

UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

REACTANCE THEORY AND SELF-CONSTRUAL IN THE EAST AND WEST

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

Degree of

DOCTOR OF PHILOSOPHY

By

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Norman, Oklahoma
2017

REACTANCE THEORY AND SELF-CONSTRUAL IN THE EAST AND WEST

A DISSERTATION APPROVED FOR THE
DEPARTMENT OF COMMUNICATION

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DEDICATION

THIS PROJECT IS DEDICATED TO THOSE CLOSEST TO MY HEART:

To my lovely mother, Kwe-Lan and father Chun-Fu

And my lovely husband, Fong-Fu, and my children, Nuo-Ying and Ting-Yun.

Acknowledgements

This dissertation took six years to complete, and involved collecting data from two countries located in different time zones. This project is not just a project to me; it means more than that—its completion occurred along with the beginning of an entirely different life for its author. During those six years I got married, had two children, and one of my committee members moved to California. Many other life events happened, and I truly appreciate my committee members, Professor Amy Johnson, Professor Norman Wong, and Professor Shane Connelly, who supported me in every aspect as it was needed. Specifically, I thank Professor Norah Dunbar, who left the University of Oklahoma, but was willing to stay on my committee from her new home at UC Santa Barbara.

A special thank goes to my Major Professor, Dr. Claude Miller, who supervised me from across the Pacific Ocean, and advised me while working on my dissertation through videoconference. Supervising a graduate student with her dissertation via Skype, and discussing complex questions through computer-mediated communication, I believe, is not an easy mission; however, Claude was willing to take it on, and help me finish it. The criticisms he provided me as I worked on this project made it more solid, the questions he raised made the outcome more comprehensive, and the suggestions he proposed made this project more valuable. Without Claude's full support, I am sure I would not have been able to successfully complete this work and earn my Ph.D. degree.

I am also especially indebted to my husband, Fong-Fu, for taking care of our two little lovely children while I was working on this dissertation. Also I thank my gorgeous son, Nuo-Ying, and pretty daughter, Ting-Yun. Their cute smiling faces made many of

my frustrations while writing go away, and gave energy back to me so I could keep fighting to complete my project.

Finally, I want to thank my mom, Kwe-Lan. No one in the world is happier for me to have earned a Ph.D. degree than she. Her emotional support for me while I have been pursuing this dream made an impossible mission become possible. Since 2003, when I first entered graduate school in the United States, until now, my mom has always been at my back, encouraging me not to give up, and to keep working towards my degree. Without her strong support there is no way this dream—to become a Doctor—would have come true.

Table of Contents

| | |
|--|----|
| ACKNOWLEDGEMENTS | IV |
| LIST OF TABLES | VI |
| ABSTRACT | X |
| CHAPTER I | |
| PUBLIC SERVICE ANNOUNCEMENTS AND REACTANCE..... | 1 |
| Research on PSAs | 2 |
| Studies on Safe Sex PSAs..... | 3 |
| Research on Anti-Drug PSAs | 4 |
| OVERVIEW OF REACTANCE THEORY..... | 7 |
| Effects of Language Characteristics on Reactance | 12 |
| Fatalistic Language | 16 |
| Self-Esteem | 19 |
| Trait Reactance | 19 |
| Source Characteristics..... | 20 |
| CHAPTER II | |
| CULTURALISM AND SELF-CONSTRUAL | 22 |
| Individual-Level Self-Construal | 25 |
| Self-Construal and Communication in Culture..... | 28 |
| Reactance and Culture | 32 |
| CHAPTER III | |
| CURRENT RESEARCH AND HYPOTHESES | 36 |
| Medium | 36 |
| Scenarios: Safe Sex & Drug Use | 37 |
| Cultural Backgrounds | 38 |
| HYPOTHESES | 38 |
| CHAPTER IV | |
| METHOD | 47 |
| STUDY 1 PILOT | 47 |
| STUDY 2, SAFE SEX PSAs..... | 48 |

| | |
|--|-----|
| Procedure | 48 |
| Participants..... | 49 |
| Survey Administration | 49 |
| Measures | 51 |
| STUDY 2 RESULTS | 56 |
| HYPOTHESIS TESTING, STUDY 2..... | 57 |
| Appeal Type..... | 57 |
| Restoration Type..... | 59 |
| Self-construal vs. Culturalism..... | 64 |
| Self-Construal vs. Reactance | 74 |
| Self-Construal, Appeal Type, and Restoration Type, Study 2..... | 79 |
| DISCUSSION, STUDY 2 | 82 |
| STUDY 3, ANTI-DRUG USE PSA | 85 |
| Participants, Study 3 | 86 |
| STUDY 3 RESULTS | 86 |
| HYPOTHESIS TESTING, STUDY 3..... | 86 |
| Appeal type, Study 3..... | 86 |
| Restoration type, Study 3 | 89 |
| Self-construal vs. Culturalism, Study 3 | 95 |
| Self-Construal and Reactance, Study 3..... | 103 |
| Self-construal, Appeal Type, and Restoration Type, Study 3..... | 108 |
| DISCUSSION, STUDY 3 | 111 |
| SUPPLEMENTARY ANALYSIS | 113 |
| Self-Construal vs. Culturalism between Countries | 113 |
| Effects of Self-Construal vs. Nationality on Reactance Arousal | 116 |
| Study 2, Safe Sex PSA..... | 117 |
| Supplemental Discussion, Study 2..... | 122 |
| Study 3, Anti-drug PSA | 122 |
| Supplemental Discussion, Study 3..... | 127 |

CHAPTER V

| | |
|--|-----|
| GENERAL DISCUSSION | 128 |
| Effects of Appeal Type on Psychological Reactance | 129 |
| Effects of Attempts at Restoration of Threatened Freedom | 136 |
| Effects of Self-Construal on Psychological Reactance..... | 140 |
| FUTURE RESEARCH AND LIMITATIONS | 147 |
| CONCLUSION..... | 151 |
| REFERENCES..... | 152 |
| APPENDICES..... | 167 |
| Appendix A | 167 |
| Scenarios | 167 |
| Appendix B..... | 176 |
| Instruments..... | 176 |

List of Tables

| | |
|---|-----|
| Table 1: Means, Standard Deviations, and F values for Appeal Type in Safe Sex data | 58 |
| Table 2: Means, Standard Deviations, and F values for Restoration Type, Study 2 | 61 |
| Table 3: Means, SDs, and t values for Standard vs. Fatalistic Restoration, Study 2 | 64 |
| Table 4: Correlations Among Self-Construal, Culturalism and Criterion Variables, Study 2..... | 66 |
| Table 5: Coefficients, t, and p value for Self-Construal vs. Culturalism, Study 2..... | 70 |
| Table 6: Correlations Among Self-Construal and Criterion Variables, Study 2..... | 75 |
| Table 7: Coefficients, t, and p value for Self-Construal, Study 2 | 79 |
| Table 8: Means, Standard Deviations, and F values for Appeal Type, Study 3 | 87 |
| Table 9: Means, Standard Deviations, and F values for Restoration Type, Study 3 | 90 |
| Table 10: Means, SDs, and t values for Standard vs. Fatalistic Restoration, Study 3 .. | 94 |
| Table 11: Correlations Among Self-Construal, Culturalism and Criterion Variables, Study 3..... | 96 |
| Table 12: Coefficients, t, and p value for Self-Construal vs. Culturalism, Study 3.... | 100 |
| Table 13: Correlations Among Predictors and Criterion Variables in Anti-Drug data | 104 |
| Table 14: Coefficients, t, and p value for Self-Construal in Anti-Drug data..... | 105 |
| Table 15: Means, Standard Deviations, t values for Self-construal between TW and USA | 114 |
| Table 16: Means, Standard Deviations, t values for Culturalism Dimension..... | 116 |
| Table 17: Correlations Among Self-Construal, Nationality and Criterion Variables in Safe Sex data | 118 |
| Table 18: Coefficients, t, and p value for Self-Construal vs. Nationality in Safe sex data | 120 |
| Table 19: Correlations Among Self-Construal, Nationality and Criterion Variables, Study 3..... | 124 |
| Table 20: Coefficients, t, and p value for Self-Construal vs. Nationality in Anti-Drug data | 125 |

Abstract

Using psychological reactance theory (Brehm, 1966) as an explanatory framework, this dissertation experimentally tests the effects of appeal type, restoration type, and self-construal on freedom threat perceptions, reactance arousal, and receptiveness of health risk messages on two different populations (Taiwan and U.S.A.) within Western and Eastern cultural contexts. Self-construal and culturalism constructs are applied to examine the influence of culture-related issues on the manifestation of psychological reactance. Relative to culturalism, several findings indicate self-construal is more predictive of reactance arousal and its associated effects on the processing of persuasive health risk messages. Moreover, the positive association between threat perception and reactance arousal may be less apparent than previously assumed.

Finally, as found in previous research, the effectiveness of restoration postscripts at reducing reactance was affirmed; however, the nuanced nature of their effectiveness requires some qualification: Each of the five restoration postscript methods used in this study was effective at reducing perceived threat to freedom only in combination with its correspondingly appropriate message appeal type.

The ramifications of these results for the effective design of public service announcements (PSAs) targeting risky health behaviors in emerging adults is discussed, and recommendations are offered for producing successful PSAs advocating substance abuse prevention and safe sex within Western and Eastern cultural contexts.

Key words: Culturalism, health communication, intercultural communication, message design, persuasion, psychological reactance, public service announcements, restoration of freedom postscripts, self-construal, social influence.

CHAPTER I

PUBLIC SERVICE ANNOUNCEMENTS AND REACTANCE

In response to high rates of drug use and teen pregnancy, researchers have devoted much effort to understanding factors that may influence a target audience's responses to persuasive messages (Grunbaum, Kann, Linchen, Ross, Hawkins, & Lowry, 2004). Concerning health risk messages targeting adolescents and young adults, one of the more recent and fruitfully applied explanatory frameworks for exploring the various dynamics involved is Brehm's (1966) theory of psychological reactance. The central premise of reactance theory holds that people become motivationally aroused when their perceived behavioral freedoms are threatened by controlling persuasive messages. As reactance occurs, negative results are likely, such as, message rejection, source derogation, and boomerang effects (Worchel & Brehm, 1970). The development of reactance theory and its empirical support have been rooted primarily in Western cultures, with very few studies on reactance being examined within Eastern cultures, thus, whether or not the theory can be applied universally is unclear. To address this question, the present research compares the influence of reactance motivation on two distinct populations within Western and Eastern cultures.

Unlike previous research on reactance, which has primarily utilized text messages, the current research employs a video format as viewed via YouTube. Because most health promotion public service announcements (PSAs) have been studied when broadcast over TV and radio, their effectiveness when presented via the internet is unclear. Due to certain cost constraints related to airing times and frequencies, PSAs may not always be able to reach their targeted audiences. Hence,

given that these constraints are not associated with YouTube videos—individuals may watch videos at any time—this study tested the effectiveness of certain aspects of broadcasting PSAs over the internet as a potential solution.

In the pages that follow, this dissertation will briefly characterize research on health-risk PSAs targeting young audiences, provide an overview of reactance theory with a discussion of some potentially relevant cultural issues examined at both the individual and cultural levels, present hypotheses derived from the theory, and finish with a study designed to test the rationale underlying those hypotheses.

Research on PSAs

A public service announcement (PSA) is defined as one for which no charge is made in promoting a program, activity, governmental or nonprofit service regarded as being in the interest and good of the community (FCC Rule, 1984, cited in Fuhrel-Forbis, Nadorff, & Snyder, 2009). PSAs are designed to encourage specific outcomes, such as advocating some socially desirable behaviors (e.g., safe sex, proper nutrition) or avoiding risky behaviors (e.g., drug use, risky sex, poor nutrition) in targeted audiences.

Research has found various factors tending to influence the effectiveness of PSAs relevant to certain advocated behaviors. For example, Dillard and Peck (2000) and Nan (2008) found attitudes toward issues advocated in PSAs are in part a function of one's attitude toward the PSA presenting those issues. In other words, one's affective response to a message vehicle has an impact on one's attitude toward the topic of that message. Dillard and Peck (2000) further assert the persuasiveness of a message, apart from its topic, is also predicted by one's liking or disliking of that message.

Specifically, message tone—evoking either positive or negative feelings—appears to be directly related to the effectiveness of a message. In support of this notion, Nan (2008) concluded that positively toned PSAs, defined as inducing positive affect, are more likely to produce a positive attitude toward the issue advocated relative to negatively toned PSAs.

Another widely discussed factor influencing the effectiveness of PSAs is individual differences in psychological factors, for example, sensation-seeking (Palmgreen et al., 1991; Palmgreen et al., 2002). Walther, DeAndrea, Kim, and Anthony (2010) found sensation-seeking exerts independent influence on the evaluation of PSAs. Individuals, particularly adolescents and young adults, with high levels of sensation-seeking demonstrate more negative attitudes toward anti-drug PSAs than those with low levels of sensation-seeking (Everett & Palmgreen, 1995). Because the current research focuses on the issues of risky sex and drug use, the following will discuss current research on PSAs concerning these two health-risk areas.

Studies on Safe Sex PSAs

According to CDCP (2016), about 41% of high school students in the United States have had sexual intercourse, with the highest rate of sexual behavior occurring during 12th-grade (58%), followed by 11th-grade (50%), 10th-grade (35.7%), and 9th-grade (24%). Problems may obviously accompany such behavior, the two most pressing of which are unwanted pregnancy and sexually transmitted diseases (e.g., AIDS). Sedgh et al. (2015) collected data from 21 countries and found the United States to have the highest rate of teen pregnancy (57 pregnancies per 1,000 adolescents in 2010), compared to Switzerland, with the lowest teen pregnancy rate (8 per 1,000). The teen

birth rate was also high in the United States (34%), compared to the lowest teen birth rate found in Denmark (5%). Reports on sexually transmitted diseases in 2015, on the other hand, have shown that adolescents and emerging adults, aged 15 to 24 years, account for half of all new STD infections (CDCP, 2016). Recognizing the negative results that come with unprotected sex has focused government efforts and encouraged more research attention to developing viable solutions.

One attempt at solving the problems has been to disseminate PSAs promoting safe sex (Agha, 2003; Hornik, 2002; Noar, 2006). Noar et al. (2009) as well as Palmgreen, Noar, and Zimmerman (2008) found STD prevention campaigns through media can show positive results. Also, Struckman-Johnson and Struckman-Johnson (1996) concluded safe-sex interventions can affect individuals' actual behaviors related to safe sex. However, some research has criticized the ineffectiveness of traditional PSA designs due to their broad focus and lack of attention to individual differences. Zimmerman et al. (2007), for example, found televised PSAs aired in the United States did not show a significant campaign effect on condom use among low sensation-seekers, although high sensation-seekers did appear to increase their use of condoms by an average of 13% after the campaign was implemented.

Research on Anti-Drug PSAs

Similarly, results of anti-drugs PSAs advocating the avoidance of drug use are mixed. The promotion of healthy anti-drug behaviors in PSAs over the airwaves increased from 37% in 2000 to 76% in 2003 (Longshore, Ghosh-Dastidar, & Ellickson, 2006). With such advertising, however, the PSAs seem not to be leading to favorable results, given that 22% of eighth graders continued to use illicit drugs (Johnston,

O'Malley, Bachman, & Schulenberg, 2005) with some of them initiating marijuana use even before age 13 (Grunbaum et al., 2004; Slater, Kelly, Lawrence, Stanley, & Comello, 2011). Indeed, several researchers have found little or no effects of anti-drug campaigns on the reduction of marijuana use in the US (Atkin & Schiller, 2002; Hornik et al., 2003; Hornik, Jacobsohn, Orwin, Piesse, & Kalton, 2008; Longshore et al., 2006; Slater et al., 2011). Moreover, boomerang effects have occurred after students view anti-marijuana campaigns, showing the likelihood of their using the substance in the future actually increases (Czyzewska & Ginsburg, 2007; Fishbein et al., 2002; Hornik et al., 2003; Longshore et al., 2006).

Although some studies do not credit the effectiveness of anti-drug PSAs, others have shown some positive results (Ellickson, McCaffrey, Gosh-Dastidar, & Longshore, 2003; Slater et al., 2006; Slater et al., 2011). Block, Morwitz, Putsis, and Sen (2002), analyzing ads aired by the Partnership for a Drug-Free America between 1987 and 1990, found positive outcomes of anti-marijuana use among youth who had seen the campaign. Similarly, Warren, Hecht, Wagstaff, Elek, Ndiaye, Dustman, and Marsiglia (2006) found that more substance use was engaged in by the control group than by those in the intervention group (Longshore et al., 2006). As one sees PSAs being more effective, it is more likely he or she will believe risky behaviors are not worth the risk (Fishbein et al., 2002).

Elements employed in PSAs account for the success or failure of health promotion campaigns. Anti-drug campaigns containing long-term health consequences of drug use do not speak to the concerns of most youth (Kelly, Comello, & Slater, 2006). Rather, they value personal relationships (e.g., support from friends and family),

autonomy (e.g., personal decision making), and aspiration (e.g., personal goals of playing sports or what they want to “be” or “do”) (Kelly et al., 2006). Moreover, Williams, Cox, Kouides, and Deci, (1999) found that autonomy-supporting messages are more effective than fear appeals. Witte and Allen (2000) concluded that messages employing fear appeals may induce reactance or defensive avoidance which reduces the effectiveness of the messages. Finally, directive messages asking youth not to use drugs (e.g., “just say no”) and avoidance behavior are not related to desirable behavioral change (Witte & Allen, 2000). Also, PSAs that are perceived to be exaggerated and unbelievable are unlikely to elicit positive comments (Ginsburg & Czyzewska, 2005).

Finally, individual differences in levels of sensation-seeking influence the effectiveness of campaign evaluation (Kang, Cappella, & Fishbein, 2009). High sensation-seeking adolescents are found to reduce marijuana uptake in the months following anti-marijuana campaigns (Palmgreen et al., 2002). Moreover, high-sensation seekers who received PSAs with high-sensation value generate more negative attitudes toward cocaine and are less likely to try it within 30 days than those who received PSAs with low-sensation value (Everett & Palmgreen, 1995).

In contrast, Kang et al. (2009) found that adolescents at high-risk tend to respond with less positive attitudes toward anti-marijuana campaigns than their low-risk counterparts (Yzer, Cappella, Fishbein, Hornik, Sayeed, & Ahern, 2004). As a result, reactance to the anti-drug messages is likely to occur among the former (Kang et al., 2009). Research on both safe-sex and anti-drug PSAs have shown that variables on individual differences play a significant role in influencing an individual’s attitude toward PSAs, and such attitude further impacts one’s behavior. In the field of PSA

research, so far, sensation-seeking is the only individual variable that has been widely examined. This dissertation asserts that differences in psychological reactance among targeted individuals also plays a crucial role in the effectiveness of health-related PSAs. To explore this assertion, in the pages that follow, theory and research on psychological reactance are presented along with the testing of hypotheses predicting the effects of reactance on the effectiveness of PSAs promoting safe-sex.

Overview of Reactance Theory

Psychological reactance theory (Brehm, 1966) defines reactance as an aversive psychological state aroused when people perceive their freedom to perform a valued behavior is threatened in a given situation. Brehm (1966) defined psychological reactance as “a motivational state directed toward the reestablishment of the threatened or eliminated freedom, and it should manifest itself in increased desire to engage in the relevant behavior, and actual attempts to engage in it” (p. 11). As it pertains to social influence messages designed into PSAs, once a valued perceived behavioral freedom is threatened, reactance may motivate individuals to restore their freedom by performing the behavior forbidden in the message in order to reestablish their sense of self-determination, autonomy, and control (Brehm, 1981; Miller, Burgoon, Grandpre, & Alvaro, 2006; Petegem, Soenens, Vansteenkiste, & Beyers, 2015). Furthermore, reactance may result in source derogation, having aggression or hostility aimed at the threatening agent (Schwarz, Frey, & Kumpf, 1980; Wicklund, 1974), and may result in the tendency to increase the attractiveness of the threatened freedom (Rhodewalt & Comer, 1982; West, 1975; Worchel & Brehm, 1970).

According to Brehm (1966), the magnitude of reactance varies depending on (a) the importance of the free behaviors, (b) the proportion of free behaviors threatened, and (c) the degree of threat to those behavior. The more important a threatened behavior is to an individual, the greater the degree of reactance expected to be aroused. Also, if one behavior is threatened, this may indicate other related free behaviors an individual possesses might also be threatened in the future. Moreover, the level of reactance increases when the numbers of threatened behaviors increase. The more free behaviors are threatened, the greater the reactance is aroused, and the more direct or explicit the degree of threat is to a behavior, the greater the potential level of reactance that may be aroused (Ball & Goodboy, 2014; Dillard & Shen, 2005; Grandpre, Alvaro, Burgoon, Miller, & Hall, 2003; Quick, Kam, Morgan, Liberona, & Smith, 2015; Miller et al., 2006; Miller et al., 2007). Lastly, the greater the reactance aroused, the less likely an individual will accept the recommended behavior within a persuasive message.

While individuals are threatened with the thought of losing their freedom to behave as they choose, reactance as a motivating pressure drives them to restore or reestablish the threatened freedom in the simplest, most effective way (Brehm & Brehm, 1981). One of the most basic ways to restore a threatened freedom is to engage in behavior opposite to that advocated in the persuasive message (Brehm, 1966). This is known as the boomerang effect, a condition producing the opposite effect than desired in response to threatening communications (Dugger, 1996; Worchel & Brehm, 1970; Wright, 1986). The means of restoration also involve argument, source derogation (e.g., “My mom does not understand my anxiety from not being part of my friends at school.”) and increased attractiveness of forbidden behaviors (e.g., “My desires and

intentions of doing it increase since mom told me not to do it.”) (Brehm, 1981; Miller et al., 2006; Worchel & Brehm, 1970). Another way of restoring threatened freedom is based on social implication, where the lost freedom may be reestablished vicariously by seeing another person engaging in a similar threatened behavior (Brehm, 1966). These restoration methods are established as long as there is a realistic possibility of acting. Unfortunately, the social implication method of restoration of threatened freedom has received very little support within the research, since most research conducted on reactance theory so far has focused primarily on the other methods.

More recently, researchers investigating the influence of persuasive messages have examined the effectiveness of restoration postscripts, and their role in assuring message recipients that they are free to make their own choices; an effective restoration postscript lowers the potential threat to the recipient’s perceived freedoms (Bessarabova, Fink, & Turner, 2013; Grandpre et al., 2003; Miller et al., 2007). The idea of attaching a short postscript immediately following a persuasive message was proposed by Miller et al. (2007). The core concept behind the addition of a restoration postscript is to restore the individual’s sense of freedom by letting him/her know he/she has the final choice in how to behave. A restoration postscript generally uses key words or phrases such as: “You’re free to decide for yourself,” “The choice is yours,” and “You don’t have to... It’s your choice.” The addition of such phrases lessens a message recipient’s feeling of being threatened, allowing him/her to retrieve a sense of autonomy and self-determination. As a result, the magnitude of reactance aroused by the messages can be decreased, thereby averting the likelihood of boomerang effects. As Miller et al. (2007) found, a freedom-threatening message accompanied by a restoration postscript

was perceived to be less threatening to freedom than those without a restoration postscript. However, previous research has not assessed the effects of restoration postscripts on attitude change or behavioral intentions. These are crucial factors in the field of persuasion.

Following the introduction of the restoration postscript concept by Miller et al. (2007), further research examined the reactance-associated effects of the addition of restoration postscripts (Bernard, 2014; Bessarabova et al., 2013; Bessarabova & Miller, in press). Bessarabova et al. (2013) found a positive association between a restoration postscript and the reduction of reactance effects; the addition of a restoration postscript to a high-threat message lowered the perception of threat and led to more positive attitudes and behavioral intentions, although it was less effective with a low-threat message. For example, the high-threat message using a restoration postscript was found to be as persuasive as the low-threat message (e.g., for behavioral intentions) or even more persuasive than the low-threat message (e.g., for attitudes). Although the Miller et al. (2007), Bessarabova et al. (2013), and Bessarabova & Miller (in press) have demonstrated the usefulness of a restoration postscript for reducing reactance effects, Bernard (2014) found mixed results. Bernard placed the same style of restoration message at the beginning of persuasive messages (prescript) and at the end of the messages (postscript). He did not find a significant decrease in reactance arousal when using a restoration postscript or prescript to reduce the effects of forceful language. The messages using forceful language accompanied by a restoration postscript or prescript demonstrated no significant effects on either behavioral intentions or attitude when compared to messages with non-forceful language. Moreover, the two types of

restoration scripts did not effectively reduce the magnitude of recipient anger, although these scripts did appear to produce fewer negative thoughts when compared to conditions that did not use a restoration script. It seems that the restoration postscript is effective at mitigating the cognitive component of reactance (negative cognition), but may be less effective on the emotional component (anger). In general, the effectiveness of restoration scripts is expected to be demonstrated by a reduction in reactance and an increase in positive outcomes.

Although other studies have tested the effects of restoration pre- and post-scripts on reactance effects, they have only addressed one type of restoration (which I shall term the “standard” choice type postscript in this study). It is possible that different types of restoration postscripts will have different impacts on reactance-associated effects. This research proposes three other types of restoration postscripts, which may be referred to as “individual,” “collective,” and “fatalistic.” The experiments reported here are intended to reveal the role these forms of restoration can play in reactance reduction.

Although reactance theory has demonstrated its ability to explain individuals’ psychological responses to freedom-threatening persuasive messages, questions still remain unanswered. Brehm (1966) claimed reactance was an immeasurable construct, however, some studies (e.g., Dillard & Shen, 2005; Donnell, Thomas, & Buboltz, 2001) suggest this is not the case. Dillard and Shen (2005) argue reactance can be conceptualized and operationalized in terms of both cognitive and affective measures. They propose an intertwined cognitive-affective model to explain the reactance process, which is the intermingling of negative cognition and affect (primarily anger) to measure

reactance. Recent studies (Quick & Stephenson, 2007; Rains, 2013; Rains & Turner, 2007) have confirmed this model, and concluded that anger and negative cognitions best represent the measurable phenomena associated with reactance.

Another question remains as to why threatened freedom causes such negative outcomes (Eagly & Chaiken, 1993; Silvia, 2006). Research suggests two possibilities; the first is that threat to freedom has a direct motivational effect on resistance to change. People may resist persuasion simply because they are motivated to restore their freedom. Adopting the prohibited behavior advocated by a persuasive message may be the most direct way to show self-autonomy, thus boomerang effects may occur in response to prohibitions (Brehm & Brehm, 1981). Another cause may be due to the mediating effect negative cognitive responses have on threats leading to resistance (Jacks & Cameron, 2003; Petty, Ostrom, & Brock, 1981). When reactance arouses resistance to change, some negative responses to the messages occur, such as counterarguments or source derogation, and it may be these cognitive responses, rather than the threats per se, that mediate the effects of resistance.

Effects of Language Characteristics on Reactance

Given its usefulness in understanding the success and failure of persuasive communication, research on reactance theory has explored various factors influencing reactance arousal. One factor widely applied in the field deals with language characteristics such as language intensity. Smith (1979) argued that a strong threat to freedom causes significant reductions in attitude regarding the proposed change in a high control condition, which stimulates more psychological reactance in the high-threat relative to low-threat condition (Vrugt, 1992). Indeed, Miller et al. (2006) and

others have demonstrated how high levels of threat to freedom within risk messages can arouse psychological reactance and reduce the persuasiveness of promotional health campaigns (e.g., Albarracin, Cohen, & Kumkale, 2003; Dillard & Shen, 2005; Grandpre et al., 2003).

Relatedly, Miller et al., 2007 have emphasized the influence of autonomy supportive language in attenuating the magnitude of reactance following messages advocating exercise. Miller et al. (2007) found participants to be less receptive to exercise messages using high-controlling language (e.g., you should, you have to, you must), because it tends to be perceived as a greater threat to freedom and self-determination than low-controlling, autonomy supportive language (e.g., perhaps you might like to, you may want to). High-controlling language was associated with greater levels of anger, more negative assessments of message fairness, and lower assessments of both source sociability and trustworthiness. Adolescents' desire for self-determination encourages reactance when, explicit language threatens their autonomy within high-controlling persuasive messages (Alvaro, Grandpre, Burgoon, Miller, & Hall, 2000; Grandpre et al., 2003; Miller et al., 2006; Miller et al., 2007).

