables of message framing and personality traits for smokers. Message framing is classified into positive messages and negative messages. Personality traits involve self-efficacy and social desirability. Use 122 valid smokers to participate a between-subject experiment and a hierarchical regression analyses. The results showed that, for smokers, positive messages had a more significant effect than negative ones. Message framing have partial interaction with personality traits on the communication effects. And positive messages with low self-efficacy or low social desirability have a better effect. This study recommends that for specific preventive issues of social marketing or the audience with low self-efficacy/social desirability, positive messages are the better option.

INTRODUCTION

Cigarette smoking is the major preventive cause of death worldwide (Oster, Colditz, & Kelly, 1984), and various efforts of social marketing have been addressed this problem. Although fear (negative) appeals use commonly for anti/stop smoking campaigns (Rossiter and Thornton, 2004; Rutsohn and Sikula, 2007; Dickinson and Holmes, 2008; Brennan and Binney, 2010), they still remain controversial, ethic concerns and real effectiveness especially (Elliott, 2005; Hastings, Stead, & Webb, 2004). Now, hope (positive) advertising appeals should be respected for such condition because of the following reasons. Research has found that, people higher in hope tend to likely to attain their goals by achieving sub-goals which are driven from lofty goals (Snyder, 1994; Snyder et al., 1991). In addition, research has shown that high hope individuals are better able to cope with obstacles because they prone to have multiple routes, allowing they to better handle or avoid the stress and negative emotions often associated with setbacks (Snyder, 2002).

Laskey, Fox and Crask (1995) put forward the view that commercial effectiveness has a relationship with message strategy. Marjolein and Bas (2008) found a substantial amount of literature which explored the different effects of positive messages and negative messages on individual health topic decision making, such as the detection of breast cancer at an early stage (Banks et al., 1995; Meyerowitz and Chaiken, 1987; Rothman, Salovey, Turvey, and Fishkin, 1993), and smoking cessation (Wilson, Wallston and King, 1990; Wong and McMurray, 2002). Chang (2007) found that messages framed positively were more effective for people when in a negative mood than when people were in a positive mood, and messages framed negatively became more persuasive. Other studies show that personality traits have an impact on communication effects. (Mohan and Bastian, 2000; Cheng and Wu, 2010). In this research, we selected self-efficacy and social desirability to quit smoking as the criterion which has been supported as an important predicator of smoking cessation behavior (Badr & Moody, 2005; De Vries & Backbier, 1994) to propose the relationship between appeal designs (i.e., fear and hope appeals) and the self-efficacy and social desirability to the communication effects of cessation smoking.

THEORETICAL BACKGROUND

This study checked out the attitudes toward adverting and acceptance of ideas to ascertain the communication effects under different message framing and using different personality traits.

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Communication effect

Shimp (1981) believed attitude was a very important factor in advertising communication. Lutz (1985) considered attitudes toward advertising as a tendency to either like or dislike the stimulation of the given advert in a specific condition. Therefore, attitudes toward advertising come from learning and will form cognition. This will then influence the feeling of a subject, and even the actions.

Fishbein and Ajzen (1975) used the communication and persuasion model, proposed by Hovland and Janis (1959), to explain the importance of message communication. This means that if people want to change the audiences' attitude, the precondition is for the message to be noticed, understood, and accepted. Therefore, acceptance of smoking cessation ideas can represent the willingness of the communication effect.

Message framing

Message framing means the message is delivered in either a positive way or a negative way. A positively framed message emphasizes the benefits if the audience follows the message. Meanwhile, a negatively framed message emphasizes the losses if the audience doesn't take a certain action (Meyerowitz and Chaiken, 1987; Maheswaran and Meyers Levy, 1990). Shimp (1981) came up with the idea that different products should use different advertising strategies, depending on the different basic information that the products deliver to their consumers.

Rothman and Salovey (1997) proposed that positive messages are better for helping people keep healthy while negative messages are used to persuade people to be aware of potential risks or illness and convince people not to do something. People who know a little about the subject accept the positively framed message easily because they don't want to affect their mood. Scholars always use prospect theory to explain fear, appeals are used to show the consequences that an audience would want to avoid, and allow the audience to feel threatened, fear and pressure, and then start to take positive action to avoid the unwanted consequences (Tversky and Kahneman,1981; LaTour and Rotfeld, 1997).