Researchers also recognize the impact message features have on the arousal of reactance (Buller, Borland, & Burgoon, 1998; Rogers, 1983; Witte, 1992). Examining the characteristics of sun safety messages, Buller et al. (1998) found that messages using an inductive format (providing information relevant to advocated action without an explicit conclusion) produced more compliance with recommended behavior than those using a deductive format (presenting relevant information to recommended behavior along with an explicit conclusion). Participants who received deductively

formatted messages were unlikely to protect themselves from sun exposure (e.g., using sunscreen or wearing protective clothing). Also, inductive messages were more suitable for people who still debated whether action was appropriate, whereas deductive messages worked well for those considering action but not yet committed.

In a similar vein, Grandpre et al. (2003) suggested the impact of implicit vs. explicit language on the processing of tobacco-related messages can be significant. Students viewed messages expressing explicit intent more negatively than messages expressing implicit intent because the former minimized freedom of choice, and had an obvious persuasive goal. With the awareness of the source's persuasive intent, message recipients are aroused to greater levels of reactance, particularly when receiving explicit messages. Miller et al. (2006) further suggested reactance should be considered as an important predictor of adolescents' susceptibility to initiate risky behaviors (e.g., smoking, drinking, unsafe sex). When receiving anti-substance use messages, adolescents with high levels of trait reactance were more likely to have reactance aroused than those with low levels.

Unlike previous studies examining the effects of only one language characteristic on reactance arousal, Liu, Miller, and Butts (2011) combined language intensity and appeal type, and examined their effects on the arousal of reactance regarding topics of abstinence and condom use. In their study, language intensity was categorized as high-controlling (e.g., must, have, should, ought) and low-controlling (e.g., could, might). Appeals were framed as prohibitions or as fatalistic messages, the former strongly demanding message receivers to take actions advocated in the messages (i.e. You have to.....) and the latter using the form "Regardless of what I say, you're

(not) going to...” Some surprising results from the combination of language intensity and appeal type were found. For example, prohibition appeals combined with low-controlling language produced less risky sexual behavior intentions than fatalistic appeals combined with high-controlling language for both abstinence and condom use message topics. As such, Liu et al. (2011) advocated the importance of using different strategies based on the message topic and goals desired. If the goal is to minimize source derogation within the topic of condom use, for example, prohibition appeals with low-controlling language were shown to be more effective, whereas fatalistic appeals with low-controlling language were more effective when the topic was sexual abstinence. The authors argued that the effects of appeal type on reactance were a function of the degree to which the topic was considered more hedonically relevant to the receiver.

Compared to condom use messages, abstinence messages are more highly hedonically relevant to individuals; thus, the likelihood of reactance is thought to be increased when such prohibition appeals are employed. Relative to condom use messages, abstinence messages utilizing fatalistic appeals were shown to lead to greater source derogation, lower likelihood of future communication with the source, and negative assessments of parental communication quality (Liu et al., 2011). Although condom use messages with prohibition appeals were perceived as more explicit and more threatening to freedom, somewhat surprisingly, they did not appear to elicit negative attitudinal, relational, or behavioral consequences to the same extent fatalistic messages did. Rather, participants reported the likelihood of sexual behavior to be decreased (Liu et al., 2011). Perhaps insisting upon condom usage, rather than

forbidding sexual activity all together, gives an impression that speakers are being reasonable, thereby avoiding some of the negative consequences typically accompanying explicit proscriptions.

Although Liu et al. (2011) examined the effects of fatalistic appeals on reactance arousal, they did not fully provide a theoretical foundation for predicting the effects of fatalistic language. This paper takes a step toward providing more detail on the effects of fatalistic language on psychological reactance and message effectiveness within the context of health risk communication.

Fatalistic Language

The present study defines fatalistic language by drawing on the concept of pessimism in Kassinove and Sukhodolsky's (1995) work on future expectancy, and from Weiner's (1985) attribution theory. The idea about future expectancy mainly focuses on one's expectations, either optimistically or pessimistically, about the future, whereas attribution theory is used for making causal explanations for the motivations and behaviors of individuals—including oneself. The following section will first introduce the concepts of optimism vs. pessimism in light of future expectations, review three types of causal explanations derived from attribution theory, and consider the application of these two conceptualizations to the research conducted within this dissertation.

Future expectancy is an attempt to elucidate the impact of one's worldview which leads one to expect his/her future to be successful or unaccomplished (Kassinove & Sukhodolsky, 1995). The view of future expectancy is fundamentally grounded in two main concepts: optimism and pessimism. Optimism is defined as the expectation

that future outcomes are more likely to be positive than negative, such that the likelihood of successful results increases. Conversely, pessimism is defined as the expectation that future outcomes are more likely to be negative than positive. An optimistic worldview tends to produce positive expectations about the future, such that good outcomes are likely to occur; whereas a pessimistic worldview tends to produce expectations opposite to those of optimistic worldview.

Considering that reactance is a psychological phenomenon reflecting individuals' responses toward a persuasive message, message sources may attribute message receivers' behavior to a variety of reasons, such as personality traits (e.g., "That's how he would do it, I'm not surprised") or events as they occur (e.g., "He just broke up with his girlfriend, so he is not willing to hear someone asking him to do something."). These assumptions, however, fail to provide a theoretical explanation for why others behave in a certain way. Attribution theory below provides a more comprehensive background for defining factors that influence message sources' judgment about others' behaviors.

Attribution theory takes into account the perceptions of individuals in determining the reasons for specific behaviors or events, and organizes the causes that lead to such result into three main categories: locus, stability, and controllability. Locus refers to whether the causes are attributed to the individual involved or to the environment. This implies the causes of individual behavior can be ascribed to external factors (e.g., environment) or internal factors (e.g., personal disposition). Stability refers to whether causes remain constant over time or are subject to changes, which largely determines whether these causes could be expected to have an impact on expectations

with regard to success or failure in the future (Roesch, Vaughn, Aldridge, & Villodas, 2009). In cases where a given cause is deemed stable (e.g., personality), it would be reasonable to expect similar behavior or outcomes in the future. In contrast, the behavior or outcomes associated with causes deemed unstable (e.g., individual effort or luck) would be contingent on those particular circumstances. Controllability refers to an individual possessing the ability to change the cause regardless of the outcome is good or bad. In cases where the cause of a bad outcome is deemed controllable (e.g., a previous lack of effort), one may make a strong inference that the individual concerned is personally responsible for the outcome (Weiner, 1993).

Adopting the above theoretical perspectives in the current investigation, the concept of fatalism mainly derives from an observer's perception of how he or she may predict another's behaviors in the future. The nature of the new fatalistic language appeal type examined in this dissertation refers to how an observer forecasts another individual's behavior in a generally pessimistic way by implying an expectation of future negative outcome. Moreover, the observer tends to attribute the cause of negative results to internal personality traits within the individuals themselves rather than external situational circumstances. That is, individuals are perceived as having the ability to control personal behavior toward a specific direction that has a direct effect on either desirable or undesirable outcomes. However, in the case of negative outcomes they are thought to somehow forgo such controllability by allowing bad outcomes to occur even when the causes are internal, changeable, and controllable. According to the actor observer effect, which is an extension of the fundamental attribution error, observers are less likely to give credit to individuals for making decisions resulting in

positive outcomes, and less likely to explicitly credit such decisions, whereas they are more likely to assign blame to individuals for making decisions resulting in negative outcomes, and more likely to explicitly blame such decisions. In the case of a fatalism, one sends a message implying it is the individuals' own wills and thoughts responsible for any negative outcomes, without the benefit of advice from others. Often the implied meaning of fatalistic language will express sarcasm by implying the opposite of its stated meaning (e.g., "Oh, that disaster is just great!"). Observers with fatalistic thoughts tend to view other individuals as being unable to make correct decisions, and invariably foresee the inevitability of negative outcomes. The way one communicates fatalistically, then, tends to carry an implication of distrust, doubt, and suspicion (e.g., "There is no way this is going to work.")

Self-Esteem

In addition to external factors (e.g., language intensity), individual differences in personality (i.e. self-esteem) also has received attention from researchers in the field of persuasive communication (Brockner & Elkind, 1985; Vrugt, 1992; Wicklund & Brehm, 1968). People with high self-esteem manifested more reactance in a high-threat than in a low-threat condition. People with low self-esteem, on the other hand, did not differ in the magnitude of reactance between high and low threat conditions (Vrugt, 1992).

Trait Reactance

Reactance was first proposed as a motivational state that occurs within a given situation, Wicklund (1974), however, argued reactance could be a personality trait, because degrees of autonomy and self-determination individuals desire might not be the

same. In other words, some individuals more than others are likely to be inclined toward experiencing greater levels of reactance across situations. Since Wicklund's work, studies on reactance have directed more attention to other personality variables relevant to reactance. Seibel and Dowd (2001), for example, found that trait reactance was associated with dominance, independence, and autonomy. Furthermore, trait reactance was predictive of perceived anger and threat (Miller et al., 2007; Quick & Stephenson, 2008) and was associated with internalizing (e.g., anxious problems) and externalizing problems (e.g., rule-breaking behaviors) (Petegem et al., 2015).

Source Characteristics

Source characteristics such as perceived similarity have also been found to reduce the degree of reactance receivers experience. Silvia (2005) found that similarity served as a moderator to deflect reactance. People are more likely to comply with threatening messages when the similarity between source and receiver is high. Silvia (2005) argued that similarity simultaneously affected both positive (by increasing liking) and negative influence forces (by reducing perceptions of threat). When similarity was low, people in a high-threat condition agreed less than in a low-threat condition. When similarity was high, on the other hand, people in both conditions agreed equally, and less reactance occurred.

In sum, several factors affect receivers' reactions toward persuasive messages. Language characteristics, individual differences, and source characteristics all combine to have a certain degree of impact on activating or deflecting reactance. Bearing these facts in mind, this research now focuses on culture issues, for the main purpose of this

research is to examine and contrast the effects of reactance between samples drawn from both Western and Asian cultures.

Chapter II

CULTURALISM AND SELF-CONSTRUAL

Since Hofstede's work—*Culture's Consequences*—was published in 1980, the cultural value of individualism (IND) and collectivism (COL) has been widely used to examine culture differences using nations as an analysis unit. Generally speaking, relative to collectivists, individualists are characterized by a desire for greater independence, uniqueness, autonomy and personal control. They primarily tend to focus their concerns on themselves and their immediate family. Their identity tends to be based on their own accomplishments (Hofstede, 1980), and their own goals tend to be more important relative to group goals (Triandis, Bontempo, Villareal, Asai, & Lucca, 1988). Not surprisingly, individualists tend to be relatively less likely to obey group norms, and tend to make behavioral decisions based more on personal goals.

In contrast, collectivists tend to put group goals above individual goals (Triandis et al., 1988), emphasize the interdependence between themselves and the group they belong to (Oyserman, Coon, & Kemmelmeier, 2002), and conform their behavior and identity more with the group (Hui & Triandis, 1986). Collectivists are more likely to make their decisions based on group norms, and obligate themselves relatively more to their in-group associations (e.g., friends and family). As Triandis (1988) argues, collectivists see in-groups as more important than do individualists, and the boundaries between members of in-groups and out-groups are especially distinct for collectivists (Cha, 1994; Rhee, Uleman, & Lee, 1996). In short, the central aspect of individualism is one's own independence of others, whereas the central aspect of collectivism is group connection and mutual obligation among group members.

Western countries (e.g., USA, Europe, Australia) are commonly regarded as individualists (IND), whereas Eastern (e.g., China, Japan, Indonesia) are commonly thought of as collectivist (COL). However, some studies have found that simply using the IND-COL dimensions (what I shall call culturalism) to distinguish a country as either IND or COL can be restrictive and problematic (Gudykunst, Matsumoto, Ting-Toomey, Nishida, Kim, & Heyman, 1996; Kolstad & Horpestad, 2009). For example, Japanese students oftentimes demonstrate more characteristics of IND than those in the U.S., and Australians may often display their communication styles in a more collectivistic than individualistic manner. Unlike Hofstede's bipolar treatment of IND and COL as the extremes of a continuum—high IND means low COL—some researchers have argued that the two dimensions are multidimensional (Coon & Kimmelmeier, 2001; Gelfand, Triandis, & Chan, 1996; Oysermann, 2006; Singelis, Triandis, Bhawuk, & Gelfand, 1995). Specifically, Triandis (1995) has proposed that both IND and COL have both vertical and horizontal features, with the horizontal dimension emphasizing the equality among individuals, and the idea that people in the group should be similar in terms of status. The vertical dimension, on the other hand, focuses on the hierarchical structure in the group so that achievement and competition are encouraged. With the two features of both IND and COL, four dimensions are formed: horizontal individualism (HI), vertical individualism (VI), horizontal collectivism (HC), and vertical collectivism (VC).

Horizontal individualists exhibit the attributes of independence and uniqueness, while equality is not ignored and the comparison with others is unlikely to occur (i.e. I am a unique individual). In addition to the characteristics of independence, VI

populations are more achievement-oriented, valuing competition, while seeking high levels of status (e.g., “winning is everything”). On the other hand, horizontal collectivists, or HC populations, are more interdependent, value equality, and fully identify themselves with the in-group (e.g., “it is important to maintain harmony within my group”). Lastly, interdependence and hierarchy are both accepted by VC populations; however, they are further willing to sacrifice their personal interests for the group goals (e.g., “I would sacrifice an activity that I enjoy for the good of my group”), implying their belief in the greater importance of submission to in-group authority (Kimmelmeier, Burnstein, Krumov, Genkova, Kanagawa, & Hirshberg, 2003; Triandis & Gelfand, 1998). Importantly, Triandis (1996) argues that individuals possess all four patterns, with one predominant, depending on the situation.

Triandis’ (1995) typology of vertical and horizontal aspects of culturalism clearly differentiates nuanced cultural differences among countries. For example, Chinese students were found to hold higher levels of VC than Canadians (Walker, Jackson & Deng, 2008; Walker, 2009). Additionally, Chinese people place more value in VI, whereas Canadians put more value in HI (Walker, Jackson & Deng, 2008). In a similar vein, Komarraju and Cokley (2008) found that although African Americans and European Americans place greater importance on individualism, the former value HI more, and the latter value VI more. Moreover, the meaning of individualism adhered to is also different across the two ethnic groups (Sampson, 2000). European Americans see IND as focusing on their independence from other people, whereas, the focus is on uniqueness and staying connected with others for African Americans. Indeed, Stevenson and Renard (1993) found that African Americans treated the values of IND

associated with the free space to express their own distinctive style; but, simultaneously, they maintained their interdependence with others. The results from these studies give credit to the notion of distinguishing countries from a multidimensional rather than unidimensional, perspective. Based on their nature of examining culture differences at nation level, Hofstede's (1980) IND vs. COL, and Triandis' (1995) four dimensional typology are referred to as cultural-level variables in the hypothesis that follow.

Individual-Level Self-Construal

Based on the studies of cultural differences between the US and other countries, Markus and Kitayama (1991) first proposed the concept of self-construal looking at culture difference at an individual level, and discussed its influence on emotion, cognition, and motivation. Self-construal is defined as one's perception of his or her relationship to others. Two types of self were identified: independent construal of self and interdependent construal of self (these two constructs are referred to below as independent-self and interdependent self). The former is related to the conception of self-being uniqueness and separation from others. Individuals who hold this view of self tend to perceive themselves as independent and autonomous. An interdependent self, on the other hand, emphasizes the relationship with others and thus places relatively more value on connection and less on differentiation from others. One's relationship to others, then, not the inner self, is pivotal in an interdependent-self (Markus & Kitayama, 1991).

Independent and interdependent-self individuals put different weights on *the others*, consequently their behaviors are determined for different reasons. For the independent-self, one's autonomy and uniqueness are essential and his/her internal

attributes are more important than *the others*. As a result, his or her behavior is a function of his/her internal attributes (e.g., “I am an American”). Investigating the link between preference and choice in the contexts of the USA and India, for instance, Savani, Markus, and Conner (2008) found that, although both groups have their own preferences, Americans were more motivated and more likely than Indians to make choices based on those preferences. Similarly, Miller and Bersoff (1998) concluded that Americans place more weight on personal choice than interpersonal responsibility, whereas it is the opposite for Indians. Notice however, that for independent-self individuals, others play a different role, for they are used as a source for the affirmation of one’s inner self (Markus & Kitayama, 1991). On the other hand, for the interdependent self, others play an integrated role in helping one to fit into and connect with situations and contexts. Behavior is guided by the self-in-relation to the others in a specific context and by the others’ feelings or thoughts, not one’s internal attributes (e.g., individual desires, preferences or feelings). This is claimed to be true in the culture of COL, which emphasizes the importance of personal relationships and the maintenance of harmony in the group. In this sense, the distinction between in-group and out-group is crucial for interdependent selves.

Given the nature of independent and interdependent selves, the former dominates in the culture of individualism, whereas the latter predominates in collectivism (Kanagawa, Cross, & Markus, 2001; Kashima, Yamaguchi, Kim, Choi, Gelfand, Yuki, 1995; Singelis, 1994; Kurman, 2001; Singelis et al., 1995).

Examining self-construal in 29 nations, Fernandez, Paez, and Gonzalez (2005) found that individuals who live in a collectivist culture share a construal of

interdependent self, whereas within an individualist culture, it is the independent-self. Similarly, Harrington and Liu (2002) found that New Zealand Europeans showed lower levels of group orientation than Maori. The former was classified as individualist and the latter was collectivist. Also, more interdependent self-descriptions were produced by collectivists than by individualists (Bochner, 1994; Eaton & Louw, 2000; Rhee, Uleman, Lee & Roman, 1995). Finally, individuals from Hong Kong (considered a collectivist culture) perceived the interdependent-self to be more important than did Americans (considered a individualist culture) (Watkins, Mortazavi, & Trofimova, 2000). Although the above studies positively support the direct link between the cultural value of individualism - collectivism and the individual value of self-construal, others make different claims.

Recently, some research has challenged the influence of culture on the development of self-construal (Coon & Kemmelmeier, 2001; Cross, 1995; Harrington & Liu, 2002; Hui, 1988; Matsumoto, Grissom, & Dinnel, 2001). Kolstad and Horpestad (2009), for example, did not find support for collectivists (Chilean) having high interdependent-self scores; instead, their independent-self scores were high. Additionally, Chileans scored higher on both types of construal than Norwegians did. Moreover, individualists (i.e. USA and British) were found to score lower and put less importance on the independent-self than collectivists (e.g., Hong Kong and Taiwan) (Fernandez et al., 2005; Hui, 1988; Lu & Gilmour, 2007; Oyserman et al., 2002; Watkins et al., 2000). What's more, Americans viewed the interdependent-self to be as important as collectivists such as Iranians and Japanese did (Matsumoto et al., 2001; Sato & Cameron, 1999; Watkins et al., 2000). Finally, no differences in the

independent-self were perceived between US and Chinese or Japanese (Matsumoto et al., 2001; Sato & Cameron, 1999; Cross, 1995).

The aforementioned mixed results on the relationship between culturalism and self-construal indicate that using individualism or collectivism to judge whether an individual's self is either independent or interdependent may be unreliable. Rather, it is more likely that both types of self-construal coexist within individuals of various cultural backgrounds (Harrington & Liu, 2002), and either one can be activated depending on the situation or context. The characteristics of either type of self should further have an impact on observable behavior. If a collectivist's independent-self is activated, for example, he or she may make decisions and take actions based on his or her personal desires, not on his or her relationship with others (e.g., family). In contrast, an individualist's interdependent-self may motivate him or her to concede his or her own preferences to the family members' preferences, and make a decision based less on what he or she desires.

Self-Construal and Communication in Culture

With regard to the relationships between communication and culture, Gudykunst et al. (1996) examined the impact of individualistic-collectivistic values and self-construals on communication styles. Eight communication styles were identified and grouped into low- and high-context communication, such as openness and indirect communication, respectively. Specifically, low-context communication (LC) was related to communicating directly and precisely, tended to disclose person-based information, and preferred to communicate based on true intentions. On the other hand, high-context communication (HC) was linked to communicating indirectly and

ambiguously, shared group-related information, and modified communication to maintain harmony. On one hand, the study found independent-self and LC communication were related to each other, whereas on the other, it was concluded that interdependent-self and HC were connected. For example, independent-self predicted openness with others, whereas interdependent-self predicted more interpersonal sensitivity (e.g., if I have something negative to say to others, I will be tactful in telling them). Most importantly, the individual value of self-construal was found to be a better predictor of communication styles than the individualism - collectivism values of culturalism. For example, although sensitivity was expected to be associated with collectivism, Australia, an individualist culture, had the higher level of sensitivity than Japan and Korea, both collectivist cultures, A similar case was found with the communication style of precision thought to be related to individualism, but, as it turned out, Koreans had higher scores than Americans and Australians. The authors argued that the way individuals communicated with others was based on which self-construal they held, not on the cultural orientation.

Similarly, Aaker and Williams (1998) found that other-focused appeals (e.g., empathy) characterized by the need for unity and harmony were more persuasive for members of the individualistic American culture and ego-focused appeals (e.g., pride) characterized by an individual's internal state or attributes worked better in a collectivistic Chinese culture. The authors argued that the independent-self of members in collectivistic cultures can be triggered most effectively by a culturally appropriate appeal, and that type of self-construal further impacts one's response to persuasive messages.

The same reasoning is used for the interdependent-self of members in individualistic cultures. This implies that the independent and interdependent selves are not “either/or” phenomena; rather, again, it is assumed they coexist within each individual (Ho & Chiu, 1994; Kim, 1994; Kluckhohn & Strodtbeck, 1961; Sinha & Tripathi, 1994). Furthermore, which aspect of self is dominant at the moment of exposure to a persuasive appeal depends on the specific culture-relevant components embedded within a message (Lau-Gesk, 2003; Han & Shaitvv, 1994; LaFromboise, Coleman, Gerton, 1993; Zhang, 2009, 2010; Zhang & Gelb, 1996), and that individuals’ dispositions further impact their behavior, feelings, and thoughts (Bargh, 1982; Higgins, King, & Mavin, 1982; Mandel, 2003). On a similar note, among biculturals (i.e., those whose backgrounds stem from a combination of two cultures, e.g., Chinese Americans), attitude change has been found to be more responsive to persuasive appeals depending on the cultural cues employed and made salient within the message.

Because they incorporate two dispositions, biculturals switch between their two cultural frames responding to the various cues embedded within messages. According to Lau-Gesk (2003), an Asian bicultural individual is defined as a person “with equally developed East Asian and Western cultural dispositions” (p. 301). In a broad sense, individuals who possess two orientations of individualism and collectivism, regardless of where they were born or live, should fall into this category. Moreover, it was found that biculturals respond with more favorable attitudes toward both individually and interpersonally focused appeals (Lau-Gesk, 2003). Zhang (2010) found that young Chinese who carried both cultural values perceived individualistic and collectivistic ad appeals as equally persuasive. Lau-Gesk (2003) and Zhang (2010) argued that

biculturals' dispositions were shifted and activated by the cultural values embedded in the persuasive appeals, which they referred to as *frame switching* (Hong et al., 2000). This line of research implies that biculturals (e.g., younger Asian Americans raised mostly in the West), unlike monoculturals (e.g., older Asian Americans raised mostly in the East), are more likely to accept a more parochially-appealing message since either appeal type can work (Zhang, 2010).

Along a similar line, the culture cues embedded in the appeals congruent with monoculturals' dispositions enhance their self-construal in the way they respond to those appeals. In other words, individualistic appeals evoke the salience of Americans' independent self-construals more than do collectivistic appeals (Zhang, 2009). This self-construal, in turn, influences individuals' attitudes toward persuasive appeals (Aaker & Lee, 2001; Zhang & Gelb, 1996; Wang, Bristol, Mowen, & Chakraborty, 2000). As Zhang (2010) argued, the elements of ads (individualistic or collectivistic) drive consumers' attitudinal response toward the appeal, more so than other elements, such as source credibility.

In summary, although the cultural dimension of individualism and collectivism helps to explain the psychological orientation of individuals from different cultural backgrounds, the individual-level self-construal appears to be a better predictor of personal attributes, traits, behaviors, thoughts, and feelings. Regardless of which culture an individual is from, he or she is thought to possess both types of self-construal— independent and interdependent selves. When one's self-construal (independent or interdependent) is activated, whether by priming or by components embedded in a

persuasive message, it should be expected to broadly impact an individual's feelings, behaviors, and decisions toward the message.

Although the above findings support the argument that the effectiveness of persuasive messages is a function of the link between features embedded in messages and an individual's personal cultural orientation, it does not mean such a link is always completely manifested. It is possible that, for example, individualistic appeals may result in the rejection of persuasive messages if certain factors occur, such as the arousal of reactance. One possibility is that the independent-self, valuing autonomy and independence—which are the core imperatives driving reactance—may be prone to exhibiting a greater degree of reactance than the interdependent self, if the message conveys some implications for controlling one's behavior, for example through the use of explicitly commanding language (e.g. by including adverbs such as “have to”, “must”, or “should”). One aim of the present research is to examine and test whether such an assumption can be supported by empirical observation.

Reactance and Culture

Given that the characteristics of psychological reactance and the nature of individualistic cultures share certain attributes to some degree—such as emphases on autonomy, independence, and freedom (Buboltz, Woler, & Peper, 1999; Dowd, 1999; Dowd, Wallbrown, Sanders, & Yesenosky, 1994)—viewing reactance as primarily focused on the domain of individualistic values seems reasonable (Worchel, 2004). With regard to Japanese participants, Imajo (2002) found reactance to be negatively associated with collectivism and positively associated with uniqueness. Another study conducted in Japan found the perception that one is able to make one's own choices is

more important to American than to Japanese students (Iyengar & Leeper, 1999). Specifically, Anglo Americans were highly intrinsically motivated, and performed well when choices were freely made by themselves, whereas Asian Americans were more motivated by the decisions made by ingroup members (Pohlmann, Carranza, Hannover, & Iyengar, 2007).

A more recent study on reactance and culture in the context of communication was conducted by Quick and Kim (2009), who examined the impact of message features on the arousal of reactance in Korea, and found Koreans perceived controlling language to be a threat to their perceived freedoms, resulting in reactance and boomerang effects. The authors concluded that, although Koreans perceived lower association between controlling language and threat than did Americans, reactance theory appeared to be applicable to collectivistic cultures nonetheless.

Unlike most studies on reactance that treat “freedom” universally, Jonas, Graupmann, Kayser, Zanna, Traut-Mattausch, and Frey (2009) proposed two types of freedom: individual and collective. They argued that individuals from different cultural backgrounds were sure to experience reactance depending on which type of freedom was threatened. Their study found the degree of reactance was greater among Asian Americans when their collective, rather than individual freedom was threatened. In contrast, there was more reactance by European Americans when their individual rather than collective freedom was threatened. Moreover, the interdependent-self led to high degrees of reactance when collective freedom was threatened. When a threat to individual freedom occurred, however, no difference was found between the Asian Americans and the European Americans.

Jonas et al. (2009) confirmed the role of self-construal as a mediator between threat to freedom and reactance and contended that it further mediated behavioral intentions, but only for Asian Americans. When their reactance was aroused by the threat to collective freedom, Asian Americans were unlikely to take action, compared to when it was aroused by individual threat. The authors concluded that the magnitude of reactance was a function of the type of threatened freedom, and mediated by self-construal such that the independent-self was related to reactance when individual freedom was in danger and interdependent-self was associated with reactance when collective freedom was threatened. Solomon, Pyszczynski, and Greenberg (2004), as well as Worchel (2004) claimed that reactance and self were tightly linked to each other. More importantly, Jonas et al. (2009) claimed that culture was a distal and self-construal was a proximal predictor of reactance. Specifically, individuals' understanding about selves and identity was a function of culturally determined selves, and that in turn impacted their experiences with threats to perceived freedom. Although the Jonas et al. (2009) study provides a more complete understanding of reactance in the relationship between culture and self-construal, it does not specifically address the issue of communication.