Negative messages have a better effect when they are used for a preventative health issue. Therefore, activities, such as anti-smoking behavior, female breast self-examination, fasten your seat belts while driving, and skin cancer prevention inspection, will be more effective if they use negative messages (Ruiter at al., 2003). But smokers, who carry a high risk of becoming ill, do better be persuaded to quit in negative ways? According to the broken windows theory (Wilson and Kelling, 1982), smokers may think that they had been suffered in illness and let it going to avoid bad mood. Based on the above discussion, the following hypotheses were proposed:

H1a, b: For smokers, a positively framed message results in better communication (the attitude/ the acceptance of ideas) effects than a negatively framed message to stop smoking.

Personality traits

Lin (2005) defined personality traits as people's psychological characteristics. Based on these psychological characteristics, people will have a continuous and steady response to the environment. Therefore, personality traits include psychological and environmental factors.

Self-efficacy, or a belief in one's personal capabilities, is the level of confidence to succeed in something and determines whether someone can conquer difficulties (Bandura, 1997; Holloway and Watson, 2002). Bandura (1997) proposed that people with high self-efficacy are more likely to have a strong motivation and meet challenges firmly. Rosenstock, one of the founders of the health belief model, proposed adding self-efficacy to the model (Rosenstock, Strecher and Marshell, 1988).

The results of many studies show the Theory of Planned Behavior, that includes self-efficacy, has more predictive power than Behavior on Attitude of behavior intention and The Theory of Reasoned Action of Subjective Norm (Ajzen, 1991; Godin and Kok, 1996). Moreover, Witte (1992) also proposes the extended parallel process model (EPPM) which points out that if an individual perceived threat significantly and thinks that he has the ability to avert the threat, "danger control", he will likely to acceptance of the recommended action. In contrast, high levels of threat and low perceived efficacy yields "fear control", which consists of efforts to reduce the unpleasant experience of fear by avoiding, ignoring, or denying the

means of the message. Thus, when an individual thinks he lacks the skills to prevent the threat, he may be motivated to respond defensively to a threatening message.

H2a, b: For smokers, the attitude or the acceptance of ideas is influenced by the interactive effect of message framing and self-efficacy.

Social desirability is the level of behavior that the public expect. Sackeim and Gur (1978), as well as Paulhus (1984), all believed that socially desirable responses can be determined as two sides. These are described as self-deception and impression management. Self-deception means that people have an insufficient understanding of themselves and have excessively positive evaluated results (such as a person who stops smoking has confidence initially because he knows little about the symptoms of stopping smoking). These two conditions lead to self-interested responses in order to create a favorable impression, and sometimes include response bias. Paulhus (1991) found that the research subjects had an enhancement tendency when they answered the positive questions and had a denial tendency when they answered the negative questions. Impression management means that people will emphasize their positive characteristics and behavior (like the ability for self-regulation, having the willpower to give up smoking), and hide their negative characteristics deliberately (inability to stop smoking). In order to build a good personal appearance, people will present an unreal appearance, which is called intentional distortion or faking.

H3a, b: For smokers, the attitude or the acceptance of ideas is influenced by the interactive effect of message framing and social desirability.

METHODOLOGY

Research framework
According to these three hypotheses, the study was designed to examine the effects of smoking cessation communications with two variables of message framing (independent variable) and personality traits (moderating variable). The communication effect includes the attitudes toward advertising and the acceptance of ideas. The study framework is illustrated in figure 1.
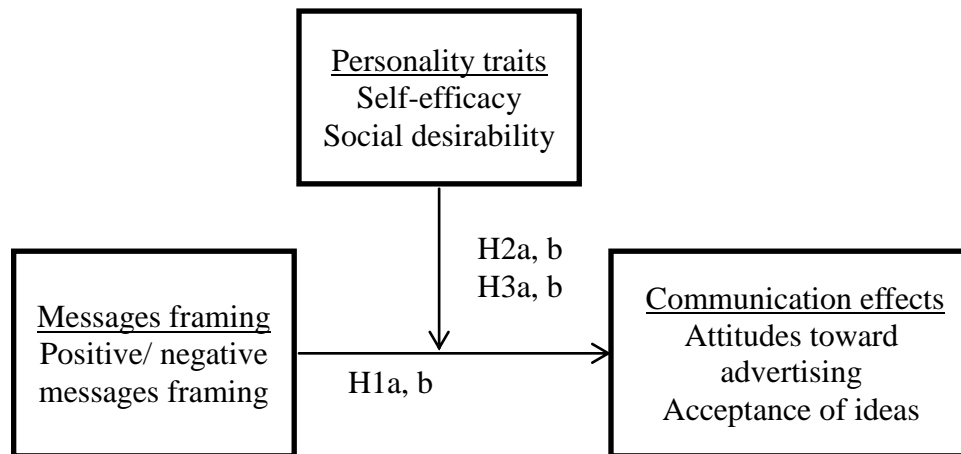