The above studies have extended the application of reactance theory to a background of collectivistic culture; however, several methodological limitations should be considered. First, although the Quick and Kim (2009) and Jonas et al. (2009) studies have claimed the existence of cultural differences, they did not recruit samples from the two representative cultures, namely individualistic and collectivistic. For example, Quick and Kim (2009) concluded that Koreans perceived less threat than

Americans from controlling language, but they only recruited Koreans. Without comparing two samples in the same research conditions, making the claim that collectivists perceive less threat than individualists from a persuasive message is somewhat dubious. Similarly, participants in the Jonas et al (2009) study were from Britain, the United States, and Germany, only a small fraction of whom were Asians (in Study 1) or Asian Americans (in studies 2 and 4). Those Asian-related samples might well have been too far assimilated into their host countries, rendering them less representative of a bona fide Asian population since they either had lived there long enough or were born in the country. As Mok and Morris (2009) claimed, Asian American immigrants were acculturated to Western norms and had a need for uniqueness and extraversion. Indeed, the two characteristics, uniqueness and extraversion, represent the qualities of an individualistic culture which emphasizes the importance of independence (Eap, Degarmo, Kawakami, Hara, Hall, & Teten, 2008; Hofstede, 1980).

Another concern is the necessity of understanding the tendency of self-construal that individuals hold. Quick and Kim (2009) presumably assumed individuals from a collectivistic culture held collectivistic values associated with an interdependent self; however, as was previously discussed, two types of self-construals coexist, and which of the two dominates in a specific situation represents an unknown factor. One could interpret the results by noting how individual differences in the arousal of reactance may reflect individuals' propensity for whatever form of self-construal prevails at the moment a persuasive message is received.

Chapter III

CURRENT RESEARCH AND HYPOTHESES

The pages following will build upon the literature reviewed above concerning reactance and culture by providing hypotheses to be examined within this dissertation.

Medium

Great amounts of money are allocated to produce PSAs across the globe each year, and the number of PSAs targeting a wide variety of health issues increased dramatically from 2001 to 2006 (Fuhrel-Forbis et al., 2009). Although most of these PSAs have been broadcasted on television and radio, many of them are unlikely to have reached their targeted audiences. For example, Fuhrel-Forbis et al. (2009) found that roughly 30% of PSAs are aired during overnight hours between 1:00 and 5:00AM, followed by 24% in the early morning from 5:00 9:00AM, with only 14% during prime time between 7:00 and 11PM, and a mere 8% during late night from 11:00PM to 1:00AM when their targeted audience is most likely to be consuming those media (Lancaster & Lancaster, 2002). With such a limitation on airing time, it is not surprising that PSAs should show such small effects on the behavioral changes they are targeting within their intended audiences.

Nowadays, many would agree the Internet is the most convenient and accessible worldwide technology for reaching individuals on a variety of topics, such as social issues, politics (Hanson, Haridakis, Cunningham, Sharma, & Ponder, 2010), and health-related information (Kelly, Strum, Kemp, Holland, & Ferketich, 2009). YouTube, which went online in 2005, is now the number one video-sharing website in countries across the globe, including the United States and Taiwan (Alexa.com. 2008). About 4

billion videos watched online per day are seen on YouTube (YouTube, 2012) and approximately 1 billion YouTube videos are viewed on mobile devices (YouTube, 2013). About 85% of adults who were online indicated they were regular YouTube visitors (Social Times, 2014), compared to 76% for Facebook and 40% for Twitter. Given its wide use, uploading a PSA on YouTube should enable it to reach a broad audience pool where internet access is available.

Choosing which video on YouTube to watch at what time is a self-determined behavior individuals generally initiate on their own. In this sense, PSAs on YouTube offer viewers a greater amount of decision-making autonomy, and are more accessible at any time relative to those on television or radio. With these advantages, the present research tested the effects of PSAs on YouTube in a persuasion arena that is better suited to augment the scant research about the effectiveness of mass mediated PSAs promoting healthy behaviors.

Scenarios: Safe Sex & Drug Use

Among risky behaviors, sexual activity and drug use have garnered great attention due to the potentially negative consequences often associated with them. Given the relatively high rate of drug use (Grunbaum et al., 2004) and unprotected sex among emerging adults (i.e., ages 19-25) (CDCP, 2004), developing and designing more effective messages on each topic within PSAs is critical. In addition to the components advocated by previous reactance studies examining health-related PSAs (e.g., the need for autonomy-supportive language), this research focuses on reactance that might be aroused by persuasive messages targeting safe sex and anti-drug use.

Cultural Backgrounds

Although reactance is widely examined in a variety of contexts in the West, only a few studies on reactance have focused on Eastern countries (Quick & Kim, 2009; Jonas et al., 2009). Taking the issue of cultural nuance into consideration, studies on reactance and culture have not satisfactorily answered the question of cultural distinctions in reactance, nor the construct's applicability across different contexts, since little if any research has collected data from both representative cultures at the same time. Whether or not reactance theory is universally applicable is yet to be fully resolved. The main purpose of this dissertation is to test and compare the applicability of reactance theory across Western (i.e., American) and East Asian (i.e., Taiwanese) cultures, and examine more closely the influence of culture on reactance arousal. To accomplish this, experiments were conducted collecting data from samples drawn from these two separate national populations to compare the effects of cultural differences on responses to health-risk persuasive messages.

HYPOTHESES

Appeal type and restoration. Message features, such as appeal type, are likely to induce different levels of reactance as prohibition appeals tend to directly threaten one's freedom of choice and autonomy; whereas fatalistic appeals should be perceived as more indirect, conveying a tone that may leave message recipients more room to make their own choices. Thus, according to reactance theory, fatalistic appeals may be more likely to decrease the chance of reactance arousal. However, some research on pessimism has found individuals who attribute stressful events to internal and stable causes tend to experience more negative affect (Luten, Ralph, & Mineka, 1997; Roesch

et al., 2009). Specifically, Boman, Smith, and Curtis (2003) found that individuals who used pessimistic ways of explaining events in their lives experienced greater anger. Thus, hypothesizing a positive relationship between pessimism in a source and negative affect in a receiver seems reasonable. In theory, compared to fatalistic appeals (e.g., “Regardless of what I say, you’re gonna...”), prohibitive appeals (e.g., “You can’t do that...”) explicitly constrain an individual’s freedom to behave, and may lead to higher degrees of threat. However, it is likely that fatalistic appeals can produce greater reactance by signaling negative predictions about future behavior, while implying the cause of unfavorable consequences should be attributed to the individual actor rather than the circumstances of the situation. Moreover, despite their likelihood of being perceived as less threatening to one’s autonomy than outright prohibitions, if fatalistic appeals are related to greater arousal of anger and negative affect, they should result in more negative attitudes toward the message and the message source. Thus, it is hypothesized that:

H1A: Relative to fatalistic appeals, prohibition appeals will lead to (a) lower degrees of anger and (b) less negative cognition.

H1B: Relative to fatalistic appeals, prohibition appeals will lead to (a) higher levels of perceived threat, but (b) less negative attitudes toward the message, (c) less negative attitudes toward the topic, (d) less negative behavioral intentions, (e) less negative evaluation on source credibility and (f) less negative attitude toward the source.

According to reactance theory, attempts to restore threatened freedoms should occur after reactance is aroused. Individuals who are threatened in their behavioral

freedoms can restore their autonomy and control by rejecting the message and/or through source derogation. To avoid such negative outcomes, a method may be applied to restore individuals' freedom of choice by adding a restoration postscript immediately following a persuasive message (Bessarabova, Fink, & Turner, 2013; Bessarabova & Miller, in press; Miller et al., 2007). Such a postscript should restore one's sense of autonomy because the perceived ability to choose is expected to minimize the magnitude of reactance and thereby reduce negative consequences resulting from reactance arousal. Thus, it is hypothesized that:

H2A: Relative to a freedom-threatening message with no restoration postscript, such a message with a restoration postscript leads to (a) lower degrees of anger, and (b) less negative cognitive evaluations.

H2B: Relative to a freedom-threatening message with no restoration postscript, such a message with a restoration postscript leads to (a) lower levels of threat, (b) more positive attitudes toward the topic, (c) more positive attitudes toward the message (d) more positive behavioral intentions, (e) more positive source credibility, and (f) less negative attitude toward the source.

Although a fatalistic form of appeal conveys a tone leaving room for message receivers to make their own choices—possibly leading to positive reactance-related outcomes—the effects of fatalism within a restoration postscript on reducing reactance is unknown. Individuals who employ fatalistic appeals in persuasive messages might help restore the receiver's perceived freedom of choice, or at least threaten it less. For example, phrasing a message with fatalistic language such as “Regardless of what I say,

you will make your own decision, it doesn't matter if I tell you to not to..." Because of the nature of restoration, a fatalistic form of restoration may produce less threat as hypothesized above; however, negative results may occur due to the fact that a fatalistic style of communication could be perceived as too negative in tone, causing the message source to be perceived as less willing to consider the receiver's position. Because no studies have examined the effects of fatalistic forms of restoration on reactance, whether or not it should successfully minimize the degree of reactance experienced, relative to a standard choice form of restoration is unknown. Therefore, the following research questions are offered:

RQ1A: Which form of restoration—standard vs. fatalistic—employed following a freedom-threatening persuasive message leads to (a) lower degrees of anger, and (b) less negative cognitive evaluations?

RQ1B: Which form of restoration—standard vs. fatalistic—employed following a freedom-threatening persuasive message leads to (a) lower levels of threat, (b) more positive attitude toward the topic, and (c) the message, (d) more positive behavioral intention, (e) more positive source credibility, and (f) less negative attitude toward the source?

Self-construal and culturalism. The concept of self-construal mainly focuses on whether the relation to others is included in the concept of self. One's attitude or behavior is determined either by his or her inner thoughts or attributes (independent construal of self), or by the desire to conform to the groups one feels he or she belongs to (interdependent construal of self). Each self represents the individuals' orientation to others, which in turn reflects their country's cultural orientation. Conversely,

culturalism examines individuals' performance from a more national standpoint, which is to say, when a country is defined as an individualistic culture, people from that country will be more generally characterized as more independent and autonomous, and their behavioral decisions will tend to be based more on personal goals, rather than group norms. The opposite view holds for when a country is more collectivistic in nature, which is to say people there will tend towards greater interdependence while more closely following group norms, as they believe those values to be more central to their self-constructs than the pursuit of personal desires. A sense of ingroup belongingness is what people from collectivistic cultures most strongly prefer.

When adding the culture element into reactance theory, this research considers that self-construal plays a more significant role on reactance effects than culturalism. The nature of reactance somewhat resembles one's psychological presentation, so that inner reflection mirrors one's emotion when encountering persuasive events. Self-construal, relative to culturalism, presents one's internal thoughts on and feelings for the way one behaves. Because reactance and self-construal are built on the idea of self and the self's psychological differences, it is reasonable to assume self-construal to be more predictive than culturalism in terms of reactance arousal and its associated effects.

Hence, it is posited:

H3A: Relative to culturalism, self-construal is more predictive of (a) anger, and (b) negative cognitive evaluation.

H3B: Relative to culturalism, self-construal is more predictive of (a) threat, (b) attitude toward the message, (c) attitude toward the topic, (d) behavioral

intention, (e) source credibility, and (f) attitude toward the source when a persuasive message is given.

One's personality as an aspect of self-construal may influence an individual's response toward persuasive messages. Because independent-self individuals place more weight on independence and autonomy than interdependent-self individuals do, according to reactance theory, the former should experience greater degrees of threat to their behavioral freedom than the latter when a freedom-threatening persuasive message is delivered to them. Along with this, greater levels of reactance and negative outcomes should also occur for independent-self individuals. Hence, it is hypothesized:

H4A: In response to a freedom-threatening persuasive message, relative to interdependent-self individuals, independent-self individuals report (a) higher degrees of anger, and (b) more negative cognitions.

H4B: In response to a freedom-threatening persuasive message, relative to interdependent-self individuals, independent-self individuals report (a) higher levels of threat, (b) less positive attitude toward the message, (c) less positive attitude toward the topic, (d) less positive behavioral intentions, (e) less positive perceptions of source credibility, and (f) more negative attitude toward the source.

Moreover, it is possible that prohibition appeals, representing a more direct threat to one's autonomy, may induce greater levels of reactance among independent-self individuals, relative to interdependent-self individuals. Accordingly, independent-self individuals, experiencing greater degrees of threat should have more negative attitudes toward the message and be less likely to accept the message when they receive

prohibition appeals than when they receive fatalistic appeals. Interdependent-self individuals, on the other hand, putting more weight in relationships with others, and tending to more readily follow rules the group should be better able to maintain harmony, and thus experience less reactance. When using an indirect and vague format such as a fatalistic appeal encouraging them to make their own choices rather than go with the group's choice, they may experience higher levels of threat resulting in more negative outcomes. Hence, the interaction is posited:

H5: There is an interaction between self-construal and appeal type, such that prohibition appeals used on independent-self and fatalistic appeals used on interdependent-self lead to (a) higher degrees of anger, and (b) more negative cognitions, (c) higher levels of threat, (d) less positive attitude toward the message, (e) less positive attitude toward the topic, (f) less positive behavioral intentions, (g) less positive perceived source credibility, and (h) more negative attitude toward the source, relative to fatalistic appeals used on independent-self and prohibition appeals used on interdependent-self.

According to Jonas et al. (2009), independent-self individuals may experience higher levels of reactance when their individual freedoms are threatened more than when their collective freedoms are threatened. On the other hand, interdependent-self individuals may experience higher levels of reactance when their collective freedoms are threatened more than when their individual freedoms are threatened.

Extending the concept of types of freedom and self-construal to the idea of restoration postscript, it is posited that there are two additional types of restoration that may play a role in diminishing the degree of threat and related consequences; they are

individual and collective forms of restoration. In addition to reaffirming individuals' self-determination as stated in the standard form of restoration, individual vs. collective forms of restoration emphasize the importance of selves and groups differently when individuals make decisions. An individual form of restoration reflects the idea that individuals make decisions mainly based on their own desires and preferences, but put less weight on groups they belong to. On the other hand, a collective form of restoration would expect individuals to place more weight on considering group members' suggestions and thoughts but less value on an individuals' own desires when making decisions.

It is possible that because independent-self individuals place more value on their autonomy and emphasize more on their individual freedom, an individual form of restoration should work better relative to a collective form of restoration. Likewise, because interdependent-self individuals place relatively more value on collective consensus, and more emphasis on their collective freedom, a collective form of restoration should work better for them relative to an individual form of restoration. Hence, the following interaction is posited:

H6: There is an interaction between self-construal and restoration type following a persuasive message, such that an individual freedom form of restoration is more effective on independent-self, and a collective freedom form of restoration is more effective on interdependent-self, as indicated by (a) lower degrees of anger, (b) less negative cognitive evaluations, (c) lower levels of threat, (d) more positive attitude toward the topic, (e) more positive attitude toward the message, (f) more positive behavioral

intentions, (g) more positive source credibility, and (h) less negative attitude toward the source, compared with other forms (no, standard, fatalistic, collective) on independent-self and other form (no, standard, fatalistic, individual) on interdependent-self.

CHAPTER IV

METHOD

Before the two main studies were conducted, a pilot study (Study 1) was conducted on samples drawn from US and Taiwanese university student populations to examine participants' attitudes toward the two topics (safe sex practice vs. anti-drug use), and their relative effects on reactance. After the pilot study, the two main studies were conducted on both populations to test the hypotheses above.

In both Study 2 and Study 3, participants from both populations first completed the scales on the value of culturalism and self-construal, then watched a video employing either prohibitive or fatalistic appeals, accompanied by one of five restoration conditions (standard, individual, collective, fatalistic, and no-restoration). Finally, participants were measured for perceptions of threat, reactance arousal, and evaluations of topic, message, behavioral intention, and source credibility. These two study phases differed only by message topic: safe sex (Study 2) and anti-drug (Study 3).

STUDY 1 PILOT

The purpose of the Study 1 pilot was to examine whether participants from the two cultures differed in their attitudes toward different topics on safe sex practice and anti-drug use, and on certain personality traits, including reactance and self-esteem, and on demographic information.

A total of 1865 subjects participated in the pretest. They were recruited through classroom announcements made to the student bodies at three universities; two located in a metropolitan city in Taiwan (TW), and one in the Midwestern United States (US). Of the Taiwanese participants, 65.7% were Islanders, followed by 11% Mainlanders,

10.6% others, 7.2% Hakka, and 4.7% Aborigine. In the US population, participants were 70.2% Caucasian, followed by 10.8% Asian American, 6% Hispanic, 5.2% African American, 3.7% Native American, 2.1% Middle Eastern, and 1.9% Others. The TW sample was 69.5% female with a mean age of 19.54 ($SD = 1.48$), and the US sample was 66.3% female with a mean age of 20.73 ($SD = 2.59$).

The results from an independent samples t-test indicated the two samples were not different in their attitude toward the topic of safe sex practice, $t(1850) = .49$, $p = .624$. However, they significantly differed in their attitude toward the topic of anti-drug use, $t(1852) = 7.98$, $p < .001$, $d = .38$, for the TW sample scored more positively ($M = 6.59$, $SD = .98$) than the US sample ($M = 6.17$, $SD = 1.21$) on the advocacy of not doing drugs. Additionally, TW participants and US participants displayed no significant differences on trait reactance ($p = .334$). This finding implies the experimental results obtained on reactance effects are due to the experimental manipulations used rather than differences in trait reactance between the two populations.

STUDY 2, SAFE SEX PSAS

Procedure

This experiment was designed to test the effects of appeal type and restoration postscript type on psychological reactance following messages promoting safe sex practices. In addition, considering one's personality is expected to play a role in the arousal of reactance, two of the postscript conditions varied as a function of self-construal (interdependent-self vs. independent-self). The safe-sex scenario describes a young man's personal experiences when he engages in sexual behavior without using a condom. He advocates the importance of using condoms starting from a young age; it is

otherwise implied that one may miss out on school life or connection with peers at the time due to unexpected pregnancy.

Participants

Participants in the main studies were notified following the Study 1 pretest, and a total of $N = 1094$ completed the questionnaire for Study 2. Most of the Taiwanese participants identified themselves as islanders (68.7%), with the rest composed of mainlanders (10.6%), Hakka (7.7%), Aborigine (1.9%), and others (11%). The majority of US participants identified themselves as White/Caucasian (70.8%), followed by Asian American (10%), Latino or Hispanic (6.5%), African American (5.5%), Native American (3.7%), Middle Eastern (1.2%), and Others (2.4%). Mean age for TW participants was 19.8 ($SD = 1.46$), and 20.63 ($SD = 2.54$) for US participants. In both populations, participants were mostly females (TW: 76.4%; US: 65.9%). Although, in response to persuasive messages, older teens, and emerging adults aged 18 to 23 are considered to be near the peak of reactance sensitivity, several studies examining slightly older emerging adults (between 23 and 29) have found them to be nearly as reactant (e.g., Hong, Giannakopoulos, Laing, & Williams, 2004). Therefore, only results for emerging adult participants aged 18 to 29 were retained for further analysis, resulting in 22 participants being dropped from the Study 2 analyses.

Survey Administration

Following the initial pretest, the Phase 2 and 3 studies were conducted over the course of a week. Depending on their origins, participants from the two populations were directed to a URL (in English or Chinese), through which their consent was

obtained, after which they were directed to a survey page detailing instructions and scheduling for their participation.

One day after responding to the items in the Study 1 pretest, participants received a reminding email asking them to complete the Study 2 survey. Participants were first asked to fill out demographic information, and scales assessing self-construal and culturalism. Then, they were shown a PSA video message regarding safe sex practices—accompanied or unaccompanied by a restoration postscript—via YouTube. Next they were asked to complete a series of dependent measures, consisting of perceived threat, anger assessment, attitudes toward the message, the topic, and the source, behavior intention, source credibility, and negative cognitive evaluations, after which they were debriefed, thanked and dismissed.

Three days after the Study 2 survey, a reminder email for the Study 3 survey was sent to those who completed Study 2. Procedures and measures in Study 3 were the same as those in Study 2, however, in Study 3, participants were shown the antidrug use PSA video.

All messages in Studies 2 and 3 involved a 2 (appeal type: prohibitive/fatalistic) x 5 (restoration: standard/fatalistic/individual/collective/no restoration) design on the topics of safe sex in Study 2, and anti-drug use in Study 3. There were a total of ten experimental conditions similar in length and content in each study. Message appeals either took a prohibitive form (e.g., "You must not . . .") or a fatalistic form ("Regardless of what I say, you are . . .") (see Appendix A for message variations). The surveys in each study took between 30 to 45 minutes to complete. The participants were

randomized in one of ten interventions in Study 2 and participated in the same experimental condition in Study 3.

Videos were presented with a first-person narrator describing his personal experiences not using condoms (Study 2), or doing drugs (Study 3). To make the content of persuasive messages closely connected with participants, pictures used in the two videos were related to campus view, graduation commencement, school activities, and classmates. The main idea of these two PSA topics focused on the consequences of one's refusal to take actions advocated within the videos with regard to personal relationships and aspirations (see Appendix A for message design). Based on previous research examining the effectiveness on PSAs, audiences within this age range (18-29) are expected to be more concerned about their interpersonal relationships and personal aspirations, while paying less attention to health consequences (Kelly et al., 2006), and displaying a dislike for fear appeals (Helme, Noar, Allard, Zimmerman, Palmgreen, & McClanahan, 2011).

Measures

Individualism vs. collectivism scale. Triandis and Gelfand's (1998) horizontal and vertical individualism and collectivism (HVIC) scales were designed to measure how individuals differ in their relationships with others within a culture (Gushue & Constantine, 2003). A total of 16 items were measured on a seven-point Likert scale indicating the degree to which participants agreed or disagreed. An EFA analysis identified four subscales: one reflecting horizontal individualism (e.g., "I'd rather depend on myself than others," 4-item $\alpha = .72$ in the safe sex data and $.76$ in the anti-drug data); one indicating vertical individualism (e.g., "Winning is everything," 4-item $\alpha = .70$ in the

safe sex data and .76 in the anti-drug data); one designating horizontal collectivism (“I feel good when I cooperate with others,” 4-item $\alpha = .74$ in the safe sex data and .77 in the anti-drug data); and one indicating vertical collectivism (“Parents and children must stay together as much as possible,” 4-item $\alpha = .74$ in the safe sex data and .79 in the anti-drug data) (see Appendix B for all scale measures).

Self-construal. Independent and interdependent self-construal were measured by Singelis’ (1994) Independent vs. interdependent self-construal scale (IISC) to clarify individual differences in the construal of self. The IISC scale contains 24 statements measuring an individual’s tendency toward either interdependent-self (e.g., “I would offer my seat in a bus to my professor”) or independent-self (e.g. “Speaking up during a class is not a problem for me”). Participants were asked to indicate whether or not they agree with each item based on their personal experiences in general, using a 7-point Likert scale anchored by 1 (*strongly disagree*) and 7 (*strongly agree*). Participants with high scores on the interdependent dimension were regarded as interdependent self; those who scored high on the independent dimension were marked as independent-self. People who scored relatively high on both interdependent and independent dimensions were considered coexistent. In the safe sex data, 12-item $\alpha = .75$ (Interdependent self; $M = 4.85$; $SD = .58$) and $\alpha = .74$ (Independent-self; $M = 4.68$; $SD = .63$), whereas in the anti-drug data, 12-item $\alpha = .78$ (Interdependent self; $M = 4.80$; $SD = .56$) and $\alpha = .78$ (Independent-self; $M = 4.71$; $SD = .58$).

Hong’s reactance scale. By considering reactance as a personality trait that differs in reactance experience from individual to individual across situations, Hong and colleagues developed and modified the Hong Psychological Reactance Scale (HPRS;

Hong & Page, 1989; Hong, 1992; Hong & Faedda, 1996). A modified 11-item HPRS by Hong and Faedda (1996) was measured on a 7-point Likert scale, with higher scores indicating greater reactance. Sample statements included: “I resist the attempts of others to influence me”, “I consider advice from others an intrusion”, and “I find contradicting others stimulating”. 11-item $\alpha = .78$ ($M = 4.06$; $SD = .63$).

Perceived threat to freedom. A four-item scale devised by Dillard and Shen (2005) measured perceptions of threat to freedom in response to a given message (e.g. “The message tried to determine the decision for me”, “The message tried to manipulate me”, “The message tried to pressure me”, and “The message threatened my freedom to choose”). Each item was assessed using a five-point Likert scale ranging from “strongly disagree” to “strongly agree”, with higher scores indicating higher levels of threat. The alpha reliabilities in the safe sex and anti-drug studies were $.78$ ($M = 2.84$; $SD = .80$) and $.81$ ($M = 2.89$; $SD = .85$), respectively.

Anger. Four items assessing feelings of irritation, anger, annoyance, and aggravation measured along a 5-point Likert scale ranging from 1 (none of this feeling) to 4 (a great deal of this feeling) were used to quantify participants’ negative emotion toward a given message (Dillard & Shen, 2005). This scale demonstrated excellent internal consistency: 4-item $\alpha = .91$ ($M = 1.55$; $SD = .83$) in the safe sex study, whereas it was $.93$ ($M = 1.65$; $SD = .92$) in the anti-drug study.

Attitude toward the message. Three 7-point Likert scale items developed by Shen and Dillard (2005) were used to measure participants’ attitude toward the position advocated in the message. These included: “I support what the message was trying to accomplish,” “I totally agree with the position promoted in the message,” and “I am

favorable towards the main point of the message.” This scale also demonstrated excellent internal consistency: 3-item $\alpha = .92$ ($M = 5.21$; $SD = 1.09$) in the safe sex data and it was $.94$ ($M = 5.25$; $SD = 1.16$) in the anti-drug study.

Source credibility. Attitude toward the message source was measured using nine items drawn from McCroskey (1966), measured on a 7-point semantic differential, anchored by opposing adjectives, such as, distant/close and esteem/disdain. This scale demonstrated excellent internal consistency: 9-item $\alpha = .89$ ($M = 4.34$; $SD = .93$) in the safe sex study, while the alpha reliability was $.91$ ($M = 4.24$; $SD = .91$) in the anti-drug study.

Attitude toward the topic. To measure how individuals feel about the topics of condom use and drug use in the messages, a scale developed by Dillard and Shen’s (2005) measured on 7-point semantic differentials anchored by opposing adjectives (e.g., bad/good, foolish/wise, unfavorable/favorable) was used. This scale also demonstrated excellent internal consistency, 7-item $\alpha = .92$ ($M = 5.37$, $SD = 1.14$) in the safe sex data and $.94$ ($M = 4.94$; $SD = 1.37$) in the anti-drug data.

Behavioral intentions. Shen and Dillard’s (2005) three item measure using 7-point Likert scales anchored by “strongly disagree” and “strongly agree” was used to assess behavioral intention. These three items were: “I plan to act in ways that are compatible with the position promoted by the message,” “I am going to make an effort to do what the message urged me to do,” and “I intend to behave in ways that are consistent with the message.” This scale also demonstrated excellent internal consistency: 3-item $\alpha = .93$ ($M = 4.92$; $SD = 1.12$) in the safe sex data, whereas it was $.91$ ($M = 5.05$; $SD = 1.19$) in the anti-drug study.

Attitude toward the source. Drawn from McCroskey (1966), two dimensions were used to measure attitude toward source. They are authoritativeness and character, which used 7-point semantic differentials anchored on either end with opposing adjectives. For authoritativeness these items included, reliable/unreliable, uninformed/informed, unqualified/qualified, and inexpert/expert. For character the items included, honest/dishonest, unfriendly/friendly, and virtuous/sinful as choices. This scale, too, demonstrated excellent internal consistency: 12-item $\alpha = .95$ both in the safe sex ($M = 3.89$; $SD = 1.06$) and anti-drug ($M = 3.89$; $SD = 1.03$) studies.

Hedonic relevance. Proposed by Miller and Averbeck (2010), eight items using 7-point semantic differentials anchored on either end with opposing adjectives were employed to measure hedonic relevance and subjective importance of the PSA topics of safe sex and anti-drug use (e.g. pleasant/ unpleasant, pleasurable/unpleasurable, and consequential/inconsequential). This scale demonstrated good internal consistency: 8-item $\alpha = .83$ ($M = 4.77$; $SD = .93$) for the safe sex PSA topic and $.82$ ($M = 4.59$; $SD = .90$) for the anti-drug use PSA topic.

Negative cognitive evaluations. Adapted from Dillard et al. (1996) and Miller et al. (2007), three dimensions containing a total of 16 items were scored using a 7-point Likert scale ranging from “strongly disagree” to “strongly agree.” The first dimension evaluated message fairness (e.g. “The message was fair.”), whereas the other two dimensions assessed message attention (e.g., “The message was interesting) and message importance (e.g., “The message was important to me”). This scale demonstrated excellent internal consistency 16-item $\alpha = .92$ both in the safe sex ($M = 4.44$; $SD = .83$) and the anti-drug ($M = 4.27$; $SD = .84$) studies.

These measures and the scenarios were first produced in English and then translated into Chinese by a Taiwanese graduate student fluent in both languages. After his translation work was completed, the questionnaire was translated back into English by another Taiwanese graduate student, also fluent in both languages. These two versions were compared and revisions were done where inconsistencies were noticed. Both translators were born in Taiwan and had spent a substantial amount of time studying abroad in the United States. Neither was informed of the hypotheses nor purpose of the research.

STUDY 2 RESULTS

Manipulation Check

Across both samples, individuals who viewed a safe sex video message accompanied by one of four restoration postscript conditions (standard, fatalistic, individual, collective) were categorized within the low-threat condition, whereas those who received no restoration postscript were categorized within the high-threat condition. An independent samples t-test showed that individuals under high-threat conditions perceived significantly higher levels of threat ($M = 2.96$, $SD = .76$) than those under low-threat conditions ($M = 2.85$, $SD = .83$), $t(1903) = 2.09$, $p = .037$, $d = .13$. Thus, the threat manipulation as operationalized via the restoration of freedom postscripts was successful.

Hypothesis Testing, Study 2

Appeal Type

Hypothesis 1A predicted fatalistic appeals lead to (a) higher degrees of anger, and (b) more negative cognitive evaluations than prohibition appeals. Hypothesis 1B predicted prohibition appeals leads to (a) higher levels of threat, (b) less negative attitudes toward the message, (c) less negative attitudes toward the topic, (d) less negative behavioral intentions, (e) less negative evaluation of source credibility, and (f) less negative attitudes toward the source relative to fatalistic appeals.

To test these hypotheses, a 2 (appeal type: prohibitive vs. fatalistic) x 5 (restoration type: standard, fatalistic, individual, collective, no-restoration) two-way MANOVA was conducted with threat, anger, negative cognitive evaluation, behavioral intention, attitude toward topic and message, source credibility, and attitudes toward the source as dependent variables.

The omnibus results indicated a significant main effect for appeal type (prohibition vs. fatalistic), $F(8, 1069) = 3.88, p < .001$, Pillai's $V = .03, \eta^2_p = .03$. The univariate results demonstrated that appeal type had an impact on threat, $F(1, 1076) = 8.25, p = .004, \eta^2_p = .01$.

In support of H1A-a, more anger was reported in response to fatalistic appeals ($M = 1.63, SD = 1.18$) than prohibitive appeals ($M = 1.48, SD = 1.14$), $F(1, 1076) = 9.40, p = .002, \eta^2_p = .01$. In support of H1B-a, prohibitive appeals ($M = 2.92, SD = 1.11$) led to more threat than fatalistic appeals ($M = 2.78, SD = 1.15$), $F(1, 1076) = 8.25, p = .004, \eta^2_p = .01$. In support of H1B-e, prohibitive appeals ($M = 3.98, SD = 1.44$) were associated with more positive assessments of source credibility than fatalistic appeals

($M = 3.79$, $SD = 1.49$), $F(1, 1076) = 9.41$, $p = .002$, $\eta^2_p = .01$ (all Means and SDs reported in Table 1). No other significant effects were found (behavioral intention, $p = .299$; attitude toward topic, $p = .220$, and message, $p = .690$; attitude toward the source, $p = .190$; negative cognition evaluation, $p = .150$). Taken together, these results provide partial support for H1A, that is, prohibitive appeals were associated with higher levels of anger than fatalistic appeals, but not higher levels of negative cognitions. In partial support of H1B, prohibitive appeals produced greater (a) threat to freedom, and (e) less negative evaluation on source credibility than fatalistic appeals. However, the two appeal types demonstrated no significant differences on negative cognitive evaluation ($p = .150$), attitudes toward the message ($p = .690$), attitudes toward the topic ($p = .220$), behavioral intentions ($p = .299$), or attitude toward the source ($p = .190$).

Table 1: Means, Standard Deviations, and F values for Appeal Type in Safe Sex data

| Dependent Variables | Prohibitive | | Fatalistic | | F |
|-------------------------|-------------------|------|-------------------|------|--------|
| | Mean (n = 559) | SD | Mean (n = 527) | SD | |
| Threat to Freedom | 2.92 | 1.11 | 2.78 | 1.15 | 8.25** |
| Anger | 1.48 | 1.14 | 1.63 | 1.18 | 9.40** |
| Negative Cognitions | 4.48 | 1.14 | 4.41 | 1.18 | 2.08 |
| Behavioral Intention | 4.97 | 1.54 | 4.90 | 1.59 | 1.08 |
| Attitude toward Topic | 5.42 | 1.57 | 5.33 | 1.62 | 1.51 |
| Attitude toward Message | 5.22 | 1.51 | 5.19 | 1.56 | .16 |
| Source Credibility | 3.98 | 1.44 | 3.79 | 1.49 | 9.41** |
| Source Derogation | 4.37 | 1.26 | 4.29 | 1.31 | 1.72 |

Note: Significant F values indicated by ** $p < .01$.

Restoration Type

The above analysis was also used to test H2A which predicted a threatening message with a restoration postscript leads to (a) lower degrees of anger and (b) less negative cognitive evaluations relative to a threatening message without a restoration postscript, and H2B, which predicted a threatening message with a restoration postscript leads to (a) lower levels of threat, (b) more positive attitudes toward the topic, (c) more positive attitudes toward the message (d) more positive behavioral intentions, (e) more positive source credibility, and (f) less negative attitudes toward the source, relative to a threatening message without a restoration postscript.

The multivariate result for restoration type was statistically significant, $F(32, 4288) = 2.06, p < .001$, Pillai's $V = .06, \eta^2_p = .02$. The univariate results indicated that the application of the restoration method was associated with lesser anger, $F(4, 1076) = 4.28, p = .002, \eta^2_p = .02$, with the no-restoration method ($M = 1.62, SD = .90$) producing higher degrees of anger than the collectivistic restoration postscript ($M = 1.46, SD = .76, p = .021$), which supports H2A-a (all Means and SDs are reported in Table 2).

Moreover, H2B-b received support, such that standard form of restoration method ($M = 5.49, SD = 2.60, p = .016$) or collective form of restoration method ($M = 5.53, SD = 2.47, p = .004$) resulted in more positive attitude toward topic compared to the no-restoration postscript ($M = 5.16, SD = 2.49$), $F(4, 1076) = 4.55, p = .001, \eta^2_p = .02$.

Similarly, in support of H2B-e, more positive source credibility was associated with standard restoration method ($M = 4.15, SD = .99, p = .001$) or collectivistic restoration method ($M = 4.04, SD = .99, p < .001$), relative to the no-restoration postscript ($M = 3.73, SD = 1.08$), $F(4, 1076) = 7.17, p < .001, \eta^2_p = .03$. H2B-f also

received support, in that more positive attitudes toward the source were shown in response to the standard postscript ($M = 4.49, SD = .93, p = .002$), compared to the no-restoration postscript ($M = 4.24, SD = .90$), $F(4, 1076) = 6.22, p < .001, \eta^2_p = .02$.

Finally, although univariate results showed a statistically significant effect for restoration type on negative cognitive evaluations, $F(4, 1076) = 3.43, p = .008, \eta^2_p = .01$, the results from Bonferroni post hoc test indicated H2A-b failed to receive support, for no significant differences were found among the five types of restoration methods (none, standard, individualistic, collective, and fatalistic) ($p = .79$), indicating that threatening messages produced similar degrees of negative cognitions regardless of postscript type (for all means and SD s, see Table 2).

Table 2: Means, Standard Deviations, and *F* values for Restoration Type, Study 2

| Dependent Variables | No | | Standard | | Fatalistic | | Individualistic | | Collective | | F |
|-------------------------|--------------|------|--------------|------|--------------|------|-----------------|------|--------------|------|--------|
| | M (n=222) | SD | M (n=211) | SD | M (n=222) | SD | M (n=205) | SD | M (n=226) | SD | |
| Threat to Freedom | 2.94 | .74 | 2.76 | .82 | 2.84 | .77 | 2.87 | .83 | 2.85 | .80 | 1.5 |
| Anger | 1.62 a | .90 | 1.49 | .83 | 1.69 b | .85 | 1.58 | .84 | 1.46 a b | .76 | 4.28* |
| Negative Cognitions | 4.41 | .85 | 4.51 h | .82 | 4.30 h i | .81 | 4.43 | .84 | 4.45 i | .77 | 3.43* |
| Behavioral Intention | 4.87 | 1.03 | 5.04 | 1.12 | 4.95 | 1.14 | 4.87 | 1.18 | 4.96 | 1.02 | 0.87 |
| Attitude toward Topic | 5.16 c d | 2.49 | 5.49c | 2.60 | 5.26 | 2.49 | 5.43 | 2.60 | 5.53 d | 2.47 | 4.55* |
| Attitude toward Message | 5.09 | 1.06 | 5.29 | 1.09 | 5.23 | 1.09 | 5.15 | 1.10 | 5.27 | 1.04 | 1.39 |
| Source Credibility | 3.73 e f | 1.08 | 4.15 e | .99 | 3.71 | 1.07 | 3.81 | 1.01 | 4.04 f | .99 | 7.17** |
| Source Derogation | 4.24 g | .90 | 4.49 g | .93 | 4.15 | .87 | 4.27 | .90 | 4.47 | .90 | 6.22** |

Note: Significant *F* values indicated by ** $p < .01$, * $p < .05$. Same letters in a row indicate significant mean differences at $p < .05$

Although it was not hypothesized, Bonferroni post hoc tests showed that fatalistic restoration ($M = 4.30$, $SD = .81$) produced more unfavorable thoughts than standard ($M = 4.51$, $SD = .82$, $p = .003$) or collectivistic forms of restoration ($M = 4.45$, $SD = .77$, $p = .020$). Finally, restoration methods had no significant effects on threat ($F(4, 1076) = 1.49$, $p = .201$, $\eta^2_p = .01$), behavioral intention ($F(4, 1076) = .87$, $p = .481$, $\eta^2_p = .003$), and attitude toward message ($F(4, 1076) = 1.39$, $p = .235$, $\eta^2_p = .005$).

Together, H2A was partially supported by showing that H2A-a more anger was significantly associated with a threatening message accompanied with no restoration postscript ($M = 1.62$, $SD = .90$, $p = .02$), compared to the threatening message with a restoration method (e.g., collective: $M = 1.46$, $SD = .76$, $p = .021$).

With regard to the H2A-b, negative cognitive evaluations, the result was not as expected; the messages accompanied by no-restoration postscript ($M = 4.41$, $SD = .85$, $p = .79$) did not lead to more or less negative cognitions than the messages with other forms of restoration (standard, $M = 4.51$, $SD = .82$, $p = .791$, fatalistic, $M = 4.30$, $SD = .81$, $p = .518$, individualistic, $M = 4.43$, $SD = .84$, $p = .242$, or collective, $M = 4.45$, $SD = .77$, $p = .906$). However, the threatening message using a standard ($M = 4.51$, $SD = .82$) or collective type of restoration ($M = 4.45$, $SD = .77$) produced significantly more favorable thoughts than the fatalistic form of restoration ($M = 4.30$, $SD = .81$, $p = .008$).

An independent samples *t*-test was conducted using restoration type as the independent variable (only standard and fatalistic types of restoration were included) on the aforementioned dependent variables to answer RQ1A, which examined whether standard or fatalistic forms of restoration following the persuasive message lead to (a) lower degrees of anger, and (b) less negative cognitive evaluations, and also RQ1B,

which asked whether standard or fatalistic forms of restoration following the persuasive message lead to (a) lower levels of threat, (b) more positive attitude toward the topic, and (c) positive attitude toward the message, as well as (d) more positive behavioral intention, (e) more positive source credibility, and (f) less negative attitudes toward the source.

Results indicated that a standard restoration postscript ($M = 1.49$, $SD = .83$) led to less anger than a fatalistic restoration postscript ($M = 1.69$, $SD = .86$), $t(435) = -2.43$, $p = .016$, $d = -.24$. Moreover, the standard form of restoration ($M = 4.55$, $SD = .84$) was associated with more favorable thoughts, $t(434) = 3.17$, $p = .002$, $d = .30$, than the fatalistic form of restoration ($M = 4.30$, $SD = .82$). Reasonably, the standard restoration ($M = 5.49$, $SD = 1.17$) produced more positive attitude toward the topic than the fatalistic restoration ($M = 5.26$, $SD = 1.17$), $t(435) = 2.06$, $p = .04$, $d = .20$. Also, the standard type of restoration ($M = 4.12$, $SD = 1.01$) led to more positive evaluation on source credibility than the fatalistic type of restoration ($M = 3.71$, $SD = 1.08$), $t(433) = 4.03$, $p < .001$, $d = .39$. Lastly, the standard form of restoration ($M = 4.52$, $SD = .95$) resulted in more positive attitude toward the source than the fatalistic form of restoration ($M = 4.14$, $SD = .87$), $t(434) = 4.28$, $p < .001$, $d = .41$ (means and SDs see Table 3). No significant effects were found on threat ($p = .257$), behavioral intention ($p = .409$), and attitude toward the message ($p = .489$).

Together, a fatalistic type restoration results in reactance arousal and more negative consequences than a standard type restoration. The results for RQ1A demonstrate that the standard form of restoration leads to (a) less anger and (b) less negative cognition than the fatalistic form of restoration. With regard to RQ1B, the

analysis shows that, relative to the fatalistic form of restoration, the standard form is associated with (b) more positive assessment of the topic, (e) more positive source credibility, and (f) less negative attitudes toward the source. However, the two types of restoration did not differ significantly on (a) perceptions of threat ($p = .257$), (c) assessment of the message ($p = .489$), or (d) behavioral intention ($p = .409$) (means and SDs see Table 3).

Table 3: Means, SDs, and t values for Standard vs. Fatalistic Restoration, Study 2

| Dependent Variables | Standard Restoration | | Fatalistic Restoration | | t |
|-------------------------|----------------------|------|------------------------|------|--------|
| | M (n=213) | SD | M (n=224) | SD | |
| Threat to Freedom | 2.76 | .82 | 2.84 | .78 | -1.13 |
| Anger | 1.49 | .83 | 1.69 | .86 | -2.43* |
| Negative Cognitions | 4.55 | .84 | 4.30 | .82 | 3.17** |
| Behavioral Intention | 5.04 | 1.12 | 4.95 | 1.14 | .83 |
| Attitude toward topic | 5.49 | 1.17 | 5.26 | 1.17 | 2.06* |
| Attitude toward message | 5.30 | 1.10 | 5.23 | 1.10 | .69 |
| Source Credibility | 4.12 | 1.01 | 3.71 | 1.08 | 4.03** |
| Source Derogation | 4.52 | .95 | 4.14 | .87 | 4.28** |

Note: Significant t values indicated by ** $p < .01$, * $p < .05$.

Self-construal vs. Culturalism

To compare whether self-construal or culturalism has more impact on reactance effects, the two subscales of self-construal, interdependent-self and independent-self and the four subscales of culturalism (horizontal individualism, vertical individualism, horizontal collectivism, and vertical collectivism) were set as predictor variables in multiple regression analysis.

Table 4 presents correlations between interdependent-self, independent-self, horizontal individualism, vertical individualism, horizontal collectivism, and vertical collectivism, and each of the eight criterion variables. Interdependent self-construal was significantly and positively correlated with vertical individualism, horizontal collectivism, vertical collectivism, negative cognition, behavioral intentions, attitude toward topic, attitude toward message, source credibility, and negative attitudes toward the source. Interdependent self-construal was significantly and negatively correlated with anger and threat. Furthermore, interdependent self-construal was not significantly correlated with horizontal individualism. On the other hand, independent self-construal was significantly and positively correlated with the horizontal individualism, vertical individualism, horizontal collectivism, vertical collectivism, negative cognitions, behavioral intention, attitudes toward the topic and the message, source credibility, and attitudes toward the source; nevertheless, independent self-construal was significantly and negatively correlated with threat. However, it was not significantly correlated with anger.

For the subscales of culturalism, first, horizontal individualism was significantly and positively correlated with vertical individualism, horizontal collectivism, vertical collectivism, anger, behavioral intention, and attitude toward the message. Furthermore, horizontal individualism was significantly and negatively correlated with threat. However, horizontal individualism was not correlated with negative cognitions, attitude toward topic, source credibility, and attitude toward source.

Table 4: Correlations Among Self-Construal, Culturalism and Criterion Variables, Study 2

| Variable | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|-----------------------------|--------|--------|---------|--------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 1. Interdependent-Self | .159** | .019 | .069* | .467** | .528** | -.150** | .291** | -.077* | .169** | .127** | .170** | .186** | .220** |
| 2. Independent-Self | - | .405** | .194** | .406** | .239** | -.002 | .167** | -.103** | .109** | .104** | .123** | .105** | .154** |
| 3. Horizontal Individualism | - | - | .313** | .111** | .064* | .162** | .037 | -.064* | .124** | .055 | .117** | -.054 | .023 |
| 4. Vertical Individualism | - | - | -.094** | .113** | .078** | .032 | .233** | -.022 | .016 | -.064* | -.047 | -.118** | |
| 5. Horizontal Collectivism | - | - | - | .464** | -.082** | .209** | -.217** | .195** | .150** | .256** | .128** | .251** | |
| 6. Vertical Collectivism | - | - | - | -.069* | -.069* | .229** | -.127** | .132** | .128** | .157** | .164** | .216** | |
| 7. Anger | - | - | - | - | - | -.522** | .191** | -.261** | -.377** | -.312** | -.418** | -.404** | |
| 8. Negative Cognitions | - | - | - | - | - | -.209** | .583** | .630** | .600** | .528** | .653** | | |
| 9. Threat to Freedom | - | - | - | - | - | - | -.184** | -.229** | -.275** | -.264** | -.400** | | |
| 10. Behavioral Intention | - | - | - | - | - | - | - | .467** | .616** | .289** | .434** | | |
| 11. Attitude toward Topic | - | - | - | - | - | - | - | - | .527** | .428** | .497** | | |
| 12. Attitude toward Message | - | - | - | - | - | - | - | - | - | .319** | .485** | | |
| 13. Source Credibility | - | - | - | - | - | - | - | - | - | - | .689** | | |
| 14. Attitude toward Source | - | - | - | - | - | - | - | - | - | - | - | | |

Note: Significant correlations indicated by ** $p < .01$, * $p < .05$. (two-tailed)

Second, vertical individualism was significantly and positively correlated with vertical collectivism, anger, and threat, and was significantly and negatively correlated with horizontal collectivism, attitude toward message, and attitude toward source. Yet, it was not significantly correlated with negative cognitions, behavioral intention, attitude toward topic, and source credibility.

Third, horizontal collectivism was significantly and positively correlated with vertical collectivism, negative cognitions, behavioral intention, attitude toward topic, attitude toward message, source credibility, and attitude toward source. Nevertheless, horizontal collectivism was significantly and negatively correlated with anger and threat. Last, vertical collectivism was significantly and positively correlated with negative cognitions, behavioral intention, attitude toward topic, attitude toward message, source credibility, and attitude toward source. However, vertical collectivism was significantly and negatively correlated with anger and threat.

Hypothesis 3A posited that self-construal is more predictive of (a) anger and (b) negative cognitive evaluation than culturalism, and H3B posited that, when a choice threatening persuasive message is given, self-construal is more predictive of (a) threat, (b) attitude toward the message, (c) attitude toward the topic, (d) behavioral intention, (e) source credibility, and (f) attitude toward the source than culturalism. Multiple regression analyses were conducted with self-construal (interdependent-self, independent-self) and culturalism (HI, VI, HC, VC) serving as predictors, and threat, anger, negative cognitive evaluation, attitude toward the message, attitude toward the topic, behavioral intention, source credibility, and attitude toward the source serving as criterion variables (significant beta weights reported in Table 5).

In examining anger, the model was statistically significant ($R^2 = .05$, $F(6, 1092) = 10.35$, $p < .001$); with interdependent-self ($\beta = -.149$) and horizontal individualism ($\beta = .174$) being significant predictors. H3A-a failed to receive support as self-construal contributed less than culturalism. Examination of the beta weights shows that, rather than high degrees of interdependent self-construal, it was low degrees of interdependent self-construal leading to higher degrees of anger. However, it was the opposite for horizontal individualism: the higher levels of horizontal individualism individuals held, the more likely they experienced higher levels of anger.

Concerning negative cognitions, the model was significant as well, ($R^2 = .011$, $F(6, 1090) = 21.26$, $p < .001$). In support of H3A-b, both interdependent-self ($\beta = .223$) and independent-self ($\beta = .113$) were significant predictors, whereby, a low degree of interdependent and independent self-construal was associated with higher levels of unfavorable thoughts relative to high degrees of interdependent and independent self-construal. For culturalism, vertical collectivism was the only significant predictor ($\beta = .073$), for lower levels of vertical collectivism was related to higher levels of unfavorable thoughts than higher levels of vertical collectivism.

Further, the model was statistically significant for threat ($R^2 = .11$, $F(6, 1092) = 22.98$, $p < .001$). H3B-a failed to receive support for the four subscales of culturalism were significant predictors, with vertical individualism contributed the most ($\beta = .273$), followed by horizontal collectivism ($\beta = -.130$), horizontal individualism ($\beta = -.114$), and vertical collectivism ($\beta = -.092$) (see Table 5). According to beta weights, the higher level of vertical individualism was related to more perception of threat than the lower levels of vertical individualism. On the contrary, the higher level of horizontal

collectivism was associated with less perception of threat than lower levels of horizontal collectivism. Same interpretations for horizontal individualism and vertical collectivism. Higher degrees of horizontal individualism and vertical collectivism were associated with less perception of threat than lower degrees of horizontal individualism and vertical collectivism.

With regard to the evaluation of attitude toward the topic, the model was again significant ($R^2 = .03$, $(6, 1092) = 5.76$, $p < .001$). Failed to support H3B-c, the horizontal collectivism dimension of culturalism was the only significant contributor ($\beta = .081$). Individuals with high degrees of horizontal collectivism evaluated the topic of safe sex more positively than those with low degrees of horizontal collectivism.

The regression model for source credibility was statistically significant, $R^2 = .06$, $F(6, 1087) = 11.00$, $p < .001$. Both self-construal and culturalism were the significant contributors to the model, yet, in support of H3B-e, self-construal (interdependent-self, $\beta = .139$; independent-self, $\beta = .120$) had a greater impact than culturalism (horizontal individualism, $\beta = -.089$; vertical collectivism, $\beta = .086$; vertical individualism, $\beta = -.063$) in terms of beta weights. Individuals with high levels of both types of self-construal evaluated more positive source credibility than low levels of both types of self-construal. Similarly, individuals with high levels of vertical collectivism evaluated more positive source credibility than those with low levels of vertical collectivism. Nevertheless, high degrees of horizontal individualism and vertical individualism led to less positive source credibility than low degrees of horizontal individualism and vertical individualism

Table 5: Coefficients, *t*, and *p* value for Self-Construal vs. Culturalism, Study 2

| Dependent Variables | Independent Variables | B | β | t | <i>p</i> |
|----------------------|--------------------------|-------|----------|--------|----------|
| Anger | Interdependent-self | -.214 | -.149*** | -4.073 | .000 |
| | Independent-self | -.073 | -.055 | -1.545 | .123 |
| | Horizontal individualism | .175 | .174*** | 5.193 | .000 |
| | Vertical individualism | .029 | .042 | 1.295 | .196 |
| | Horizontal collectivism | -.012 | -.011 | -.276 | .783 |
| | Vertical collectivism | .012 | .012 | .327 | .744 |
| Negative Cognitions | Interdependent-self | .317 | .223*** | 6.261 | .000 |
| | Independent-self | .148 | .113** | 3.247 | .001 |
| | Horizontal individualism | -.021 | -.021 | -.634 | .526 |
| | Vertical individualism | -.004 | -.005 | -.144 | .886 |
| | Horizontal collectivism | .031 | .027 | .718 | .473 |
| | Vertical collectivism | .069 | .073* | 2.030 | .043 |
| Threat to Freedom | Interdependent-self | .030 | .022 | .616 | .538 |
| | Independent-self | -.048 | -.038 | -1.100 | .271 |
| | Horizontal individualism | -.110 | -.114*** | -3.504 | .000 |
| | Vertical individualism | .246 | .273*** | 8.714 | .000 |
| | Horizontal collectivism | -.146 | -.130*** | -3.499 | .000 |
| | Vertical collectivism | -.085 | -.092* | -2.587 | .010 |
| Behavioral Intention | Interdependent-self | .203 | .106** | 2.910 | .004 |
| | Independent-self | .002 | .001 | .032 | .974 |
| | Horizontal individualism | .165 | .124*** | 3.698 | .000 |
| | Vertical individualism | -.073 | -.059 | -1.827 | .068 |
| | Horizontal collectivism | .179 | .116** | 3.013 | .003 |
| | Vertical collectivism | .026 | .020 | .552 | .581 |

Note: Significant differences indicated by *** $p < .001$, ** $p < .01$, * $p < .05$.

Table 5: Coefficients, *t*, and *p* value for Self-Construal vs. Culturalism, Study 2—Cont'd

| Dependent Variables | Independent Variables | B | β | t | <i>p</i> |
|-------------------------|--------------------------|-------|----------|--------|----------|
| Attitude toward Topic | Interdependent-self | .114 | .058 | 1.561 | .119 |
| | Independent-self | .075 | .041 | 1.137 | .256 |
| | Horizontal individualism | .031 | .023 | .668 | .505 |
| | Vertical individualism | .001 | .001 | .018 | .985 |
| | Horizontal collectivism | .129 | .081* | 2.077 | .038 |
| | Vertical collectivism | .062 | .047 | 1.264 | .206 |
| Attitude toward Message | Interdependent-self | .125 | .067 | 1.850 | .065 |
| | Independent-self | -.007 | -.004 | -.123 | .902 |
| | Horizontal individualism | .161 | .124*** | 3.742 | .000 |
| | Vertical individualism | -.114 | -.094** | -2.938 | .003 |
| | Horizontal collectivism | .281 | .185*** | 4.899 | .000 |
| | Vertical collectivism | .050 | .040 | 1.095 | .274 |
| Source Credibility | Interdependent-self | .254 | .139*** | 3.783 | .000 |
| | Independent-self | .203 | .120** | 3.364 | .001 |
| | Horizontal individualism | -.113 | -.089** | -2.641 | .008 |
| | Vertical individualism | -.076 | -.063 | -1.957 | .051 |
| | Horizontal collectivism | -.032 | -.021 | -.555 | .579 |
| | Vertical collectivism | .105 | .086* | 2.328 | .020 |
| Attitude toward Source | Interdependent-self | .182 | .115** | 3.214 | .001 |
| | Independent-self | .140 | .095** | 2.743 | .006 |
| | Horizontal individualism | .016 | .014 | .438 | .662 |
| | Vertical individualism | -.158 | -.152*** | -4.835 | .000 |
| | Horizontal collectivism | .121 | .094* | 2.507 | .012 |
| | Vertical collectivism | .113 | .106** | 2.970 | .003 |

Note: Significant differences indicated by *** $p < .001$, ** $p < .01$, * $p < .05$.

Moreover, the model was significant on negative attitudes toward the source, $R^2=.11$, $F(6, 1091) = 21.16$, $p < .001$. Contrary to H3B-f hypothesized, the three dimensions of culturalism (vertical individualism, $\beta = -.152$; vertical collectivism, $\beta = .106$; horizontal collectivism, $\beta = .094$) contributed more to the model than the two dimensions of self-construal (interdependent-self, $\beta = .115$; independent-self, $\beta = .095$) on the basis of beta weights. Hence, H3B-f failed to receive support. Individuals with high degrees of both types of self-construal led to less negative attitudes toward the source relative with low degrees of both types of self-construal. Also, individuals with high levels of horizontal collectivism and vertical collectivism led to less negative attitudes toward the source, compared to those with low levels of horizontal collectivism and vertical collectivism. On the contrary, individuals with high levels of vertical individualism produced more negative attitudes toward the source than those with low levels of vertical individualism.