Figure 1 Research framework

Experimental designs and samples
The experiment is a two message frame (manipulated variables) between subject designs. The personality traits and communication effect were measured by the questionnaire. The research subjects were given either a positive or a negative advert at random. The contents of advert was modified by Yang's(2013) research (shown as figure 2). The subjects needed to finish the personality trait questions, and to then

read the advert and answer the questions about the communication effect. This study adopted purposive sample, the number of participants was 200 smokers, and while the valid answers were 122 (60 positive messages and 62 negative messages subjects).

Smoking *enables/ cessation can improve* related cancers (such as lung cancer, nasopharynx cancer, oral cancer and gastric cancer). After quitting, since the cigarette smell is improved, boyfriends or girlfriends are keener on each other.
Smoking *enables/ cessation can improve* infertility, abortion, flaccid paralysis and premature ejaculation. After quitting, since the cigarette smell is eliminated, it will shorten the distance between friends.
Smoking *enables/ cessation can improve* related periodontal diseases (such as periodontitis, gingival atrophy, dental calculus and tooth abscission).
After quitting, it's easier to give others a more positive image.

Figure 2. The manipulation contents of *negative/positive* advert for smoking cessation

Reliability and Validity
The attitudes toward advertising, the acceptance of ideas, self-efficacy and Social desirability were measured by 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The Cronbach's alpha of the attitudes toward advertising was 0.69 and responded to the three questions. "How much do you favor/ impress/ like the advertising?" (Yang and Ma, 2011; Yang, 2013). The Cronbach's alpha of the acceptance of ideas was 0.68 and measured by three questions. 1. How much do you intend to adopt smoking cessation? 2. Would you try to quitting smoking? 3. Would you want to share quitting smoking messages with friends? (MacKenzie and Lutz, 1989). The Cronbach's alpha coefficient for self-efficacy was 0.84, using 10 items measurement scale by Zhang and Schwarzer(1995) and for social desirability Cronbach's alpha was 0.87, using 16 items were modified by question items of Paulhus(1986).
All the constructs of the Cronbach's alpha were higher than 0.68, indicating that the questionnaires had good reliability. This study's validity analysis focused on the manipulation check of the advertisement. The adverts were separated into two different kinds (positive/negative message perception), and the questionnaires had two questions. The positive messages and negative messages had significant differences. It means that the advert framing manipulations were successful. The results are shown in Table 1.

Table 1. The manipulation check of message frames

Advert content	Message perception	n	M	SD	t	P
Positive messages	Positive	60	*5.5750*	0.56617	13.411	0.000
	Negative	60	3.3833	1.03074		
Negative messages	Positive	62	2.9435	0.71920	-17.930	0.000
	Negative	62	*5.4758*	0.68609		

DATA ANALYSIS AND RESULTS

The communication effect of the message framing
Through independent sample t-testing, the results show that the message framing had a significant effect on the attitudes toward advertising (m=6.089/5.800; sd=0.704/0.436, t= 3.556, p < 0.001) and the