The overall regression was also statistically significant on behavioral intention ($R^2 = .06$, $F(6, 1092) = 11.45$, $p < .001$). Both culturalism and self-construal contributed to the model in some way, as horizontal individualism ($\beta = .124$) showed the greatest effect, followed by horizontal collectivism ($\beta = .116$) and interdependent self-construal ($\beta = .106$). Considering the beta weights, therefore, H3B-d did not receive support with culturalism contributed more to the model than self-construal. The analysis indicated that the higher degrees of horizontal individualism and horizontal collectivism, the more positive behavioral intentions than lower degrees of horizontal individualism and horizontal collectivism. Similarly, the higher levels of interdependent self-construal, the more positive behavioral intentions than lower levels of interdependent self-construal.

Finally, for the evaluation on attitude toward the message, the overall model was also significant ($R^2 = .09$, $F(6, 1092) = 16.73$, $p < .001$). Although interdependent self-construal approached significance ($p = .065$), H3B-b did not receive support for the three dimensions of culturalism were significant contributors to the model: horizontal collectivism, $\beta = .185$; horizontal individualism, $\beta = .124$; vertical individualism, $\beta = -.094$. Higher degrees of horizontal collectivism and horizontal individualism led to more positive assessment of the message than lower degrees of horizontal collectivism and horizontal individualism. However, it was opposite for vertical individualism; higher degrees of vertical individualism were associated with less positive assessment of the message than lower degrees of vertical individualism.

In sum, hypothesis 3A was partially supported: self-construal (interdependent-self: $\beta = .223$; independent-self = $.113$) had a greater impact on (b) negative cognitions than culturalism (vertical collectivism: $\beta = .073$), but it was culturalism (horizontal individualism: $\beta = .174$) contributing more (a) anger than self-construal (interdependent-self: $\beta = -.149$). Also, H3B received partial support by showing that self-construal (interdependent-self: $\beta = .139$; independent-self: $\beta = .120$) had a greater influence on (e) source credibility, in comparison to culturalism (horizontal individualism: $\beta = -.089$; vertical collectivism: $\beta = .086$). With other criterion variables, however, culturalism contributed more on (a) threat to freedom (vertical individualism: $\beta = .273$; horizontal collectivism: $\beta = -.130$; horizontal individualism $\beta = -.114$; vertical collectivism, $\beta = -.092$), (b) attitude toward the message (horizontal collectivism: $\beta = .185$; horizontal individualism $\beta = .124$; vertical individualism: $\beta = -.094$), (c) attitude toward the topic (horizontal collectivism: $\beta = .081$), (d) behavioral intention

(horizontal individualism: $\beta = .124$; horizontal collectivism: $\beta = .116$, interdependent-self, $\beta = .106$), and (f) negative attitudes toward the source (vertical individualism $\beta = -.154$; interdependent-self: $\beta = .115$; vertical collectivism, $\beta = .106$; independent-self: $\beta = .095$; horizontal collectivism, $\beta = .094$) in comparison to self-construal.

Self-Construal vs. Reactance

The analysis further examines which type of self-construal, either interdependent or independent-self, has a greater impact on the above mentioned variables. Correlations between interdependent self-construal and independent self-construal, and each of the eight criterion variables are presented in Table 6. As can be seen, interdependent self-construal was negatively and significantly correlated with threat and anger, but positively and significantly correlated with the rest of the criterion variables. On the other hand, independent self-construal was negatively and significantly correlated with threat and positively and significantly correlated with the rest of the criterion variables. However, independent self-construal was negatively correlated with anger, but not significantly (see correlations in Table 6).

Table 6: Correlations Among Self-Construal and Criterion Variables, Study 2

| Variable | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----------------------------------|--------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1. Threat to Freedom | .191** | -.184** | -.229** | -.275** | -.264** | -.400** | -.209** | -.077* | -.103** |
| 2. Anger | - | -.261** | -.377** | -.312** | -.418** | -.404** | -.522** | -.150** | -.002 |
| 3. Behavioral Intention | | - | .467** | .616** | .289** | .434** | .583** | .169** | .109** |
| 4. Attitude toward Topic | | | - | .527** | .428** | .497** | .630** | .127** | .104** |
| 5. Attitude toward Message | | | | - | .319** | .485** | .600** | .170** | .123** |
| 6. Source Credibility | | | | | - | .689** | .528** | .186** | .105** |
| 7. Source Derogation | | | | | | - | .653** | .220** | .154** |
| 8. Negative Cognitions | | | | | | | - | .291** | .167** |
| 9. Interdependent Self-Construal | | | | | | | | - | .159** |
| 10. Independent Self-Construal | | | | | | | | | - |

Note: Significant correlations indicated by ** $p < .01$, * $p < .05$. (two-tailed).

Several multiple regressions, examining H4, were performed using interdependent self and independent-self to predict the criterion variables (including threat, anger, negative cognitive evaluation, attitude toward the message and the topic, behavioral intention, source credibility, and attitude toward the source). Specifically, H4A predicted that relative to interdependent-self individuals, independent-self individuals report (a) higher degrees of anger and (b) more negative cognitions. Whereas H4B posited that relative to interdependent-self individuals, independent-self individuals report (a) higher levels of threat, (b) less positive attitude toward the message, (c) less positive attitude toward the topic, (d) less positive behavioral intentions, (e) less positive perceptions of source credibility, and (f) more negative attitude toward the source.

The results of the regression analyses are presented in Table 7, which summarizes the regressions of each of the criterion variables, threat, anger, negative cognition evaluation, behavioral intention, attitude toward topic and message, source credibility, and attitudes toward the source on both types of self.

The analysis demonstrated that the overall regression was statistically significant on anger, $R^2 = .02$, $F(3, 1090) = 12.89$, $p < .001$, indicating that 2% of the variance in the anger was explained by self-construal. More specifically, only interdependent self-construal had a significant effect on anger, $\beta = -.154$, thus, H4A-a failed to receive support, showing that independent-self holders, regardless of degree, did not display significantly different levels of anger ($p = .449$). Instead, individuals low on interdependent self-construal experienced high degrees of anger. Also, multiple regression analysis indicated that the model's prediction of negative cognitive

evaluation was significant, $R^2 = .10$, $F(2, 1088) = 60.44$, $p < .001$. The model accounted for 10% of the variance, with both interdependent ($\beta = .272$) and independent-self ($\beta = .124$) being significant contributors to the model ($p < .001$), and with interdependent self-construal contributing more than independent self-construal. Thus, in support of H4A-b, individuals who demonstrated high degrees of both types of self scored more positively on cognitive evaluation; however, those holding an interdependent self-construal had a greater impact on cognitive evaluation than those holding an independent self-construal.

For threat, the overall regression was again statistically significant, $R^2 = .01$, $F(2, 1090) = 7.94$, $p < .001$. Thus 1% of the variance in threat was accounted for by the self-construal. Both interdependent and independent-self had significant beta weights for threat. Results indicated both types of self-construal evidenced a significant degree of threat: individuals with either low interdependent-self ($\beta = -.063$) or independent-self ($\beta = -.093$) were more likely to perceive threat. In support of H4B-a, low degrees of independent-self had a greater effect on threat than low degrees of interdependent self.

Regarding the effects of reactance arousal on persuasive outcomes, multiple regression analysis indicated the model was significant for attitude toward the message, $R^2 = .04$, $F(2, 1090) = 21.67$, $p < .001$. In support of H4B-b, high degrees of independent-self revealed more negative attitude toward the message than interdependent-self (see beta weights in Table 7).

Moreover, the model was significant on attitude toward the topic of safe sex, $R^2 = .02$, $F(2, 1090) = 13.07$, $p < .001$; in support of H4B-c, high degrees of independent-self were related to more negative attitudes toward the topic than a similar degree of

interdependent self. Also, the model was significant for behavioral intention, $R^2 = .04$, $F(2, 1090) = 20.12$, $p < .001$. In support of H4B-d, high levels of independent-self were associated with more negative behavioral intentions than high levels of interdependent self.

The model was also significant for source credibility, $R^2 = .04$, $F(2, 1085) = 22.96$, $p < .001$, in support of H4B-e, high degrees of independent-self were related to more negative source credibility than high degrees of interdependent self. Finally, the overall model was a significant predictor of negative attitudes toward the source, $R^2 = .06$, $F(2, 1089) = 36.42$, $p < .001$. H4B-f received support, as high degrees of independent-self were associated with more negative attitudes toward the source than high degrees of interdependent self.

To sum up the above observations, H4A was partially supported, in that greater independent self-construal contributed to (b) more negative cognitions than interdependent self-construal (interdependent self: $\beta = .272$; independent-self: $\beta = .124$). However, counter to expectations, interdependent self-construal was associated with more (a) anger than independent self-construal (interdependent self: $\beta = -.154$; independent-self: $\beta = .023$).

More solid results were found for H4B, which was fully supported, as independent self-construal was related to (a) higher levels of threat (interdependent self: $\beta = -.063$; independent-self: $\beta = -.093$), (b) less positive attitude toward the message (interdependent self: $\beta = .154$; independent-self: $\beta = .098$), (c) less positive attitude toward the topic (interdependent self: $\beta = .114$; independent-self: $\beta = .086$), (d) less positive behavioral intentions (interdependent self: $\beta = .156$; independent-self: $\beta = .156$).

= .084), (e) less positive perceptions of source credibility (interdependent self: $\beta = .174$; independent-self: $\beta = .078$), and (f) more negative attitude toward the source (interdependent self: $\beta = .200$; independent-self: $\beta = .122$) than interdependent self-construal (see Table 7).

Table 7: Coefficients, t , and p value for Self-Construal, Study 2

| Dependent Variables | Independent Variables | B | β | t | p |
|-------------------------|-----------------------|-------|----------|-------|------|
| Threat to Freedom | Interdependent self | -.086 | -.063* | -2.05 | .040 |
| | Independent-self | -.118 | -.093** | -3.04 | .002 |
| Anger | Interdependent self | -.221 | -.154*** | -5.08 | .000 |
| | Independent-self | .030 | .023 | .76 | .449 |
| Negative Cognitions | Interdependent self | .386 | .272*** | 9.33 | .000 |
| | Independent-self | .163 | .124*** | 4.26 | .000 |
| Behavioral Intention | Interdependent self | .298 | .156*** | 5.19 | .000 |
| | Independent-self | .147 | .084** | 2.78 | .006 |
| Attitude toward Topic | Interdependent self | .224 | .114*** | 3.76 | .000 |
| | Independent-self | .156 | .086** | 2.82 | .005 |
| Attitude toward Message | Interdependent self | .28 | .154*** | 5.04 | .000 |
| | Independent-self | .170 | .098** | 3.21 | .001 |
| Source Credibility | Interdependent self | .319 | .174*** | 5.78 | .000 |
| | Independent-self | .132 | .078* | 2.59 | .010 |
| Attitude toward Source | Interdependent self | .318 | .200*** | 6.74 | .000 |
| | Independent-self | .178 | .122*** | 4.09 | .000 |

Note: Significant differences indicated by *** $p < .001$, ** $p < .01$, * $p < .05$.

Self-Construal, Appeal Type, and Restoration Type, Study 2

Hypotheses 5 and 6 examined interaction effects between self-construal and appeal type, as well as self-construal and restoration type on reactance arousal.

Hypothesis 5 predicted an interaction between self-construal and appeal type, positing that prohibition appeals used with independent-self and fatalistic appeals used with interdependent-self lead to (a) higher degrees of anger, (b) more negative cognitions, (c)

higher levels of threat, (d) less positive attitude toward the message, (e) less positive attitude toward the topic, (f) less positive behavioral intentions, (g) less positive perceived source credibility, and (h) more negative attitudes toward the source, relative to fatalistic appeals used on independent-self and prohibition appeals used on interdependent-self.

Whereas H6 examined the relationship between self-construal and restoration type, hypothesizing that an individual freedom form of restoration is more effective on independent-self, and a collective freedom form of restoration is more effective on interdependent self, as indicated by (a) lower degrees of anger, (b) less negative cognitive evaluations, (c) lower levels of threat, (d) more positive attitude toward the topic, (e) more positive attitude toward the message, (f) more positive behavioral intentions, (g) more positive source credibility, and (h) less negative attitudes toward the source, compared with other forms (no, standard, fatalistic, collective) on independent-self and other form (no, standard, fatalistic, individual) on interdependent-self.

To categorize participants as either predominantly interdependent or independent self in response to the persuasive messages, self-construal was treated as the difference score between the z-standardized scores on the interdependent self-construal subscale and those on the independent self-construal subscale. This procedure was established by previous research (Graupmann, et al., 2012; Pohlmann, Carranza, Hannover, & Iyengar, 2007). Accordingly, a positive value designated a more interdependent self, whereas a negative value designated a more independent-self, and a MANOVA test was conducted using the new self-construal scale, appeal type, and

restoration as independent variables, and the dependent variables were the same as described for H2.

Results indicated no statistically significant two-way interactions between self-construal and appeal type, nor self-construal and restoration type; thus, H5 was not supported, as no significant difference was found for independent-self using prohibitive appeals or fatalistic appeals and interdependent-self using fatalistic appeals or prohibition appeals ($p > .17$). Similarly, H6 did not receive support as independent-self using the individual form of restoration was not significantly different from using other forms of restoration (no, standard, fatalistic, collective). Same for interdependent self-construal that the collective form of restoration was not more effective than other forms of restoration (no, standard, fatalistic, individual) ($p > .14$).

Although it was not hypothesized, a three-way appeal x restoration x self-construal interaction did approach significance for perception of threat, $F(4, 1051) = 2.28, p = .059, \eta^2_p = .01$. Individuals holding an interdependent construal of self perceived higher levels of threat in response to prohibitive appeal with no restoration ($M = 3.08, SD = 3.24$), than in response to a fatalistic appeal with the individual form of restoration ($M = 2.99, SD = 3.4$). Prohibitive appeals paired with the standard form of restoration ($M = 2.73, SD = 3.31$), or fatalistic appeals paired with the fatalistic form of restoration ($M = 2.72, SD = 3.44$) were more effective for interdependent-self holders at reducing the degree of perceived threat. On the other hand, for individuals with independent-self, a prohibitive appeal with a collective form of restoration ($M = 2.96, SD = 3.80$), or a fatalistic appeal with a fatalistic form of restoration ($M = 2.80, SD = 3.53$) led to higher levels of threat. Prohibitive appeals with a fatalistic form of

restoration ($M = 2.76$, $SD = 3.37$), or fatalistic appeals with a collective form of restoration ($M = 2.55$, $SD = 3.63$) were effective at reducing perceived threat for independent-self holders.

Discussion, Study 2

The effect of appeal type on several key outcomes was significant; Persuasive messages using prohibitive appeals led to greater degrees of threat than did fatalistic appeals. However, the latter produced higher levels of anger, hence a more negative evaluation on source credibility than the former. Moreover, the use of restoration postscripts was met with a significant reduction in reactance arousal: Persuasive messages accompanied by a restoration method—either standard or collectivistic types—yielded lower levels of anger, yet more positive attitudes toward the topic, more positive source credibility, and more positive attitudes toward the source when compared with messages without a restoration postscript.

Interestingly, although previous reactance research examining postscript messages (e.g., Miller et al., 2007) credit restoration postscripts with reducing the perception of threat, this experiment indicates perceptions of threat depend upon the form of the restoration postscript relative to the nature of the message appeal. Comparing the relationship between no restoration and the various restoration methods tested, as well as the difference between standard and fatalistic types of restoration on the arousal of reactance and its related outcomes, it appears the perception of threat is not solely related to any one type of restoration. In other words, all of the five restoration methods applied in this study influenced people's experience of threat only in combination with an appropriate message appeal. Furthermore, the fatalistic

restoration type was shown to be counterproductive: Rather than reducing reactance, it appears to have actually increased anger, which is perhaps the most important component of reactance.

Examining the effects of self-construal and culturalism on reactance-associated effects strongly suggests that culturalism had a greater impact than self-construal in some way on the topic of safe sex. Specifically, culturalism is more influential than self-construal on threat to freedom, behavioral intention, attitude toward the topic and message. Although the horizontal individualism dimension of culturalism contributed more on anger than interdependent self-construal, it was interdependent self-construal associated with more negative cognitions than horizontal individualism as it yields no significant effects on unfavorable cognition. Considering that reactance is in the form of combination of anger and negative cognitions, this paper suggests that interdependent self-construal, rather than culturalism, contributed more on the arousal of reactance on the topic of safe sex.

This study goes further to examine the role self-construal plays in the framework of reactance theory, specifically the impact of interdependent-self and independent-self on reactance associated effects. Individuals with low levels of both interdependent and independent-self perceived the persuasive messages on the topic of sex with more threat, but those holding an independent self-construal displayed a greater degree than those holding an interdependent self-construal. It was not anticipated that independent-self holders, regardless of degree, did not perceive anger on the topic of safe sex, thus reactance was not aroused. Instead, individuals with low interdependent-self experienced the arousal of reactance hence the negative consequences occurred (e.g.,

boomerang effects). Likewise, high degrees of both types of self holders produced positive relationships with the examined variables. Individuals with high degrees on both interdependent and independent self-construal perceived the message and the topic positively and gave high credits for the source. In addition, these individuals were also unlikely to produce boomerang effects and less likely to derogate the source, although interdependent self-construal holders displayed higher degrees than independent self-construal on those outcomes.

The findings in Study 2 should be interpreted with some caution in light of the nature of the topic examined. In essence, safe sex practices might best be categorized as pro-attitudinal for most individuals, which means the advocated position essentially agrees with individuals' held attitudes, and preferred behaviors regarding sexual intercourse. Moreover, with the prevalence of teen pregnancy, STDs, and AIDS incidents, government authorities generally advocate the importance of condom use, so such messages are likely to be more reinforcing than counterattitudinal. When examining such a potentially pro-attitudinal, pro-social topic relative to the effects of reactance, one might suppose reactance may not have as much potential negative impact on persuasive outcomes as it would concerning other, more counter-attitudinal advocated positions. It is possible the same sort of persuasive message designs might produce different consequences and outcomes when associated with persuasion concerning a different topic presented in a more counter-attitudinal manner. Therefore, it is important to investigate whether a prohibition message concerning a topic of a different nature may result in similar outcomes when a similar message design intervention strategy is used.

Besides safe sex, another issue broadly discussed among young people concerns the prohibition of illicit drug use, which is naturally quite different from the promotion of safe sex. On the one hand, advocating safe sex involves a behavioral promotion encouraging young adults to use condoms. In contrast, the prohibition of drugs use essentially involves a behavioral restriction for individuals who are being asked not to do drugs in order to prevent negative consequences associated with antisocial behavior. Moreover, the degree of hedonic relevance individuals are likely associate with the two topics may also influence how they respond to persuasive messages. To assess this possibility, a *t*-test was performed comparing the two topics using hedonic relevance as the dependent variable. The result indicated the topic of safe sex ($M = 4.77, SD = .92$) was perceived to be significantly more hedonically relevant than the topic of illicit drug use ($M = 4.58, SD = .90$), $t(1904) = 4.38, p < .001, d = .21$.

STUDY 3, ANTI-DRUG USE PSA

The purpose of Study 3 was to test whether the results found in Study 2 could be replicated under the same experimental conditions when examining a different PSA topic. It is possible that the same persuasive techniques may not be suitable in different contexts, meaning that even if one technique works well in one situation it does not guarantee similar results would be obtained for a different topic within a different context. For this reason, the procedure, measures, and analysis method used in Study 2 were used in Study 3, however with an anti-drug use PSA rather than a safe sex PSA.

As in Study 2, the PSA scenario on the advocacy of not taking drugs is described using the first person's voice. The young man's personal experiences of using drugs that disrupted his future plans, peer connections, and academic life.

Participants, Study 3

A total of 812 participants from Study 2 participated in Study 3, representing retention rates of 70% for TW subjects and 79% for US participants. The mean age was 19.79 ($SD = 1.52$) for TW population and 20.66 ($SD = 2.57$) for US participants. Islanders accounted for 69.6% of the Taiwanese sample, mainlanders for 10.6%, Hakka for 7.7%, Aborigine for only 1.9%, and others for 11%. Whereas for US subjects, mainly, White/Caucasian accounted for 70.5%, Asian American for 10.7%, Latino or Hispanic for 6.2%, African American for 5.2%, Native American for 3.7%, Middle Eastern for 1.5%, and Others for 2.24%. Similar to Study 2, females composed most of the two samples (TW: 79.2%; US: 67.5). As in Study 2, only results for emerging adult participants aged 18 to 29 were retained for analysis, resulting in 32 subjects being dropped from Study 3.

STUDY 3 RESULTS

Hypothesis Testing, Study 3

Appeal type, Study 3

As in Study 2, a two-way MANOVA was used to test H1A, that prohibition appeals relative to fatalistic appeals lead to, (a) lower degrees of anger and (b) less negative cognition evaluation than fatalistic appeal; and to test H1B, that prohibitive appeals relative to fatalistic appeals, lead to (a) higher levels of threat, but (b) less negative attitudes toward the message, (c) less negative attitudes toward the topic, (d) less negative behavioral intentions, (e) less negative evaluation on source credibility and (f) less negative attitudes toward the source.

As in Study 2, the omnibus results for Study 3 also produced a significant effect for appeal type, $F(8, 791) = 10.46, p < .001$, Pillai's $V = .10, \eta^2_p = .10$, and the univariate results indicated prohibitive appeal ($M = 2.97, SD = 1.19$) led to more threat than fatalistic appeal ($M = 2.85, SD = 1.21$), $F(1, 798) = 3.86, p = .05, \eta^2_p = .01$, which supported H1B-a. In support of H1A-a, fatalistic appeals ($M = 1.84, SD = 1.27$) resulted in greater degrees of anger than prohibitive appeal ($M = 1.47, SD = 1.26$), $F(1, 798) = 33.68, p < .001, \eta^2_p = .04$. Also, H1A-b received support that prohibitive appeals ($M = 4.36, SD = 1.15$) led to less negative cognition evaluation, $F(1, 798) = 10.58, p = .001, \eta^2_p = .01$, than fatalistic appeals ($M = 4.18, SD = 1.16$) (means and SDs see Table 8).

Table 8: Means, Standard Deviations, and F values for Appeal Type, Study 3

| Dependent Variables | Prohibitive | | Fatalistic | | F |
|-------------------------|-----------------|------|-----------------|------|---------|
| | Mean (n=408) | SD | Mean (n=400) | SD | |
| Threat to Freedom | 2.97 | 1.19 | 2.85 | 1.21 | 3.86* |
| Anger | 1.47 | 1.26 | 1.84 | 1.27 | 33.68** |
| Negative Cognitions | 4.36 | 1.15 | 4.18 | 1.16 | 10.58** |
| Behavioral Intention | 5.30 | 1.64 | 4.80 | 1.65 | 38.14** |
| Attitude toward Topic | 5.10 | 1.93 | 4.78 | 1.95 | 10.97** |
| Attitude toward Message | 5.44 | 1.59 | 5.04 | 1.61 | 24.93** |
| Source Credibility | 4.03 | 1.41 | 3.74 | 1.42 | 16.64** |
| Source Derogation | 4.29 | 1.26 | 4.17 | 1.28 | 3.77 |

Note: Significant differences indicated by ** $p < .01$, * $p < .05$.

Compared to fatalistic appeal ($M = 5.04$, $SD = 1.61$), interestingly, prohibition appeals ($M = 5.44$, $SD = 1.59$) led to more positive attitudes toward the message, which supported H1B-b, $F(1, 798) = 24.93$, $p < .001$, $\eta^2_p = .03$. In support of H1B-c, prohibitive appeal ($M = 5.10$, $SD = 1.93$) produced more positive assessment of topic than fatalistic appeals ($M = 4.78$, $SD = 1.95$), $F(1, 798) = 10.97$, $p = .001$, $\eta^2_p = .01$. H1B-d also received support that more positive behavioral intention was associated with prohibition appeals ($M = 5.30$, $SD = 1.64$) than with fatalistic appeals ($M = 4.80$, $SD = 1.65$), $F(1, 798) = 38.14$, $p < .001$, $\eta^2_p = .05$. Supporting H1B-e, more positive source credibility was associated with prohibition appeals ($M = 4.03$, $SD = 1.41$) than with fatalistic appeals ($M = 3.74$, $SD = 1.42$), $F(1, 798) = 16.64$, $p < .001$, $\eta^2_p = .02$. Finally, in support of H1B-f, prohibition appeals ($M = 4.29$, $SD = 1.26$) produced more positive attitudes toward the source than fatalistic appeals ($M = 4.17$, $SD = 1.28$), $F(1, 798) = 3.77$, $p = .052$, $\eta^2_p = .01$.

Together, H1A was fully supported as prohibitive appeals, relative to fatalistic appeal, produced (a) lower degrees of anger, and (b) less negative cognition evaluation. H1B also received full support as prohibition appeals, relative to fatalistic appeals, led to (a) higher levels of threat, but (b) less negative attitudes toward the message, (c) less negative attitudes toward the topic, (d) less negative behavioral intentions, (e) less negative evaluation on source credibility and (f) less negative attitudes toward the source. Findings above were similar to those found in Study 2; however, reactance effects on the topic advocating the avoidance of drug use resulted in more significant influences on outcomes than on the topic promoting condom use.

Restoration type, Study 3

The above analysis was also used to test H2A which predicted a threatening message with a restoration postscript leads to (a) lower degrees of anger, and (b) less negative cognitive evaluations relative to a threatening message without a restoration postscript, and H2B, which predicted a threatening message with a restoration postscript leads to (a) lower levels of threat, (b) more positive attitudes toward the topic, (c) more positive attitudes toward the message (d) more positive behavioral intentions, (e) more positive source credibility, and (f) less negative attitudes toward the source, relative to a threatening message without a restoration postscript.

The multivariate results on restoration type was statistically significant, $F(32, 3176) = 2.19, p < .001$, Pillai's $V = .09, \eta^2_p = .02$. Univariate results revealed that relative to the application of restoration types (e.g., standard, $M = 5.35, SD = 1.27$), no-restoration method ($M = 4.69, SD = 1.40$) produced less positive attitude toward topic ($p < .001$), which supported H2B-b, $F(4, 798) = 3.07, p = .016, \eta^2_p = .02$. In support of H2B-e, less positive source credibility was associated with no-restoration method ($M = 3.72, SD = 1.01$) than with standard form of restoration postscript ($M = 4.15, SD = .99, p < .001$), $F(4, 798) = 8.6, p < .001, \eta^2_p = .04$ (means and SDs see Table 9).

Table 9: Means, Standard Deviations, and *F* values for Restoration Type, Study 3

| Dependent Variables | No Restoration | | Standard | | Fatalistic | | Individual | | Collective | | F |
|-------------------------|----------------|------|--------------|------|--------------|------|--------------|------|--------------|------|--------|
| | M (n=172) | SD | M (n=162) | SD | M (n=166) | SD | M (n=150) | SD | M (n=161) | SD | |
| Threat to freedom | 2.97 | 0.78 | 2.74 | 0.91 | 2.99 | 0.78 | 2.94 | 0.88 | 2.92 | 0.86 | 2.31 |
| Anger | 1.62 a | 0.93 | 1.46 | 0.77 | 1.79 a | 0.92 | 1.70 | 0.93 | 1.56 | 0.86 | 5.71** |
| Negative Cognitions | 4.26 | 0.81 | 4.45 b | 0.80 | 4.21 b | 0.81 | 4.24 | 0.84 | 4.32 | 0.82 | 3.69** |
| Behavioral Intention | 5.05 | 1.29 | 5.25 c | 1.05 | 4.89 c | 1.16 | 5.03 | 1.20 | 5.11 | 1.16 | 2.57* |
| Attitude toward Topic | 4.69 d | 1.40 | 5.35 d | 1.27 | 4.80 | 1.30 | 5.08 | 1.43 | 4.96 | 1.34 | 3.07* |
| Attitude toward Message | 5.33 | 1.20 | 5.38 | 0.99 | 5.08 | 1.09 | 5.19 | 1.26 | 5.21 | 1.17 | 1.69 |
| Source Credibility | 3.72 e | 1.01 | 4.15 e | 0.99 | 3.59 | 0.93 | 3.92 | 1.10 | 4.00 | 1.01 | 8.67** |
| Source Derogation | 4.17 f | 0.88 | 4.49 f | 0.93 | 4.01 | 0.84 | 4.27 | 0.94 | 4.26 | 0.90 | 4.79** |

Note: Significant differences indicated by ** $p < .01$, * $p < .05$.

Significant mean differences at $p < .05$ are indicated by the same letters in each row.

Hypothesis 2B-f was significant for no-restoration postscript ($M = 4.17$, $SD = .88$) resulted in less positive attitudes toward the source than the standard type of restoration postscript ($M = 4.49$, $SD = .93$, $p < .001$), $F(4, 798) = 4.79$, $p = .001$, $\eta^2_p = .02$. Univariate results also revealed a significant effect of restoration method on anger, $F(4, 798) = 5.71$, $p < .001$, $\eta^2_p = .03$, however, H2A-a failed to receive support as fatalistic type of restoration ($M = 1.79$, $SD = .92$) employed in a persuasive message produced greater degrees of anger than no-restoration method ($M = 1.62$, $SD = .93$, $p = .048$), which was opposite of what was expected. In addition, the results from the Bonferroni post hoc test indicated no significant differences among five types of restoration method on threat ($p > .107$), although univariate results approached significance ($p = .057$), in which H2B-a failed to receive support.

Finally, although univariate results appeared to be significant for the application of restoration type on behavioral intention ($F(4, 798) = 2.57$, $p = .037$, $\eta^2_p = .01$), the results from Bonferroni post hoc tests indicated that no-restoration postscript ($M = 5.05$, $SD = 1.29$) and other types of restoration method (standard: $M = 5.25$, $SD = 1.05$, fatalistic: $M = 4.89$, $SD = 1.16$, individual: $M = 5.03$, $SD = 1.20$, collective: $M = 5.11$, $SD = 1.16$) did not show notable difference ($p > .672$), thus, H2B-d failed to receive support. Nevertheless, a significant difference was found between standard type and fatalistic type restoration on the assessment of behavioral intention: that is, the standard type restoration ($M = 5.25$, $SD = 1.05$) yielded more positive behavioral intentions than the fatalistic type ($M = 4.89$, $SD = 1.16$, $p = .001$).

Similarly, H2A-b failed to receive support as Bonferroni post hoc tests indicated no significant differences found between the no-restoration method ($M = 4.26$, SD

= .81) and other forms of restoration (standard: $M = 4.45$, $SD = .80$, fatalistic: $M = 4.21$, $SD = .81$, individual: $M = 4.24$, $SD = .84$, collective: $M = 4.32$, $SD = .82$) on negative cognitive evaluations ($p > .373$), although univariate results showed significance, $F(4, 798) = 3.69$, $p = .005$, $\eta^2_p = .02$. Rather, it was the standard type restoration ($M = 4.45$, $SD = .80$) that produced more positive cognitive evaluation than the fatalistic type ($M = 4.21$, $SD = .81$, $p = .002$). No differences were found for the no-restoration condition compared to the other postscript conditions on either behavioral intention or negative cognitive evaluations. Finally, H2B-c did not receive support, for there were no significant differences among the five restoration methods on assessments of the message ($p = .15$).

In sum, H2A did not receive support relative to the anti-drug PSA, as fatalistic form of restoration led to (a) higher degrees of anger than no form of restoration, which was unexpected. Also, the no restoration postscript condition was not significantly different from any of the other type of postscript on (b) the negative cognitive evaluations. Although not hypothesized, the fatalistic type restoration produced more negative evaluations than the standard type restoration. Concerning H2B, partial support was found for the no restoration postscript leading to (b) less positive attitude toward the topic, (e) less positive source credibility, and (f) more negative attitudes toward the source, compared to the standard restoration postscript. However, no significant differences were found among the five types of restoration in (c) assessments of the message or (a) perception of threat. Lastly, the no restoration condition did not significantly differ from the other restoration conditions on (d) the evaluation of

behavioral intentions, rather, it was standard type restoration that led to more positive behavioral intentions than the fatalistic form.

Using the same analysis method as in Study 2, an independent *t*-test was conducted to address research question 1A, which asked whether standard or fatalistic of restoration postscripts employed following a persuasive message lead to (a) lower degrees of anger and (b) less negative cognitive evaluations. Research question 1B asked whether standard or fatalistic restoration postscripts employed following a persuasive message may lead to (a) lower levels of threat, (b) more positive attitude toward the topic, and (c) the message, (d) more positive behavioral intention, (e) more positive source credibility, and (f) less negative attitudes toward the source.

Results indicated the standard type restoration ($M = 2.75, SD = .92$) yielded a lower degree of threat than fatalistic restoration ($M = 2.99, SD = .78$), $t(326) = -2.61, p = .009, d = .28$. Moreover, the standard form of restoration ($M = 1.46, SD = .78$) resulted in less reported anger, than did the fatalistic form ($M = 1.92, SD = 1.00$), $t(326) = -4.61, p = .009, d = .51$. The standard type restoration ($M = 4.45, SD = .81$) also led to more favorable thoughts than the fatalistic type ($M = 4.09, SD = .81$), $t(326) = 3.99, p < .001, d = .44$. The standard type of restoration ($M = 5.15, SD = 1.39$), relative to the fatalistic type ($M = 4.79, SD = 1.31$) also produced more positive attitude toward topic, $t(326) = 2.42, p = .016, d = .27$.

The standard form of restoration ($M = 5.39, SD = .99$) also resulted in more positive evaluations of the message than the fatalistic form ($M = 5.08, SD = 1.09$), $t(325) = 2.64, p = .009, d = .30$. Similarly, the standard restoration ($M = 5.25, SD = 1.05$) led to more positive behavioral intentions, $t(326) = 3.47, p = .001, d = .38$, than the

fatalistic restoration ($M = 4.82, SD = 1.20$). Also, relative to the fatalistic restoration ($M = 3.59, SD = .93$), the standard restoration ($M = 4.18, SD = .98$) produced more positive assessments of source credibility, $t(326) = 5.58, p < .001, d = .62$.

Lastly, the standard form of restoration postscript ($M = 4.44, SD = .91$), compared to the fatalistic form ($M = 4.01, SD = .84$), resulted in more positive attitudes toward the source, $t(326) = 4.43, p < .001, d = .49$ (see Table 10 for means and *SDs*).

Table 10: Means, *SDs*, and *t* values for Standard vs. Fatalistic Restoration, Study 3

| Dependent Variables | Standard Restoration | | Fatalistic Restoration | | t |
|-------------------------|----------------------|------|------------------------|------|---------|
| | M (n=162) | SD | M (n=166) | SD | |
| Threat to Freedom | 2.75 | .92 | 2.99 | .78 | -2.61** |
| Anger | 1.46 | .78 | 1.92 | 1.00 | -4.62** |
| Negative Cognitions | 4.45 | .81 | 4.09 | .81 | 3.99** |
| Behavioral Intention | 5.25 | 1.05 | 4.82 | 1.20 | 3.47** |
| Attitude toward topic | 5.15 | 1.39 | 4.79 | 1.31 | 2.42* |
| Attitude toward message | 5.39 | .99 | 5.08 | 1.09 | 2.64** |
| Source Credibility | 4.18 | .98 | 3.59 | .93 | 5.58** |
| Source Derogation | 4.44 | .91 | 4.01 | .84 | 4.43** |

Note: Significant differences indicated by ** $p < .01$, * $p < .05$.

As in Study 2, the answer to RQ1A seems to indicate the fatalistic type restoration method, relative to standard types of restoration, resulted in more unfavorable effects both in terms of anger and negative cognitions. Moreover, relative to the fatalistic type restoration postscript, the results concerning RQ1B indicate that, although the standard restoration produced (a) higher degrees of threat, it nevertheless resulted in (b) more positive attitudes toward the topic, (c) message, and (d) behavioral

intentions, as well as (e) more positive source credibility, and (f) less negative attitudes toward the source.

Self-construal vs. Culturalism, Study 3

Correlations between the two subscales of self-construal (interdependent-self, independent-self), and the four subscales of culturalism (horizontal individualism, vertical individualism, horizontal collectivism, vertical collectivism), and each of the eight criterion variables are presented in Table 11. Interdependent self-construal was significantly and positively correlated with independent self-construal, horizontal individualism, vertical individualism, horizontal collectivism, vertical collectivism, negative cognition, behavioral intentions, attitude toward topic, attitude toward message, source credibility, and negative attitudes toward the source. Interdependent self-construal was significantly and negatively correlated with anger. However, interdependent self-construal was not significantly correlated with threat. On the other hand, independent self-construal was significantly and positively correlated with horizontal individualism, vertical individualism, horizontal collectivism, vertical collectivism, negative cognitions, attitude toward topic and message, source credibility, and negative attitudes toward source. However, independent-self was not significantly correlated with anger, threat, and behavioral intention.

Table 11: Correlations Among Self-Construal, Culturalism and Criterion Variables, Study 3

| Variable | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|-----------------------------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1. Interdependent-Self | .170** | .115** | .086* | .539** | .573** | -.200** | .345** | -.055 | .232** | .202** | .326** | .164** | .225** |
| 2. Independent-Self | - | .455** | .217** | .426** | .272** | .003 | .136** | -.017 | .056 | .078* | .079* | .125** | .134** |
| 3. Horizontal Individualism | - | - | .312** | .215** | .130** | .100** | .005 | .010 | .081* | -.037 | .058 | -.026 | .002 |
| 4. Vertical Individualism | - | - | - | .005 | .144** | .118** | .009 | .251** | -.011 | .053 | -.018 | -.016 | -.037 |
| 5. Horizontal Collectivism | - | - | - | - | .500** | -.081* | .220** | -.132* | .216** | .123** | .256** | .133** | .218** |
| 6. Vertical Collectivism | - | - | - | - | - | -.092** | .276** | -.104** | .216** | .168** | .279** | .150** | .227** |
| 7. Anger | - | - | - | - | - | - | -.531** | .216** | -.362** | -.379** | -.396** | -.457** | -.447** |
| 8. Negative Cognitions | - | - | - | - | - | - | - | -.194** | .554** | .530** | .631** | .522** | .657** |
| 9. Threat to Freedom | - | - | - | - | - | - | - | - | -.109** | -.096** | -.189** | -.282** | -.331** |
| 10. Behavioral Intention | - | - | - | - | - | - | - | - | - | .409** | .727** | .313** | .421** |
| 11. Attitude toward Topic | - | - | - | - | - | - | - | - | - | - | .453** | .433** | .462** |
| 12. Attitude toward Message | - | - | - | - | - | - | - | - | - | - | - | .326** | .471** |
| 13. Source Credibility | - | - | - | - | - | - | - | - | - | - | - | - | .731** |
| 14. Attitude toward Source | - | - | - | - | - | - | - | - | - | - | - | - | - |

Note: Significant correlations indicated by ** $p < .01$, * $p < .05$. (two-tailed)

For culturalism, horizontal individualism was significantly and positively correlated with vertical individualism, horizontal collectivism, vertical collectivism, anger, and behavioral intentions. However, horizontal individualism was not significantly correlated with negative cognitions, threat, attitudes toward topic and message, source credibility, and negative attitudes toward source. Secondly, vertical individualism was significantly and positively associated with vertical collectivism, anger, and threat. Nevertheless, vertical individualism was not correlated with horizontal collectivism, negative cognitions, behavioral intention, attitudes toward the topic and message, source credibility, and negative attitudes toward source.

Thirdly, horizontal collectivism was significantly and positively correlated with vertical collectivism, negative cognitions, behavioral intention, attitudes toward topic and message, source credibility, and negative attitudes toward the source. However, it was significantly and negatively associated with anger and threat. Similarly, vertical collectivism was significantly and positively correlated with negative cognitions, behavioral intention, attitudes toward topic and message, source credibility, and negative attitudes toward the source; but significantly and negatively associated with anger and threat.

Multiple regression analysis was performed to examine hypothesis 3A, testing whether self-construal is more predictive of (a) anger and (b) negative cognitive evaluation than culturalism, and, hypothesis 3B, positing that self-construal, relative to culturalism, is more predictive of (a) threat, (b) attitude toward the message, (c) attitude toward the topic, (d) behavioral intention, (e) source credibility, and (f) negative attitude toward the source.

The overall model for anger was statistically significant, ($R^2 = .07$, $F(6, 810) = 9.79$, $p < .001$). As predicted, interdependent self-construal ($\beta = -.242$) significantly contributed more to the model than horizontal individualism ($\beta = .103$) and vertical individualism ($\beta = .117$) (see Table 12 for significant coefficients): Low degrees of interdependent self-construal led to higher levels of anger than high degrees of interdependent self-construal. On the other hand, relative to low levels of horizontal individualism and vertical individualism, high levels of horizontal individualism and vertical individualism were associated with higher degrees of anger, therefore, H3A-a received support. Moreover, concerning negative cognitive evaluations, the model was again statistically significant ($R^2 = .14$, $F(6, 809) = 21.56$, $p < .001$), with interdependent-self ($\beta = .287$) and independent-self ($\beta = .110$) contributed more to the model than horizontal individualism ($\beta = -.078$) and vertical collectivism ($\beta = .106$). Hence H3A-b was fully supported demonstrating that the higher the degree of interdependent and independent self-construal, the less negative cognitions reported by message receivers. Similarly, higher levels of vertical collectivism were associated with less negative cognitions than lower levels of vertical collectivism. Conversely, higher levels of horizontal individualism was related with more negative cognitions than lower levels of horizontal individualism.

Results indicated the overall model was also a significant predictor of threat ($R^2 = .09$, $F(6, 810) = 13.51$, $p < .001$). The result is not supportive of H3B-a, for culturalism was the only significant predictor to the model. Specifically, vertical individualism ($\beta = .280$) contributed more to the model, followed by vertical collectivism ($\beta = -.12$) and horizontal collectivism ($\beta = -.089$). Individuals with a higher

degree of vertical individualism perceived more threat than those with a lower degree of vertical individualism; whereas a higher degree of horizontal collectivism and vertical collectivism was associated with a lower level of perceived threat than a lower degree of horizontal collectivism and vertical collectivism.

The overall regression was also statistically significant for behavioral intention, ($R^2 = .08$, $F(6, 810) = 11.21$, $p < .001$); interdependent self-construal, horizontal collectivism, and vertical collectivism were significant predictors within the model, with interdependent self-construal ($\beta = .118$) contributing more than horizontal collectivism ($\beta = .108$) and vertical collectivism ($\beta = .108$). Thus, H3B-d received support. Individuals with high degrees of interdependent self-construal reported more positive behavioral intention than those with low degrees of interdependent self-construal. The same goes for horizontal collectivism, and vertical collectivism, where high levels of horizontal collectivism and vertical collectivism were associated with more positive behavioral intentions than low levels of horizontal collectivism and vertical collectivism.

For attitude toward the topic, the model was again statistically significant ($R^2 = .06$, $F(6, 810) = 7.97$, $p < .001$). both interdependent self-construal and horizontal individualism were significant predictors. In support of H3B-c, interdependent self-construal ($\beta = .166$) was the primary contributor, with high degrees of interdependent self-construal producing more positive attitudes toward the topic than low degrees of interdependent self-construal. On the other hand, a higher degree of horizontal individualism ($\beta = -.113$) was associated with less positive assessment of topic than a lower degree of horizontal individualism.

Table 12: Coefficients, *t*, and *p* value for Self-Construal vs. Culturalism, Study 3

| Dependent Variables | Independent Variables | B | β | t | <i>p</i> |
|-----------------------|--------------------------|-------|----------|--------|----------|
| Anger | Interdependent-self | -.398 | -.242*** | -5.388 | .000 |
| | Independent-self | -.075 | -.050 | -1.187 | .236 |
| | Horizontal individualism | .118 | .103* | 2.597 | .010 |
| | Vertical individualism | .123 | .117** | 3.196 | .001 |
| | Horizontal collectivism | .062 | .145 | .989 | .323 |
| | Vertical collectivism | .007 | .007 | .151 | .880 |
| Negative Cognitions | Interdependent-self | .425 | .287*** | 6.649 | .000 |
| | Independent-self | .425 | .287*** | 6.649 | .000 |
| | Horizontal individualism | -.080 | -.078* | -2.044 | .041 |
| | Vertical individualism | -.030 | -.032 | -.892 | .373 |
| | Horizontal collectivism | -.022 | -.018 | -.407 | .684 |
| | Vertical collectivism | .100 | .106* | 2.509 | .012 |
| Threat to Freedom | Interdependent-self | .063 | .042 | .937 | .349 |
| | Independent-self | .013 | .009 | .225 | .822 |
| | Horizontal individualism | -.055 | -.052 | -1.334 | .182 |
| | Vertical individualism | .269 | .280*** | 7.711 | .000 |
| | Horizontal collectivism | -.112 | -.089* | -1.967 | .050 |
| | Vertical collectivism | -.116 | -.120** | -2.763 | .006 |
| Behavioral Intention | Interdependent-self | .252 | .118** | 2.644 | .008 |
| | Independent-self | -.119 | -.061 | -1.458 | .145 |
| | Horizontal individualism | .109 | .073 | 1.867 | .062 |
| | Vertical individualism | -.064 | -.048 | -1.304 | .193 |
| | Horizontal collectivism | .191 | .108* | 2.363 | .018 |
| | Vertical collectivism | .148 | .108* | 2.484 | .013 |
| Attitude toward Topic | Interdependent-self | .410 | .166*** | 3.665 | .000 |
| | Independent-self | .178 | .078 | 1.853 | .064 |
| | Horizontal individualism | -.195 | -.113** | -2.832 | .005 |
| | Vertical individualism | .074 | .047 | 1.277 | .202 |
| | Horizontal collectivism | -.017 | -.009 | -.185 | .854 |
| | Vertical collectivism | .102 | .064 | 1.457 | .145 |

Table 12: Coefficients, *t*, and *p* value for Self-Construal vs. Culturalism, Study 3—Cont'd

| Dependent Variables | Independent Variables | B | β | <i>t</i> | <i>p</i> |
|-------------------------|--------------------------|-------|---------|----------|----------|
| Attitude toward Message | Interdependent-self | .445 | .216*** | 4.974 | .000 |
| | Independent-self | -.049 | -.026 | -.639 | .523 |
| | Horizontal individualism | .044 | .031 | .800 | .424 |
| | Vertical individualism | -.079 | -.060 | -1.694 | .091 |
| | Horizontal collectivism | .139 | .081 | 1.831 | .068 |
| | Vertical collectivism | .167 | .127** | 2.983 | .003 |
| Source Credibility | Interdependent-self | .220 | .120** | 20641 | .008 |
| | Independent-self | .239 | .141** | 3.327 | .001 |
| | Horizontal individualism | -.130 | -.101* | -2.533 | .011 |
| | Vertical individualism | -.040 | -.034 | -.929 | .353 |
| | Horizontal collectivism | -.001 | -.001 | -.021 | .983 |
| | Vertical collectivism | .073 | .062 | 1.396 | .163 |
| Attitude toward Source | Interdependent-self | .191 | .118** | 2.652 | .008 |
| | Independent-self | .146 | .098* | 2.346 | .019 |
| | Horizontal individualism | -.074 | -.065 | -1.657 | .098 |
| | Vertical individualism | -.067 | -.065 | -1.795 | .073 |
| | Horizontal collectivism | .093 | .069 | 1.513 | .131 |
| | Vertical collectivism | .120 | .116** | 2.671 | .008 |

Note: Significant differences indicated by *** $p < .001$, ** $p < .01$, * $p < .05$.

Likewise, in support of H3B-b, attitude toward the message resulted in a similar relationship, ($R^2 = .13$, $F(6, 808) = 19.53$, $p < .001$), with interdependent self-construal ($\beta = .216$) contributed more to the model than vertical collectivism ($\beta = .127$). Higher levels of interdependent self-construal were associated with more positive attitudes toward the message relative to lower level of interdependent self-construal. Same for vertical collectivism: a higher degree of vertical collectivism was related with more positive attitudes toward the message, compared with a lower degree of vertical collectivism.

The model was also a significant predictor of source credibility, ($R^2 = .05$, $F(6, 810) = 6.97$, $p < .001$), in support of H3B-e, both interdependent ($\beta = .120$) and independent self-construal ($\beta = .141$) had a greater effect than horizontal individualism ($\beta = -.101$). High degrees of interdependent and independent self-construal produced more positive evaluation of source credibility than low degrees of interdependent and independent self-construal. On the contrary, it was low degrees of horizontal individualism resulted in more positive evaluation of source credibility than high degrees of horizontal individualism.

Lastly, the model was a significant predictor of negative attitudes toward the source, ($R^2 = .08$, $F(6, 810) = 12.20$, $p < .001$). Considering interdependent-self ($\beta = .118$) contributed more to the model than vertical collectivism ($\beta = .116$) and independent-self ($\beta = .098$), H3B-f was supported. Less negative attitudes toward the source was associated with high levels of interdependent-self, independent-self, and

vertical collectivism, relative to low levels of interdependent-self, independent-self, and vertical collectivism, respectively.

In sum, H3A was fully supported, as self-construal, compared to culturalism, contributed more on (a) anger and (b) negative cognitive evaluation, and H3B was partially supported, for self-construal had a greater effect on (b) attitude toward the message, (c) attitude toward the topic, (d) behavioral intention, (e) source credibility, and (f) negative attitude toward the source than culturalism. On the other hand, given that culturalism was more influential on threat to freedom than self-construal, the results concerning (a) threat were contrary to the hypothesized relationship.

Self-Construal and Reactance, Study 3

Table 13 presents the correlations between interdependent self-construal and independent self-construal, along with each of the eight criterion variables. As can be seen, interdependent self-construal is positively and significantly correlated with the most criterion variables, but negatively and significantly correlated with anger. However, it was not significantly correlated with threat. On the other hand, independent self-construal, although not significantly correlated with threat, anger, and behavioral intention, was positively and significantly correlated with the rest of the criterion variables.

Table 13: Correlations Among Predictors and Criterion Variables in Anti-Drug data

| Variable | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----------------------------------|--------|---------|---------|---------|---------|---------|---------|---------|--------|
| 1. Threat to Freedom | .216** | -.109** | -.096** | -.189** | -.282** | -.331** | -.194** | -.055 | -.017 |
| 2. Anger | - | -.362** | -.379** | -.396** | -.457** | -.447** | -.531** | -.200** | .003 |
| 3. Behavioral Intention | | - | .409** | .727** | .313** | .421** | .554** | .232** | .056 |
| 4. Attitude toward Topic | | | - | .453** | .433** | .462** | .530** | .202** | .078* |
| 5. Attitude toward Message | | | | - | .326** | .471** | .631** | .326** | .079* |
| 6. Source Credibility | | | | | - | .731** | .522** | .164** | .125** |
| 7. Source Derogation | | | | | | - | .657** | .225** | .134** |
| 8. Negative Cognitions | | | | | | | - | .345** | .136** |
| 9. Interdependent Self-Construal | | | | | | | | - | .170** |
| 10. Independent Self-Construal | | | | | | | | | - |

Note: Significant correlations indicated by ** $p < .01$, * $p < .05$. (two-tailed).

Results of the tests examining the anti-drug messages revealed somewhat different outcomes than those found for the safe sex messages. Multiple regression was again used to examine H4A, which predicted that, relative to interdependent-self individuals, independent-self individuals will report (a) higher degrees of anger and (b) more negative cognitions when responding to persuasive messages, and H4B positing that, relative to interdependent-self individuals, independent-self individuals report (a) higher levels of threat, (b) less positive attitude toward the message, (c) less positive attitude toward the topic, (d) less positive behavioral intentions, (e) less positive perceptions of source credibility, and (f) more negative attitude toward the source. (See regression results in Table 14).

Table 14: Coefficients, *t*, and *p* value for Self-Construal in Anti-Drug data

| Dependent Variables | Independent Variables | B | β | <i>t</i> | <i>p</i> |
|-------------------------|-----------------------|-------|----------|----------|----------|
| Threat to Freedom | Interdependent self | -.082 | -.054 | -1.52 | .130 |
| | Independent-self | -.011 | -.008 | -.21 | .831 |
| Anger | Interdependent self | -.340 | -.206*** | -5.91 | .000 |
| | Independent-self | .058 | .038 | 1.09 | .273 |
| Negative Cognitions | Interdependent self | .490 | .331*** | 9.92 | .000 |
| | Independent-self | .109 | .080* | 2.40 | .017 |
| Behavioral Intention | Interdependent self | .490 | .229*** | 6.61 | .000 |
| | Independent-self | .033 | .017 | .49 | .626 |
| Attitude toward Topic | Interdependent self | .482 | .194*** | 5.57 | .000 |
| | Independent-self | .102 | .045 | 1.29 | .197 |
| Attitude toward Message | Interdependent self | .663 | .322*** | 9.54 | .000 |
| | Independent-self | .047 | .025 | .74 | .461 |
| Source Credibility | Interdependent self | .271 | .147*** | 4.19 | .000 |
| | Independent-self | .168 | .100** | 2.84 | .005 |
| Source Derogation | Interdependent self | .338 | .208*** | 6.03 | .000 |
| | Independent-self | .147 | .099** | 2.85 | .004 |

Note: Significant differences indicated by *** $p < .001$, ** $p < .01$, * $p < .05$.

Concerning the anti-drug use PSA, the model was a significant predictor of anger, ($R^2 = .04$, $F(2, 809) = 17.48$, $p < .001$) accounting for 4% of the variance. The analysis indicated interdependent-self was the only significant contributor with $\beta = -.206$, showing individuals with high degrees of interdependent-self reporting significantly lower levels of anger than those with low degrees of interdependent-self. On the other hand, no differences in anger were associated with levels of independent-self ($p = .27$). Therefore, H4A-a was not supported. However, H4A-b was supported, showing the model to be a significant predictor of negative cognitive evaluations ($R^2 = .13$, $F(2, 808) = 57.84$, $p < .001$), with both interdependent-self and independent-self making significant contributions. Specifically, interdependent-self ($\beta = .331$) predicted less negative cognition than did independent-self ($\beta = .080$); that is, higher degrees the interdependent-self were associated with less negative cognitive evaluations of the message. Similarly, more favorable cognitions were associated with high degrees of independent-self than with low degrees.

For the rest of the criterion variables, the model was statistically significant on behavioral intention, $R^2 = .05$, $F(2, 809) = 23.20$, $p < .001$. Interdependent-self was the only significant contributor to the model, whereas independent-self, regardless of degrees, had no significant contributions, hence, H4B-d was not supported (see Table 14). Individuals with high degrees of interdependent self-construal were more likely to produce positive behavioral intention than those with low degrees of interdependent self-construal.

Moreover, the overall model was significant on attitude toward the topic, $R^2 = .04$, $F(2, 809) = 18.09$, $p < .001$, for interdependent-self was the only significant

contributor to the model, whereas independent-self had no significant contributions, regardless of degrees. As in Study 2, H4B-c was not supported. The beta weights showed that high levels of interdependent self-construal were related to more positive attitudes toward the topic than low degrees of interdependent self-construal.

Similarly, the model was a significant predictor of attitude toward the message, $R^2 = .11$, $F(2, 807) = 48.35$, $p < .001$. Again, as in Study 2, interdependent-self was the only significant contributor to the model, whereas independent-self, regardless of degree, had no significant contribution. As a result, H4B-b was not supported. Individuals with high degrees of interdependent self-construal were more likely to produce positive attitude about the message than low degrees of interdependent self-construal (see Table 14 for beta weights).

Finally, the model was also a significant predictor of source credibility, $R^2 = .04$, $F(2, 808) = 15.30$, $p < .001$, and negative attitude toward the source, $R^2 = .06$, $F(2, 809) = 25.89$, $p < .001$. Interdependent-self ($\beta = .147$) contributed more than independent-self ($\beta = .10$) on source credibility and same for negative attitude toward the source (interdependent-self: $\beta = .208$; independent-self: $\beta = .099$). Therefore, H4B-e and H4B-f were supported. Relative to low degrees of interdependent-self and independent-self, individuals with high degrees of interdependent-self and independent-self evaluated source credibility more positively, and were less likely to derogate the message source. Unfortunately, the model was not a significant predictor of threat ($p = .47$), hence, H4B-a failed to receive support. Neither independent self-construal nor interdependent self-construal predicted threat perception.

Together, similar to the result found in Study 2 on the topic of safe sex, H4A received partial support from the anti-drug PSA data, wherein independent-self ($\beta = .080$) produced (b) more negative cognitions than interdependent-self ($\beta = .331$) (see Table 14 for coefficients). However, relative to independent-self ($\beta = .038$), interdependent-self ($\beta = -.206$) contributed more to (a) anger.