acceptance of ideas (m=5.484/5.423; sd=1.120/0.628, t= 3.834, p < 0.000) by the participants. Additionally, the positive messages were better than the negative ones. H1a, b was supported.
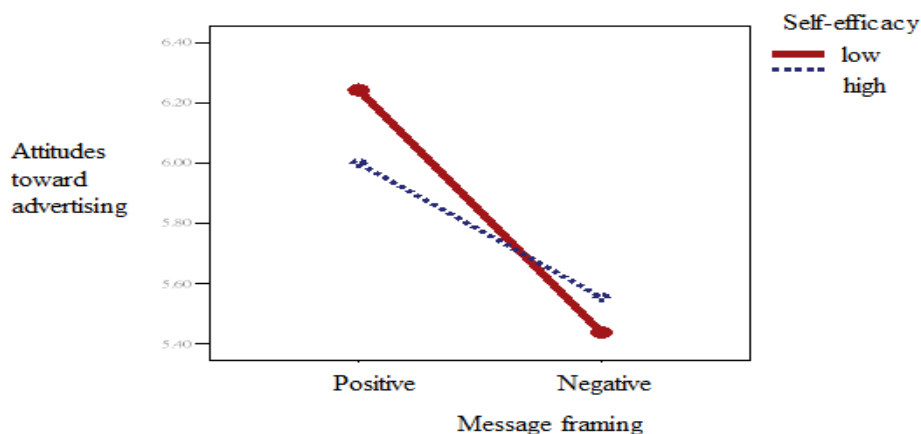
The communication effect of the message framing with self-efficacy
Through a hierarchical regression analysis, the message framing interacting with self-efficacy affected the attitudes toward advertising. In Table 2, the results show that self-efficacy has no direct effect on the attitudes toward advertising. However, Model 2 shows that message framing has an interaction with self-efficacy effect on the attitudes toward advertising (β＝0.595; p=0.047) and R^2 of Model 2 is higher than for Model 1. Therefore, the attitude is influenced by the interactive effect of message framing and self-efficacy.

Table 2. Hierarchical regression analysis of the message framing with self-efficacy to attitudes toward advertising

Attitudes toward advertising	Model 1			Model 2		
Variable	β	t	p	β	t	p
Message framing	-0.313***	-3.588	0.000	-0.881*	-2.984	0.030
Self-efficacy	-0.061	-0.701	0.485	-0.157	-1.592	0.114
Message framing×self-efficacy				0.595*	2.012	0.047
F	6.542			5.822**		
R^2	0.099			0.129		
Adjusted R^2	0.084			0.107		
$\triangle R^2$	0.099**			0.030*		

Through ANOVA analysis, low self-efficacy people a positively framed message (m=6.242, sd=0.555) is significantly better than for low self-efficacy people with a negatively framed message (m=5.439, sd=1.223). Therefore, H2a was supported (shown as figure 3). Through a hierarchical regression analysis, the results show that message framing has no interaction with a self-efficacy effect on the acceptance of ideas (β＝0.289; p=0.331). Therefore, H2b was not supported.
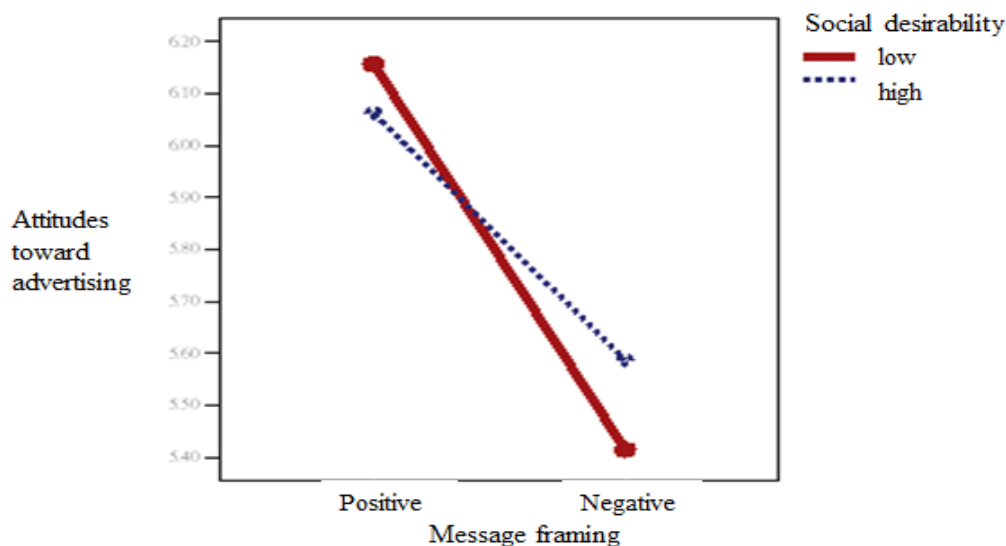