Concerning H4B, the results from the anti-drugs data again provided partial support: Compared to independent-self, interdependent-self was associated with (b) more positive attitude toward the message (interdependent-self: $\beta = .322$; independent-self: $\beta = .025$), (c) more positive attitude toward the topic (interdependent-self: $\beta = .194$; independent-self: $\beta = .045$), (d) more positive behavioral intentions (interdependent-self: $\beta = .229$; independent-self: $\beta = .017$), (e) more positive perceptions of source credibility (interdependent-self: $\beta = .147$; independent-self: $\beta = .100$), and (f) less negative attitude toward the source (interdependent-self: $\beta = .208$; independent-self: $\beta = .099$). Unexpected, independent-self and interdependent-self were not significant predictors of the (a) perception of threat (see Table 14).

Self-construal, Appeal Type, and Restoration Type, Study 3

Hypotheses 5 and 6 examined the interaction effects between self-construal and appeal type, and self-construal and restoration type on reactance arousal. Hypotheses 5 predicted an interaction between self-construal and appeal type, positing that prohibition appeals combined with independent-self, and fatalistic appeals combined with interdependent-self lead to (a) higher degrees of anger, and (b) more negative cognitive evaluations, (c) higher levels of threat, (d) less positive attitude toward the message, (e) less positive attitude toward the topic, (f) less positive behavioral

intentions, (g) less positive perceived source credibility, and (h) more negative attitude toward the source, relative to fatalistic appeals used on independent-self and prohibition appeals used on interdependent-self.

Again, for the purpose of categorizing participants as either interdependent or independent, self-construal was treated as the difference score between the z-standardized scores on the interdependent self-construal subscale, and those on the independent self-construal subscale. Accordingly, a positive value designated a more interdependent-self, whereas a negative value designated a more independent-self.

A MANOVA test was performed using new self-construal, appeal type, and restoration as independent variables, and the eight variables previously examined, including threat, anger, negative cognitive evaluation, behavioral intention, attitude toward topic and message, source credibility, and negative attitudes toward the source as dependent variables. No significant results were found between self-construal and appeal type (anger, $p = .16$; negative cognitions, $p = .34$; threat, $p = .63$; attitude toward the message, $p = .25$; attitude toward the topic, $p = .87$; behavioral intention, $p = .22$; source credibility, $p = .18$; attitude toward the source, $p = .40$). Hence, similar to Study 2, H5 did not receive support, since independent-self using prohibition appeals and interdependent-self employing fatalistic appeals were not significantly different from independent-self using fatalistic appeals and interdependent-self employing prohibition appeals on any of the outcomes.

Also, performing the MANOVA analysis, H6 examined the relationship between self-construal and restoration type, hypothesizing that an individual freedom form of restoration is more effective on independent-self, whereas a collective freedom

form of restoration is more effective on interdependent-self. The results for the anti-drug data indicated the self-construal x restoration type interaction approached significance only for anger, $F(4, 779) = 2.22, p = .066, \eta^2_p = .01$.

An unanticipated finding was that both interdependent-self and independent self-construals led to high degrees of anger when combined with the fatalistic form of restoration (interdependent-self: $M = 1.92, SD = .096$; independent-self: $M = 1.91, SD = .095$). On the other hand, the standard form of restoration was effective in combination with interdependent-self ($M = 1.37, SD = .093$), and the collective form of restoration was effective in combination with independent-self ($M = 1.53, SD = .10$) at reducing the magnitude of anger. No other significant results between self-construal and restoration were found (negative cognitions, $p = .23$; threat, $p = .99$; attitude toward the message, $p = .72$; attitude toward the topic, $p = .95$; behavioral intention, $p = .51$; source credibility, $p = .19$; attitude toward the source, $p = .09$). Similar to Study 2, responses to the anti-drug PSA in Study 3 failed to demonstrate support for H6: no differences were found for independent-self using an individual form of restoration and interdependent-self using a collective form of restoration.

Although not hypothesized, there was a marginally significant three-way interaction involving appeal type x restoration type x self-construal on behavioral intentions, $F(4, 779) = 2.37, p = .051, \eta^2_p = .01$. For interdependent-self, prohibitive appeals with the standard form of restoration ($M = 5.68, SD = .17$) led to more positive behavioral intentions than prohibitive appeals with no restoration ($M = 5.27, SD = .17$). Also, fatalistic appeals with the standard (or collective) form of restoration (standard: $M = 5.02, SD = .17$; collective: $M = 4.99, SD = .16$) led to more positive behavioral

intentions than fatalistic appeals with the fatalistic form of restoration ($M = 4.59$, $SD = .17$). Concerning independent-self, prohibitive appeals with no restoration ($M = 5.68$, $SD = .18$) was associated with more positive behavioral intentions than prohibitive appeals with the fatalistic form of restoration ($M = 4.85$, $SD = .17$). Moreover, fatalistic appeals with the collective form of restoration ($M = 4.98$, $SD = .19$) was associated with more positive behavioral intentions than fatalistic appeals with no restoration ($M = 4.43$, $SD = .18$).

Discussion, Study 3

Appeal type—more specifically, a prohibitive appeal—was associated with more positive evaluations on behavioral intention, source credibility, attitude toward the message, source, and topic, as well as less threat, less anger, and less negative cognitive evaluations than fatalistic appeals. The results showed appeal type had more influence on the anti-drug messages than on the safe sex messages.

When comparing the none form of restoration postscript with other types of restoration method, the results indicated that appeals without a restoration postscript, relative to persuasive messages using the standard restoration, was significantly associated with less positive influence on the evaluation of source credibility and less positive attitude toward the topic. Surprisingly, the fatalistic form of restoration postscript following an appeal led to greater levels of anger than no restoration postscript at all. As a result, more source derogation, more negative source credibility, and more negative cognitive evaluations were associated with fatalistic restoration postscripts. The results for the standard type and none form of restoration postscripts demonstrated a similar pattern across the two topics. Specifically, the standard choice of restoration postscript

had the greatest effect on persuasive outcomes (e.g., more positive source credibility, more positive attitude toward topic, less source derogation, and less unfavorable cognitive evaluations) among the five restoration methods.

The comparison between culturalism and self-construal was not quite similar for both the safe sex and anti-drug data. Self-construal was more influential than culturalism on reactance arousal and its associated consequences, including evaluation on topic and message, and positive source credibility, on the topic of anti-drug use. Culturalism, on the other hand, failed to demonstrate its role in reactance, as its beta weights were less than self-construal.

Further examination on the effects of interdependent-self and independent-self on reactance arousal demonstrated that only interdependent-self holders experienced reactance when responding to persuasive messages, for independent-self holders did not experience anger, which is an important component of reactance. Additionally, standardized regression coefficient for interdependent-self on anger was negative, indicating that individuals with a high degree of interdependent-self were less likely to perceive anger from the anti-drug messages. They were also unlikely to report negative cognitive evaluations. On the other hand, individuals low on interdependent-self experienced reactance arousal and demonstrated negative outcomes (e.g., source derogation) when receiving persuasive messages. This finding again replicated the results found in Study 2.

Regarding reactance effects on persuasive outcomes, interdependent self-construal was the more reliable contributor of most results (except threat to freedom). Individuals with an interdependent self-construal were less likely to show reactance in

response to the persuasive messages, as demonstrated by higher ratings of source credibility, less source derogation, and more positive evaluations of the topic and the message. These findings, however similar to those found in Study 2.

SUPPLEMENTARY ANALYSIS

Self-Construal vs. Culturalism between Countries

Although differences in levels of self-construal held by participants in Taiwan and the US were not hypothesized in this research, supplementary analysis showed the mean scores for interdependent and independent self-construal were 4.84 and 4.69, respectively across both samples. Moreover, the mean scores for the four dimensions of culturalism from the highest to the lowest were HC = 5.39, VC = 5.11, HI = 5.10, and VI = 4.52 across both samples.

An independent samples *t*-test was performed to analyze the differences between TW and US samples based on the self-construal and culturalism subscales. For self-construal, the difference between the TW sample and USA sample was significant, $t(1967) = -6.34, p < .001, d = -.28$, on the dimension of independent self-construal (TW: $M = 4.61, SD = .58$; US: $M = 4.79, SD = .65$). However, the difference for interdependent self-construal between the two samples was not, $t(1968) = .77, p = .44$ (TW: $M = 4.84, SD = .52$; US: $M = 4.82, SD = .62$) (See means and standard deviations in Table 15).

Table 15: Means, Standard Deviations, *t* values for Self-construal between TW and USA

| Variables | TW | | USA | | t |
|----------------|-----------|-----|----------|-----|----------|
| | M (n=996) | SD | M(n=974) | SD | |
| Interdependent | 4.84 | .52 | 4.82 | .62 | .77 |
| Independent | 4.61 | .58 | 4.79 | .65 | -6.34*** |

Note: Significant differences indicated by *** $p < .001$.

Additionally, a one-sample *t*-test showed the TW sample reporting a higher score on interdependent self-construal ($M = 4.84$, $SD = .52$), relative to independent self-construal ($M = 4.61$, $SD = .58$), $t(994) = 296.55$, $p < .001$, $d = .42$. A similar result was found for the US sample (interdependent: $M = 4.82$, $SD = .62$, independent: $M = 4.79$, $SD = .65$), $t(973) = 241.03$, $p < .001$, $d = .10$ (means and SDs also see Table 15). In brief, the US sample reported a higher score than the TW sample for independent self-construal, yet both samples exhibited no significant difference for interdependent self-construal. Moreover, the US sample put more weight on interdependent than on independent self-construal. This result supports previous researchers' claim (e.g., Kolstad & Horpestad, 2009) that it is unwise to directly argue independent self-construal dominating in individualist cultures (e.g., USA), whereas interdependent self-construal dominating in collectivist cultures (e.g., TW).

Apparently, the two types of self-construal coexist within individuals and either type of self-construal has a major influence on individuals' behaviors or thoughts, regardless of cultural backgrounds. Also, it could imply that cultures from Eastern or Western might not necessary represent differences, but similarities. In this case, both Taiwan and the United States demonstrate similarities on placing a high value on

interdependent-self. Finally, the dominance of which type of self-construal in a population may demonstrate some characteristics of this group. For example, the US sample in this study reported higher scores on interdependent self-construal than on independent self-construal, which could imply they may see the importance of maintaining harmony within their group. If this is the case, when group members persuade individuals to use condoms to prevent unexpected pregnancy, they may be likely to accept such suggestions more readily, even though they might experience some level of reactance arousal. This assumption is supported by the two studies in the current research indicating individuals with interdependent self-construal dominated, regardless of cultural backgrounds, and this was associated with greater reactance-relevant outcomes, even when reactance was aroused.

Concerning the four subscales of culturalism, the US sample reported significantly higher scores than the TW sample on three out of the four dimensions: horizontal individualism, $t(1904) = -7.95, p < .001, d = -.36$ (TW: $M = 4.96, SD = .78$; US: $M = 5.25, SD = .83$); horizontal collectivism, $t(1904) = 11.10, p < .001, d = -.48$ (TW: $M = 5.23, SD = .66$; US: $M = 5.56, SD = .71$); and vertical collectivism, $t(1904) = -4.40, p < .001, d = -.21$ (TW: $M = 5.02, SD = .79$; US: $M = 5.20, SD = .94$). Vertical individualism (VI) dimension, however, demonstrated the opposite result; the TW sample scored significantly higher than the US sample on this dimension, $t(1900) = 11.10, p < .001, d = .51$ (TW: $M = 4.73, SD = .73$; US: $M = 4.29, SD = .98$). (See means and standard deviations in Table 16). Moreover, both the US and TW samples reported the highest score on the dimension of horizontal collectivism.

Table 16: Means, Standard Deviations, *t* values for Culturalism Dimension

| Variables | TW | | USA | | t |
|--------------------------|----------|-----|----------|-----|-----------|
| | M (=992) | SD | M (=914) | SD | |
| Horizontal Individualism | 4.96 | .78 | 5.25 | .83 | -7.95*** |
| Vertical Individualism | 4.73 | .73 | 4.29 | .98 | 11.10*** |
| Horizontal Collectivism | 5.23 | .66 | 5.56 | .71 | -10.39*** |
| Vertical Collectivism | 5.02 | .79 | 5.20 | .94 | -4.40*** |

Note: Significant differences indicated by *** $p < .001$.

This result again provides the evidence for the statement that simply using the individualism-collectivism dimension to understand culture differences is inadequate. From the analysis, both populations put weight on interdependence and identify themselves with groups.

Effects of Self-Construal vs. Nationality on Reactance Arousal

Given that nationality also possibly plays a role in the perception of threat and reactance arousal, a multiple regression analysis was performed, with self-construal and nationality as predictor variables, and each of eight variables (anger, negative cognitions, threat, attitude toward message, topic, and source, behavioral intention, and source credibility) were set as criterion variables. When results were significant for nationality on any criterion variable, a t-test was conducted to further examine the role of nationality. The results are presented separately below based on the topic.

Study 2, Safe Sex PSA

Correlations between interdependent and independent self-construal, nationality, and each of the eight criterion variables are presented in Table 17. As can be seen, interdependent self-construal was significantly and negatively correlated with both threat and anger, but significantly and positively correlated with negative cognitions, behavioral intention, attitude toward the topic, attitude toward the message, attitude toward the source, and source credibility. Moreover, independent self-construal was not related to anger, but significantly and positively associated with nationality, negative cognitions, behavioral intention, attitude toward the topic, attitude toward the message, source credibility, and attitude toward the source. Independent self-construal was significantly and negatively related to threat. Finally, nationality was significantly and negatively correlated with threat, it was however significantly and positively correlated with anger, behavioral intentions, attitude toward the message, source credibility, and negative attitude toward the source. Nationality was not significantly correlated with negative cognitions and attitude toward the topic.

Table 17: Correlations Among Self-Construal, Nationality and Criterion Variables in Safe Sex data

| Variable | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|----------------------------|--------|--------|---------|--------|---------|---------|---------|---------|---------|---------|
| 1. Interdependent-Self | .159** | -.014 | -.150** | .291** | -.077* | .169** | .127** | .170** | .186** | .220** |
| 2. Independent-Self | - | .149** | -.002 | .167** | -.103** | .109** | .104** | .123** | .105** | .154** |
| 3. Nationality | - | - | .102** | .016 | -.416** | .130** | .032 | .203** | .060* | .321** |
| 4. Anger | - | - | - | -.522* | .191** | -.261** | -.377** | -.312** | -.418** | -.404 |
| 5. Negative Cognitions | - | - | - | - | -.209** | .583** | .630** | .600** | .528** | .653** |
| 6. Threat to Freedom | - | - | - | - | - | -.184** | -.229** | -.275** | -.264** | -.400** |
| 7. Behavioral Intention | - | - | - | - | - | - | .467** | .616** | .289** | .434** |
| 8. Attitude toward Topic | - | - | - | - | - | - | - | .527** | .428** | .497** |
| 9. Attitude toward Message | - | - | - | - | - | - | - | - | .319** | .485** |
| 10. Source Credibility | - | - | - | - | - | - | - | - | - | .689 |
| 11. Attitude toward Source | - | - | - | - | - | - | - | - | - | - |

Note: Significant correlations indicated by ** $p < .01$, * $p < .05$. (two-tailed)

Multiple regression analysis was conducted to examine the relationship among interdependent and independent self-construal, nationality, and the eight criterion variables. The overall model was significant for anger ($R^2 = .03$, $F(3, 1089) = 12.28$, $p < .001$). As can be seen in Table 18, both interdependent self-construal and nationality were significant predictors to the model, with interdependent self-construal ($\beta = -.150$) contributed more than nationality ($\beta = .099$). The higher the level of interdependent self-construal, the lower the level of anger perceived. Likewise, the model was also significant on negative cognition evaluation ($R^2 = .10$, $F(3, 1087) = 40.26$, $p < .001$), whereby both interdependent-self ($\beta = .272$) and independent-self ($\beta = .124$) were the significant contributors. A high degree of both types of self-construal was associated with higher levels of favorable thoughts, compared to low degrees of both types of self-construal. However, the TW and US samples were not significantly different on their evaluation on negative thoughts ($p = .968$).

For threat, the overall model was significant ($R^2 = .18$, $F(3, 1089) = 79.81$, $p < .001$). Both interdependent self-construal and nationality had significant negative regression weights, with nationality contributing more than interdependent self-construal to the model (see Table 18 for coefficient and significance). The results indicate individuals with lower levels of interdependent self-construal perceive more threat than those with higher levels of interdependent self-construal. As for nationality, those in the TW sample ($M = 3.16$, $SD = .65$) perceived higher levels of threat than those in the US sample ($M = 2.50$, $SD = .81$).

The model was also significant for behavioral intentions ($R^2 = .05$, $F(3, 1089) = 19.13$, $p < .001$), for both types of self-construal and nationality had significant positive weights, with interdependent self-construal contributing more to the model than nationality. The higher level of interdependent and independent self-construal was, the more positive behavioral intentions were assessed. For nationality, the US sample ($M =$

Table 18: Coefficients, t , and p value for Self-Construal vs. Nationality in Safe sex data

| Dependent Variables | Independent Variable | B | β | t | p |
|-------------------------|----------------------|-------|---------|--------|------|
| Anger | Interdependent-Self | -.216 | -.150 | -4.97 | .000 |
| | Independent-Self | .010 | .008 | .248 | .805 |
| | Nationality | .165 | .099 | 3.29 | .001 |
| Negative Cognitions | Interdependent-Self | .386 | .272 | 9.32 | .000 |
| | Independent-Self | .162 | .124 | 4.19 | .000 |
| | Nationality | .002 | .001 | .040 | .968 |
| Threat to Freedom | Interdependent-Self | -.108 | -.078 | -2.82 | .005 |
| | Independent-Self | -.037 | -.029 | -1.02 | .308 |
| | Nationality | -.659 | -.412 | -14.84 | .000 |
| Behavioral Intention | Interdependent-Self | .307 | .161 | 5.38 | .000 |
| | Independent-Self | .114 | .065 | 2.14 | .033 |
| | Nationality | .269 | .122 | 4.07 | .000 |
| Attitude toward Topic | Interdependent-Self | .226 | .115 | 3.78 | .000 |
| | Independent-Self | .150 | .082 | 2.68 | .007 |
| | Nationality | .046 | .020 | .670 | .503 |
| Attitude toward Message | Interdependent-Self | .302 | .161 | 5.47 | .000 |
| | Independent-Self | .118 | .068 | 2.28 | .023 |
| | Nationality | .424 | .195 | 6.62 | .000 |
| Source Credibility | Interdependent-Self | .323 | .176 | 5.85 | .000 |
| | Independent-Self | .118 | .070 | 2.29 | .022 |
| | Nationality | .109 | .051 | 1.71 | .088 |
| Attitude toward Source | Interdependent-Self | .337 | .212 | 7.53 | .000 |
| | Independent-Self | .107 | .073 | 2.57 | .010 |
| | Nationality | .576 | .313 | 11.13 | .000 |

Note: Significant differences indicated by *** $p < .001$, ** $p < .01$, * $p < .05$.

5.09, $SD = 1.22$) reported more positive behavioral intentions on the use of condoms than the TW sample ($M = 4.80$, $SD = .97$).

Moreover, the model was significant for attitude toward the message ($R^2 = .08$, $F(3, 1089) = 29.63$, $p < .001$). Both interdependent and independent self-construal and nationality significantly contributed to the model, with nationality contributing more than self-construal. Individual with higher degrees of interdependent and independent self-construal reported more positive attitudes toward the message than lower degrees of interdependent and independent self-construal. For nationality, the US sample ($M = 5.44$, $SD = 1.19$) reported more positive attitudes toward the message than TW sample ($M = 5.00$, $SD = .93$). The model was also significant for attitude toward the source ($R^2 = .16$, $F(3, 1088) = 68.29$, $p < .001$). Interdependent-self, independent-self, and nationality were significant contributors, with nationality contributing more than self-construal to the model. A high degree of interdependent and independent self-construal led to less negative attitude toward the source than a low degree of interdependent and independent self-construal. As for nationality, the US sample ($M = 4.65$, $SD = .99$) reported less negative attitude toward the source than TW sample ($M = 4.06$, $SD = .75$).

Furthermore, the model was significant for attitude toward the topic ($R^2 = .02$, $F(3, 1089) = 8.86$, $p < .001$), with self-construal being the only significant and positive contributor, specifically, interdependent-self had a greater effect than independent. The higher levels of self-construal were related to more positive attitudes toward the topic of safe sex. Whereas the TW and US samples did not significantly differ on the assessment of topic ($p = .503$). Lastly, the model was significant for source credibility ($R^2 = .04$, $F(3, 1084) = 16.31$, $p < .001$), with interdependent and independent self-construal being the

significant and positive contributor. Individuals with higher levels of interdependent and independent self-construal reported more positive evaluations of source credibility than low levels of interdependent and independent; however, there were no significant differences between the two populations on the evaluation of source credibility ($p = .088$).

Supplemental Discussion, Study 2

The above results indicated the effect of self-construal on reactance-related effects, and provides evidence that, relative to nationality, self-construal plays a major role on most reactance outcomes. The findings show self-construal is associated with the arousal of reactance, whereas nationality is not. Moreover, self-construal appears to lead to more positive behavioral intention, more positive attitudes toward topic, and more positive source credibility. Nationality, on the other hand, does not appear to predict the arousal of reactance. Hence, it would seem self-construal is more useful and appropriate than nationality in understanding and predicting psychological reactance and its associated effects.

Study 3, Anti-drug PSA

The same analyses techniques used to examine the Safe sex PSA in Study 2 were used for the anti-drug data in Study 3. Table 19 presented the correlations among interdependent-self, independent-self, nationality, and the eight criterion variables. Interdependent self-construal was significantly and negatively correlated with anger, but significantly and positively correlated with independent-self, negative cognitions, behavioral intentions, attitude toward the topic and message, source credibility, and attitude toward the source. Interdependent-self was not significantly correlated with

nationality and threat. As for independent self-construal, it was significantly and positively correlated with nationality, negative cognitions, attitude toward topic and message, source credibility, and attitude toward source. However, independent-self was not significantly correlated with anger, threat, and behavioral intention. Last, nationality was significantly and negatively correlated with threat to freedom, and attitude toward the topic, but it was significantly and positively correlated with anger, behavioral intentions, attitude toward the message, and attitude toward the source.

The results obtained from multiple regression analysis show the model was significant for anger ($R^2 = .05$, $F(3, 808) = 14.53$, $p < .001$). Interdependent self-construal and nationality were significantly contributed to the model, with self-construal contributed more (see Table 20 for coefficients and significance). Interdependent self-construal was negatively correlated with anger, indicating that the less Interdependent self-construal led to more anger. On the contrary, nationality was positively correlated with anger, with US sample ($M = 1.75$, $SD = .95$) perceived more on the scale than TW sample ($M = 1.56$, $SD = .87$). Regarding negative cognitions, the model was also significant ($R^2 = .13$, $F(3, 807) = 38.99$, $p < .001$), with self-construal was the only contributor. Specifically, interdependent-self contributed more than independent-self to the model. The higher degrees of interdependent and independent self-construal was related with less negative cognitions. However, TW sample and US sample were not significantly different on this variable ($p = .265$).

Table 19: Correlations Among Self-Construct, Nationality and Criterion Variables, Study 3

| Variable | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|----------------------------|------|--------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1. Interdependent-Self | .170 | .016 | -.200** | .345** | -.055 | .232** | .202** | .326** | .164** | .225** |
| 2. Independent-Self | - | .122** | .003 | .136** | -.017 | .056 | .078* | .079* | .125** | .134** |
| 3. Nationality | - | - | .099** | -.021 | -.336** | .116** | -.147** | .082* | .041 | .168** |
| 4. Anger | - | - | - | -.531** | .216** | -.362** | -.379** | -.396** | -.457** | -.447** |
| 5. Negative Cognitions | - | - | - | - | -.194** | .554** | .530** | .631** | .522** | .657** |
| 6. Threat to Freedom | - | - | - | - | - | -.109** | -.096** | -.189** | -.282** | -.331** |
| 7. Behavioral Intention | - | - | - | - | - | - | .409** | .727** | .313** | .421** |
| 8. Attitude toward Topic | - | - | - | - | - | - | - | .453** | .433** | .462** |
| 9. Attitude toward Message | - | - | - | - | - | - | - | - | .326** | .471** |
| 10. Source Credibility | - | - | - | - | - | - | - | - | - | .731** |
| 11. Attitude toward Source | - | - | - | - | - | - | - | - | - | - |

Note: Significant correlations indicated by ** $p < .01$, * $p < .05$. (two-tailed)

For threat to freedom, the model was significant ($R^2 = .12$, $F(3, 807) = 35.37$, $p < .001$), with nationality was the only significant contributor, indicating that TW sample ($M = 3.20$, $SD = .74$) perceived more threat than US sample ($M = 2.63$, $SD = .85$). In addition, the model was significant for behavioral intentions ($R^2 = .07$, $F(3, 808) = 19.21$, $p < .001$), with interdependent self-construal and nationality were significant contributors. The higher degree of interdependent self-construal was associated with

Table 20: Coefficients, t , and p value for Self-Construal vs. Nationality in Anti-Drug data

| Dependent Variables | Independent Variable | B | β | t | p |
|-------------------------|----------------------|-------|---------|--------|------|
| Anger | Interdependent-Self | -.339 | -.206 | -5.93 | .000 |
| | Independent-Self | .039 | .026 | .745 | .456 |
| | Nationality | .183 | .100 | 2.88 | .004 |
| Negative Cognitions | Interdependent-Self | .490 | .331 | 9.92 | .000 |
| | Independent-Self | .115 | .085 | 2.52 | .012 |
| | Nationality | -.061 | -.037 | -1.12 | .265 |
| Threat to Freedom | Interdependent-Self | -.084 | -.055 | -1.65 | .099 |
| | Independent-Self | .047 | .033 | .988 | .323 |
| | Nationality | -.575 | -.339 | -10.16 | .000 |
| Behavioral Intention | Interdependent-Self | .491 | .230 | 6.67 | .000 |
| | Independent-Self | .006 | .003 | .091 | .928 |
| | Nationality | .266 | .112 | 3.27 | .001 |
| Attitude toward Topic | Interdependent-Self | .480 | .194 | 5.62 | .000 |
| | Independent-Self | .146 | .064 | 1.86 | .064 |
| | Nationality | -.437 | -.158 | -4.62 | .000 |
| Attitude toward Message | Interdependent-Self | .664 | .322 | 9.58 | .000 |
| | Independent-Self | .030 | .16 | .469 | .640 |
| | Nationality | .172 | .075 | 2.24 | .025 |
| Source Credibility | Interdependent-Self | .271 | .147 | 4.19 | .000 |
| | Independent-Self | .163 | .096 | 2.73 | .007 |
| | Nationality | .056 | .027 | .776 | .438 |
| Attitude toward Source | Interdependent-Self | .339 | .209 | 6.12 | .000 |
| | Independent-Self | .118 | .080 | 2.31 | .021 |
| | Nationality | .280 | .155 | 4.57 | .000 |

Note: Significant differences indicated by *** $p < .001$, ** $p < .01$, * $p < .05$.

more positive behavioral intentions than the lower degrees of interdependent self-construal. Whereas nationality, US sample ($M = 5.19$, $SD = 1.26$) produced more positive behavioral intention than TW sample ($M = 4.91$, $SD = 1.10$). Moreover, the overall model was significant for attitudes toward the topic ($R^2 = .07$, $F(3, 808) = 19.48$, $p < .001$). Interdependent self-construal and nationality were significant contributors to the model, with interdependent self-construal contributed more than nationality. The more interdependent self-construal was associated with more positive attitude toward the topic than the less interdependent self-construal. For nationality, TW sample ($M = 5.13$, $SD = 1.32$) demonstrated more positive attitude toward the topic of anti-drug than US sample ($M = 4.73$, $SD = 1.41$).

For negative attitudes toward the source, the model was also significant ($R^2 = .08$, $F(3, 808) = 24.64$, $p < .001$). Interdependent and independent self-construal and nationality were significant contributors to the model. Interdependent self-construal contributed more than nationality on this scale, followed by independent self-construal. The higher levels of interdependent and independent self-construal was related with less negative attitudes toward the source than the lower levels of interdependent and independent self-construal. For nationality, US sample ($M = 4.38$, $SD = .95$) produced less negative attitude toward the source than TW sample ($M = 4.08$, $SD = .83$).