Figure 3. The attitudes toward advertising of the message framing with high/low self-efficacy
The communication effect of the message framing with social desirability

Through a hierarchical regression analysis, the message framing interacting with social desirability affects the attitudes toward advertising. In table 3, the results show that self-efficacy has no direct effect on the attitudes toward advertising. However, Model 2 shows that message framing has an interaction with a social desirability effect on the attitudes toward advertising (β=1.681; p=0.043) and R^2 of Model 2 is higher than that of Model 1.

Table 3. Hierarchical regression analysis of effect of the message framing with social desirability to attitudes toward advertising

Attitudes toward advertising	Model 1			Model 2		
Variable	β	t	p	β	T	p
Message framing	-0.310**	-3.301	0.001	-2.076*	-2.388	0.019
Social desirability	-0.004	-0.046	0.963	-0.326	-1.784	0.077
Message framing×Social desirability				1.681*	2.042	0.043
F	6.272**			5.683**		
R^2	0.095			0.126		
Adjusted R^2	0.080			0.104		
$\triangle R^2$	0.095**			0.31*		

Therefore, the attitude is influenced by the interactive effect of message framing and social desirability. Through ANOVA analysis, a positively framed message (m=6.157, sd=0.591) is significantly better than for low social desirability people with a negatively framed message (m=5.414, sd=1.251). Therefore, H3a was supported (shown as figure 4). Through a hierarchical regression analysis, The results show that message framing has no interaction with the social desirability effect on the acceptance of ideas (β=0.416; p=0.612). Therefore, H3b was not supported.

Figure 4. The attitudes toward advertising of the message framing with high/low social desirability

DISCUSSIONS AND CONCLUSIONS
The experiments showed that positive messages have a better effect on attitudes toward advertising and acceptance of ideas for smokers. For smokers, no matter his/her personality (self-efficacy or social

desirability), a negative framed message has lower commutations effect than positive frame one. The results are likely the Broken Windows Theory (Wilson and Kelling, 1982), which describes the phenomenon that if a window is broken and is not repaired, it may hint at or connive with actions and lead to disorder and serious events. The smoking cessation advertisements and the warnings with negative ideas or fear appeal have the same principle. A smoker, who may negatively believe that his or her health has already been destroyed, may have no intention to quit smoking.

Positive message appeals with low self-efficacy have a better effect on attitudes toward advertising. According to the health belief model (Rosenstock, Strecher and Marshell, 1988), there exist, perhaps, perceived barriers against taking action. Taking a person who is going to quit smoking as an example, he may believe that stopping smoking is painful and uncomfortable; all these negative factors are barriers against taking action. The health belief model believes the more barriers there are, the less possibility to take action.

The Hope theory (Snyder, 2002), states that hope is the perceived capability to derive pathways to desired goals, and agency thinking to use those pathways. Therefore, smokers who have little confidence to quit smoking and who have low self-efficacy will gain hope, will reduce the barriers against taking action and increase their willpower when they are exposed to positive ideas, which means there is an apparent effect from positive ideas on the people with low self-efficacy. The results are the proof of extended parallel process model (EPPM).

Positive message appeals with low social desirability have a better effect on attitudes toward advertising. The smokers of high social desirability will hide their bad feeling to manage their impression or show their self-regulation. When they receive negative messages, they emphasize the recognition from others from the impression management side, and believe that if they accept smoking cessation ideas, they would have less risk of falling ill from the self-deceptive enhancement side. And positive illusions let them have more confidence to against the fear messages. Their reactions are smoothly with the message framing. But the smokers of low social desirability will react real feeling with the messages and stuck in the fear messages and bad status. They obviously like the positive message framing than the negative one.

Message framing with self-efficacy or social desirability, has no significant difference on the acceptance of ideas which means that other influential variables may exist that lead to the stop smoking action.

A positive appeal could reduce the audiences' anxiety and the problems caused by social marketing ethics for smokers. Especially, who have low self-efficacy or low social desirability have little confidence and less positive illusions to quit smoking and will reduce the barriers against taking action and increase their willpower when they are exposed to positive messages.

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