Also, the model was significant for attitudes toward the message ($R^2 = .11$, $F(3, 806) = 34.06$, $p < .001$), with interdependent self-construal contributing more to the model than nationality. The results indicated that the higher degrees of interdependent self-construal were, the more positive attitudes toward the message, relative to the lower degrees of interdependent self-construal. For nationality, US sample ($M = 5.34$, SD

= .1.25) evaluated the message more positively than TW sample ($M = 5.15$, $SD = 1.03$) Lastly, the model was statistically significant for source credibility ($R^2 = .04$, $F(3, 807) = 10.39$, $p < .001$). Both interdependent and independent self-construal were the significant contributors, indicating that higher levels of interdependent and independent self-construal was associated with more positive source credibility than lower levels of interdependent and independent self-construal. Nevertheless, both TW and US samples did not significant differ on their assessments of source credibility ($p = .438$).

Supplemental Discussion, Study 3

The results from the above again lend support to the argument that self-construal is more useful than nationality for understanding and predicting reactance effects. Self-construal was related to the arousal of reactance, rather than nationality. As seen in the supplement analyses for Study 2, self-construal in Study 3 appears to have more influence on many of the variables examined. Relative to nationality, self-construal is associated with more positive behavioral intentions, more positive evaluations on topic and message, more positive source credibility, and less negative attitudes toward the source.

CHAPTER V

General Discussion

This investigation makes several significant contributions to the study of persuasive PSA message design. First, the main objective of these experiments was to explore the cultural differences in terms of psychological reactance, and its effects on persuasive outcomes. Specifically, this dissertation examines the nature and effectiveness of cultural-level culturalism and individual-level self-construal at understanding the occurrence of psychological reactance and its associated outcomes. Such a consideration has not previously been examined in the persuasion and social influence literatures. These experiments represent the first reactance-related message design research to examine the application of prohibitive vs. fatalistic language features, as well as the effects of different restoration postscript conditions (none, standard, individual, collective, and fatalistic) on persuasive outcomes.

Finally, whereas previous reactance research has primarily examined different kinds of printed media to test reactance results, few studies have examined the effects of reactance via a video channel, as this one has using YouTube, which enjoys a much wider global connection with its audience.

The more important findings are summarized below in detail, followed by a discussion about future directions, implications for social influence campaigns, and limitations of the experiments reported here.

Effects of Appeal Type on Psychological Reactance

Prohibition appeals are commanding, directive, and imperative in nature. Experimental examination of prohibition appeals has shown them to be associated with increased reactance and the undesirable side effects that follow. Both the Study 2 and Study 3 experiments, examining two different PSAs, found prohibition appeals to elicit higher levels of threat to freedom than fatalistic appeals, yet it was fatalistic appeals that were met with the greatest levels of anger, and the most negative cognitive evaluations. Interestingly, whereas prohibition appeals have been found to induce high levels of threat, and to be associated with reactance effects in previous research (e.g., Miller et al., 2007), they were not necessarily associated with more unfavorable results in this study; that is to say, relative to fatalistic appeals, they did not appear to produce as much message rejection or source derogation.

One possible explanation for this finding is that previous research on reactance using prohibitions to examine the effects of reactance, mainly focused on controlling language (e.g., controlling vs. autonomy supportive language; Miller et al., 2007), argumentative language (e.g., deductive vs. inductive; Buller, Burgoon, Hall, Levine, Taylor, Beach, Buller, & Melcher, 2000), and/or explicit language (e.g., explicit vs. implicit; Grandpre et al., 2003; Miller et al., 2007). Such language unambiguously commands individuals, telling them what should or should not be done, while clearly spelling out the source's persuasive intentions. Most of that research concludes persuasive messages using forceful language tends to induce high magnitudes of reactance, and thus, unfavorable persuasive outcomes. However, that prior research may not have fully recognized how reactance can also be a function of another element

beyond the content of the message, or the type of language used, namely, the psychological relationships between the message source and receiver implied by the type of message appeal being used.

Concerning fatalistic appeals, individuals adopting such a tone may be conveying hints of irony, sarcasm, teasing, and mockery that can irritate and annoy message recipients—despite the fact that such an appeal type may be assumed to leave more room for recipients to make their own choices without direct prohibitive interference. In other words, when interpreting the more literal implications expressed within a fatalistic appeal, it may appear that, although individuals feel free to make their own decisions, the tone in which the message is expressed may convey unintended implications that lead receivers to believe undesirable consequences will unavoidably befall them if they do not take the actions recommended by the source. In this sense, individuals may feel constrained and unable to carry out a specific behavior freely.

Moreover, the phrase “fatalistic appeal” is meant to convey the idea that the source of the appeal is resigned to the possibility that the recipients of the message will have already made a decision, or may not respond favorably to advice. Individuals may feel that, in the issuance of the message, the source fails to respect their need for self-determination, or accord sufficient respect for their opinions. The sources of fatalistic appeals may be perceived as having already concluded that their recipients will take action based on their original beliefs, rather than the source’s desires. When embedded within a fatalistic appeal, the tone and thought conveyed by the source may cause the recipient to exhibit socially undesirable behaviors simply because they are unhappy

about the nature of the appeal, without actually feeling particularly high levels of threat to their perceived freedoms (Quick & Considine, 2008).

Another possible explanation for the effects of prohibitive appeal and fatalistic appeal would borrow the idea of positive and negative face from politeness theory (Brown & Levinson, 1978). According to the theory, positive face is related to the needs of approval by others, whereas negative face is associated with the needs of no restrictions on actions or thoughts. Message sources using prohibitive appeals explicitly express their intention of constraining message receivers' behavior, or force them to take recommendation made by the sources. Undoubtedly, prohibitive appeal is connected with negative face. Fatalistic appeals, on the other hand, implicitly deny message receivers' ability make correct decisions and convey a sense that the receivers are not trusted by the message sources. Inherently, fatalistic appeal induces a feeling that the receivers' behavior is not approved by others, which is similar to the concept of positive face. This interpretation goes further to provide a thought that the nature of fatalistic appeal may bear a sense of threat to positive face—threatening one's judgment or competence to make a wise choice—along with threat to freedom. In other words, fatalistic appeals not only literally threat one's negative face (freedom of performing a specific behavior), but it also implicitly threatens one's positive face (need of approval by others). Hence, as one receives distrust from and disapproved by others as well as his behavioral freedom is constrained, the degree of anger and unfavorable thoughts is greater than expected, in this case, greater than prohibitive appeal.

A concordant question raised by this research is whether the arousal of reactance may also stem from a threat to some other aspect of the self as it relates to fatalism.

Structural equation modeling (SEM) analyses have revealed how the presence of threat in general can lead to reactance arousal (e.g., Rain & Turner, 2007). Other studies have confirmed reactance to be a two-step process (Quick & Bates, 2010; Quick & Considine, 2008; Quick & Stephenson, 2008). One might conclude that threat may necessarily be associated with anger and negative cognitions; however, the present study did not find this relationship to be paramount. Although prohibitive appeals led to higher levels of threat than fatalistic appeal across both PSA topics, it was the latter that led to higher levels of reactance arousal and its corresponding negative outcomes. Even more so, threat was associated with prohibitive appeals when the topic was safe sex, nevertheless, neither of the two appeal types demonstrated a significant difference in negative cognitive evaluations.

This finding calls into question the absolute relationship between threat to freedom and reactance, and challenges the previous studies claiming psychological reactance is merely a two-step process (e.g., Quick & Bates, 2010). It may be that something beyond threat—something related to certain psychological aspects associated with fatalism (e.g., irony, sarcasm, teasing, and mockery)—may also be sufficient for arousing psychological reactance. Brehm's (1966) description of reactance mentions individuals "may be aware of hostile and aggressive feelings" (p. 9), which one could interpret as similar in many ways to a fatalistic tone, accompanying or in place of a specific threat to freedom. Such a tone, with its relational implications, appears to be capable of eliciting negative feelings beyond the presence of threat alone. As Quick and Considine (2008) speculated, individuals may simply display their dissatisfaction with messages through the manifestation of anger and negative cognitions without feeling a

particularly high level of threat to freedom. However, they did not offer further explanation of how or under what conditions this might happen. Results from the experiments reported here suggest threat may not always be a required precursor for reactance to occur, as concluded by other scholars (e.g., Quick & Stephenson, 2008; Quick, Scott, & Ledbetter, 2011). Rather, certain other relational, psychological elements evident or inferred from the message—either from the meanings perceived by the recipient, or from the relational implications associated with the perceived tone of the message source—may activate psychological reactance in the form of anger and negative cognitions.

Another noteworthy finding from this investigation is that the effects of reactance elicited by language appeals can be dramatically different within various contexts. Based on previous research on reactance, this study was expected to find similar results from reactance effects (e.g., message rejection, boomerang effects, source derogation), regardless of topics; however in the present experiments, these responses varied as a function of message topic—whether safe sex or anti-drug. On the topic of safe sex, the influence of appeal type was limited to threat perception, anger assessment, and source credibility. Specifically, relative to fatalistic appeals, prohibitive appeals elicited higher levels of threat, but lower level of anger, and less negative assessments of source credibility. It is possible this may in part be due to the fact that the samples from both countries were composed largely of females who are more likely to be expected to follow the tradition of abstaining from sex before marriage. Moreover, to lower the rates of adolescent pregnancy, and to control the spread of sexually transmitted diseases, governments around the world have been advocating the

importance of the use of condoms for the past several decades. It is likely that practicing safe sex is not as sensitive or as taboo an issue for modern day females; rather, how to prevent the undesired consequences of sexual contact has become a highly relevant and acceptable topic of discussion.

Moreover, as the topic of safe sex is perceived more hedonically relevant than the topic of anti-drug, supposedly, it should be the topic of safe sex that results in more reactance-associated results; however, the finding here is in the opposite direction, possibly because individuals may adopt a less confrontational strategy (Brehm, 1966) when they face a topic that is highly hedonically relevant to them.

According to Brehm (1966), when faced with a freedom threatening persuasive message, individuals can restore their sense of autonomy by resisting compliance, or by simply maintaining their preexisting attitudes and beliefs. In such a case, reactance need not be manifest as contrary behavior, but merely as resistance to the influence attempts of others. Applying this consideration to the current study, it is possible that individuals persist in their pre-established attitudes toward the issue, the message, or behavioral intentions without necessarily experiencing particularly high magnitude of threat. In other words, when facing a topic that is highly hedonically relevant to individuals, in this case, safe sex, they stand firm with regard to their opinions without expressing their real thoughts, no matter what type of appeals is employed in the persuasive messages.

As this study found, individuals may simply display reactance by not responding to questions of whether the issue of performing safe sex is good or bad, whether the message advocating condom use is important or not, or whether taking the advice is necessary or not. Supporting Brehm's (1966) argument on the manifestation of

reactance, this study found that reactance is not only manifested in the form of performing contrary behavior, but also in the form of resistance to influence of persuaders.

The results obtained from responses to the anti-drug messages, on the other hand, are more in line with previous findings relevant to psychological reactance. Compared to prohibitive appeals, fatalistic appeals elicited more anger and produced more adverse results in response to the anti-drug message relative to the safe sex messages, as revealed by comparatively greater source derogation, more negative behavioral intentions, and more negative assessments of source credibility.

Reactance effects appear to increase in response to the magnitude of arousal individuals experience as they receive messages about not doing drugs. In the present experiments the anti-drug messages seemed to have a relatively greater influence on people's perceptions that their freedom to choose was threatened, regardless of whether they actually wanted to use drugs or not. Also, individuals value their own freedom to make decisions, and when they are aware their freedoms are being constrained, the occurrence of reactance appears to lead to anger and negative cognitions, as shown in this research. As a result, more positive behavioral intention, more positive attitude toward the topic and message, more positive assessments of source credibility, and less source derogation are likely to be associated with prohibitive appeals, compared to fatalistic appeals. As originally suggested by Brehm (1966), perhaps when facing the likelihood of losing this freedom, the idea of using drugs becomes more attractive. With increased desire, people may be more likely to experience reactance resulting in greater source derogation, particularly when a fatalistic appeal is employed.

Moreover, anti-drug messages clearly express a source's position that doing drugs is prohibited, conveying a sense of disapproval for acting out such behavior. When the intent of a persuasive message is more obvious and explicit, message recipients are more likely to experience reactance (Brehm, 1966). Hence, people may demonstrate their dissatisfaction via source derogation. For this type of hedonically relevant topic, overt, clearly stated persuasive intentions are not advised; rather, sources should avoid linguistic features such as the use of explicit, controlling language. As this research indicates, individuals demonstrated more significant negative outcomes in response to the anti-drug messages relative to the safe sex messages.

Effects of Attempts at Restoration of Threatened Freedom

Although previous studies have demonstrated the effectiveness of restoration postscripts at minimizing the magnitude of reactance (e.g., Miller et al., 2007), they have typically employed only one type of restoration emphasizing the freedom of choice on the part of the recipient (referred to in this research as the "standard" type). However, the results of the present studies suggest researchers should consider that different types of restoration postscripts following persuasive messages may lead to different, more or less effective outcomes depending on the type of persuasive appeal. This dissertation argues that different forms of restoration postscript appear to be more effective at mitigating reactance across differing contexts.

The effects of each restoration methods, whether, standard, fatalistic, individualistic, or collectivistic, were contingent upon the nature of the message features. Across both message topics, the fatalistic restoration method was associated with more negative attitudes toward the topic, and more negative perceptions of source

credibility, relative to the three other types of restoration postscripts (i.e., standard, individualistic, and collectivistic). Moreover, persuasive messages accompanied by fatalistic forms of restoration were no more effective than no restoration postscript, and in some cases worse. This suggests, in most cases, fatalistic forms of restoration will likely be ill-suited for reducing reactance. Apparently, unlike other forms of restoration serve to reduce reactance to some degrees, a fatalistic form of restoration does not function the same way. As discussed earlier, fatalistic language carries the nature of distrust and sarcasm that hurts one's face—both positive and negative. Following freedom-threatening messages, a fatalistic form of restoration accumulates degrees of reactance by not only failing to give freedom back, which is the feature of restoration, but also threatening one's needs for approval by others. As a result, the degree of reactance following a fatalistic form of restoration is even greater than no restoration and other types of restoration. This paper suggests that a fatalistic form of restoration carries an additive effect on reactance arousal, that is, reactance is aroused by both threat to freedom (negative face) and threat to needs for approval (positive face).

The above findings regarding fatalistic forms of restoration provide additional evidence to support the importance of the emotional tone conveyed within a persuasive message. To be effective, restoration postscripts are intended to give back freedom and reaffirm self-determination within the minds of message receivers, and thus reduce the likelihood and/or intensity of reactance arousal (Miller et al., 2007). Most previous research has indicated a positive association between the effects of restoration and threat perception (e.g., Bessarabova, Fink, & Turner, 2013; Bessarabova & Miller, in press), with a few exceptions (e.g., Quick, Kam, Morgan, Liberona, & Smith, 2015).

The present research provides evidence that certain types of restoration may be more effective at reducing reactance arousal than others. It appears a fatalistic restoration postscript may sarcastically imply the likelihood of negative consequences given the failure of an individual to take constructive advice when making decisions. This type of postscript likely conveys a feeling that the source does not trust the recipient to make a wise decision. As a result, recipients may not perceive a fatalistic tone as being genuine, and thus it may be less effective at restoring freedom back to them. Rather, the use of an ironic intonation may imply that recipients are thoughtless or stupid about the choices they are making.

Another interesting finding from this investigation is the effectiveness of different types of restoration postscripts in a variety of situations. Standard restoration postscripts appear to be the most effective method for reducing the experience of reactance and its related negative consequences. It was found to be positively related to a more positive evaluation of the topic, greater perceived source credibility, decreased source derogation, and more favorable cognitive evaluations of the message. Moreover, standard forms of restoration appear to convey a relatively greater sense of control, autonomy, and independence. This meets an individuals' need for freedom. Within PSA message designs, the standard form of restoration would seem to be the safest form to use, particularly when little is known about the recipient of the message, or when the topic involves a hedonically relevant health issue, as with anti-smoking or anti-alcohol campaigns.

Other types of restoration, such as collective or individual, can be effectively applied depending on their relevance to individual message receivers. When the

recipient of an appeal is someone who puts more weight in the opinions of the groups he or she belongs to rather than in his or her own thoughts, the collective form of restoration appears to be more effective and useful. On the other hand, for those who put more weight in their own thoughts relative to the opinions and suggestions of others, the individualistic form of restoration appears to be more suitable. Moreover, the application will likely be more appropriate in cases for which there is a sense of familiarity between communicators, such as friends, siblings, or intimate partners.

Finally, the application of restoration method also may depend in part on the topic type. This study found that the collective type of restoration can be an effective method to reduce reactance and its associated negative consequences (e.g., more negative attitude toward the topic, a more negative perceptions of source credibility, and greater source derogation) specifically with regard to messages dealing with safe sex. Collective restoration emphasizes the importance of groups, including friends and family. Message recipients may consider the opinions of individuals from these groups when they make their decisions about condom use because they do not want to disappoint those group members. Based on the above considerations, the present research would suggest that a collective form of restoration is preferable in interpersonal contexts, because persuaders may be more likely to understand whether the person they are addressing is affected by group concerns.

On the other hand, for anti-drug messages, the standard type of restoration appears to be the one that leads to less reactance, more positive attitudes toward the topic, more positive assessments of source credibility, and less source derogation. The focus of a standard, choice-emphasizing type of restoration is primarily on one's free

will, self-determination, and autonomy, telling the recipient, in a neutral tone, that he or she is in control of his or her own behavior. These concepts are at the heart of reactance theory. When the topic is drug use, individuals may be more sensitive to threats to their ability to make decisions for themselves. Standard forms of restoration return to the individual a sense of self-determination and control, as a result, persuasive messages accompanied by the standard type of restoration postscript following a prohibited behavior such as not doing drugs, appears to be more likely to reduce an individual's threatened autonomy. This notion should be tested in other similar contexts (e.g., anti-smoking, or other health risk-related activities) to further examine its applicability. The results reported here would suggest future reactance research should focus more attention on the effects of different types of restoration postscripts in combination with complementary types of message appeals.

Effects of Self-Construal on Psychological Reactance

Including culture-relevant components within the analysis of reactance effects adds nuance to our understanding of the construct. Of central importance within the current study is that many previous assumptions about reactance may not hold when culture-related psychological mechanisms are considered. Similar to previous studies showing self-construal to be more effective than culturalism in predicting various behaviors, such as communication styles (e.g., Gudykunst, et al., 1996) and motivation (Walker, Jackson, & Deng, 2008), the current study reveals an additional aspect concerning the nature of self-construal and its effect on communication and social influence.

In examining the culture-relevant psychological mechanisms influencing psychological reactance, self-construal, conceiving of individuals as independent vs. interdependent at the individual-level, was found to be more associated with reactance arousal and its associated negative outcomes than culturalism, conceiving of individuals as members of individualistic vs. collectivistic societies at the cultural-level, on the topic of anti-drug. In contrary, culturalism was more influential than self-construal on most examined variables (except negative cognitions and source credibility). Perhaps, as discussed earlier, most of the participants in this study were composed of females and the idea of condom use is in the sense of protecting young adolescents from unexpected pregnancy promoted by most countries. This shared value disseminated by governments, scholars, or adults shape participants' thoughts that using condoms when necessary is reasonable and acceptable. Hence, the results for the topic of safe sex reflect the education about safe sex from the culture where participants come from, rather than individuals' original thoughts about the topic. In other words, individuals' responses toward the message of safe sex reflect the culture they are from about the issue of safe sex. One thing deserves a notion that, on the topic of safe sex, the occurrence of reactance was associated with interdependent self-construal, not culturalism as horizontal individualism dimension show no impact on negative cognitions. This result again supports the connection between psychological reactance and self-construal.

Moreover, previous studies on self-construal suggest that there is a co-existence of the two types of self (interdependent and independent) in each individual, and these studies treated each individual as possessing the two selves at the same time to some

degree (e.g., Jones et al., 2009). This was taken a step further by arguing that holding both types of self at different magnitudes can influence the experience of reactance.

If self-construal plays a central role in determining the degree to which individuals experience reactance, an examination of which type of self-construal (interdependent-self vs. independent-self) becomes important in predicting the probability and impact of psychological reactance. Independent self-construal, regardless of degree, was assumed to be more strongly related to reactance arousal than interdependent self-construal because of its core definition (i.e., holding autonomy and uniqueness as primary, and one's internal attributes as relatively more important than one's connection's to others). However, the findings reported here present a slightly different picture. Specifically, individuals with low degrees of interdependent self-construal were more likely to experience reactance, showing more negative outcomes than those with high degrees of interdependent self-construal. Moreover, interdependent self-construal was a better contributor of reactance than independent self-construal—regardless of degree.

Both Study 2 and 3 found those holding lower levels of interdependent self-construal to experience higher levels of reactance than those holding higher levels of interdependent-self, or those holding an independent sense of self, regardless of degree. That is to say, the level of interdependent self-construal was implicated in reactance arousal across both topics, whereas the level of independent self-construal was not. These results indicate individuals with low levels of interdependent self-construal tend to be more sensitive to persuasive messages, more prone to reactance arousal, and hence, less persuaded by reactance-inducing health risk messages, compared to those

with high levels of interdependent-self, and those with both high and low levels of independent-self.

Recall that those with interdependent self-construal focuses on individual relationships with others, the contemplation of which likely compels them to adjust their behavior. Individuals with lower levels of interdependent self-construal should therefore be expected to concern themselves less with their connection to others, and possibly be more likely to act in accordance with their own feelings. As might be expected, if individuals are less dependent on others, they should be more easily inclined to respond with source derogation, message rejection, and negative cognitions when their perceived freedoms are threatened by persuasive messages limiting their freedom to choose for themselves.

On the other hand, when highly interdependent people define themselves, their relationships with others are more central to that definition, thus they should desire to be seen as trusted by others when they are asked to heed their advice; or, as in the case with findings in this research, practice safe sex and avoid drug use. A feeling of not being trusted by others might be expected to upset those who are high in interdependent construal of self, thus influence them to be relatively more accepting of health risk messages intended to benefit them. This positive interpretation regarding the intentions and judgments of other individuals may serve to decrease reactance arousal and its associated negative consequences. Finally, for those with higher levels of interdependent self-construal, conforming to the wishes of others should not necessarily imply their own powerlessness to resist social influence. Rather, the ability to conform

to the wishes of those they value should be viewed as an indication of their willingness to listen to and respond to others.

In contrast, those with independent self-construal produced slightly different results in response to the two topics of persuasive messages, which may be attributed to different mechanisms. Those with independent construal of self, regardless of degrees, appeared to respond more strongly to persuasive messages on the topic of safe sex than on the topic of drugs. Conceivably, the persuasive outcomes were not so much the effects of reactance arousal, as some other mechanism related to the nature of independent construal of self. Individuals with high and low levels of independent self-construal tend to emphasize internal attributes and thoughts. Their own abilities, characteristics, or attributes are set as a referent, driving them to take a particular action in response to advice. As a result, they may behave more based upon following their heart, with relatively less concern for what others say. Individuals with both levels of independent self-construal may perceive the topic of safe sex to be more interesting than others do, or they may see the topic of condom use as more health-relevant than others do; hence, they may respond more positively to the PSA message on safe sex relative to the anti-drug PSA. This result provides evidence that the concept of self, that is, how one thinks of one's self plays a big role in the persuasion process.

This study did not find significantly differing degrees of reactance based on the level of independent view of self. The PSA messages explored in this research appeared to have little influence on their underlying attitudes. Overall individuals holding high levels of independent-self appear to be less likely to be influenced, because self is “a complete, whole, autonomous entity, without the others” (Markus & Kitayama, 1991, p.

246). No matter what actions high levels of independent self-construal holders may take, they are likely to be less influenced by the messages of others around them than they are by their own free will.

The results regarding threat perception and reactance arousal raise questions about the two constructs' necessary association. In both studies, it was found that negative outcomes related to reactance occurred even when perceived threat to freedom was reported to be relatively low. The results from Study 2 showed threat to be associated with low degrees of independent construal of self; however, it was low levels of interdependent construal of self that were correlated with higher levels of reactance.

The findings of Study 2 also cast doubt on the supposed necessary association between threat and reactance. Reactance occurred for those who were identified as having low levels of interdependent self-construal, regardless of their level of independent self-construal, regardless of the level of perceived threat to freedom. It appears that behavioral intentions, message rejection, source credibility, and source derogation may not necessarily rely completely on perceived threat to freedom, as individuals with low levels of interdependent-self seem to experience more reactance than those with low levels of independent-self, even though the latter perceive more threat than the former.

This finding contradicts those from previous studies on reactance (e.g., Quick & Kim, 2009), but corresponds to the results related to the effects of appeal type found in this study. That is, a psychologically problematic aspect embedded in a message—such as a fatalistic attitude—may elicit anger and unfavorable cognitions without generating

necessarily high levels of threat, and it may nevertheless be capable of arousing reactance.

To summarize, self-construal appears to play an important role in the relationship between reactance and its consequences. Although individuals' personality may be shaped by the environment, the research reported here suggests it is their construal of the self that determines behavior and attitudes toward the attempts of others to persuade them to alter their behavior. This study suggests that self-construal plays a key role in influencing the arousal of reactance and its effects. Those with higher levels of interdependent construal of self, who include an analysis of their relationship with others when defining the integrity of their self-construct, tend to consider the thoughts others hold about them as important, which appears to render them relatively less reactant.

On the other hand, individuals with lower levels of interdependent self-construal, who are less troubled by others labeling them as unwilling to take advice or depend on others, may feel more irritated when they feel they are expected to conform, even if that conformity implies the acceptance of desirable social behaviors, such as the acceptance of well-meaning health risk messages. Independent construal of self, however, appears to be associated with the opposite tendency. For those whose relationships with others are not as central to their definition of self, the evaluations of others are less likely to affect their behavior. This may explain why they are less threatened by persuasive messages attempting to influence them than those for whom relationships with others are central to their definition of self.

Considering the extent to which self-construal affected the experience of psychological reactance in response to the two health risk PSAs examined in this research, further investigation of the effects of self-construal focusing on a range of other risk related topics is warranted.

FUTURE RESEARCH AND LIMITATIONS

This is the first investigation to examine the effects of controlling and fatalistic language appeals and different types of restoration methods on the arousal of reactance. Previous reactance research has focused on the effects of only one type of appeal (i.e., prohibitions), whereas this study included the use of a fatalistic appeal type for both the main persuasive message and the intended restoration postscript. People do not always use threatening language in their attempts to persuade others. Rather, they may often employ language with an ironic or even mildly fatalistic tone based in their expectations of how others will react.

This study found that fatalistic appeals tend to be less threatening than prohibitive appeals, yet seem to generate more reactance and unfavorable outcomes relative to traditional prohibitive appeals. Other types of appeals, such as those employing irony or cynicism by individuals in close relationships, or condescension in relationships governed by organizational considerations, such as patronizing tones meant to convey a sense of superiority in subordinate relationships, may have similar negative effects on the experience of reactance. Exploring these types of appeals and others, such as complaints, accusations, reproaches, and resentful pleas may help to clarify some of the mechanisms involved in reactance arousal across a wider range of social influence contexts.

A related area of investigation would be to test the effects of various forms of restoration of freedom, including different types of restoration postscripts in combination with complimentary appeal types useful in reducing anger and negative cognitions associated with reactance. There are likely other types of restoration postscripts people can use to make their entreaties more effective as well. For example, one could use an “I believe” technique in the form of a restoration; for example: “I believe you know what is good for yourself.” Or, one could use a “compliment technique,” such as: “Knowing how smart and intelligent you are, you will make the right decision.”

Future research on reactance should explore which restoration methods may be most effective at reducing the magnitude of reactance in specific situations, but also which might inappropriately increase it—as this study has shown is apparently the case with fatalism.

Finally, the role and nature of threat as the sole required antecedent of reactance deserves further study. The experiments reported in this research found that reactance occurs even when threat levels are low, suggesting some other components other than an explicit threat to perceived freedom may also stimulate sufficient anger and unfavorable thoughts to arouse reactance. Such a possibility argues the need for further examinations across a variety of contexts, topics, and cultural variables.

This study bares a number of limitations that should be noted. First, the concepts of self-construal and culturalism were measured rather than manipulated, so causal claims may not be made. Future research designs could find ways to manipulate the constructs, by randomly assigning and reinforcing participants’ levels of self-construal

before they receive a reactance inducing persuasive message. However, manipulating culturalism may not be as workable since, unlike self-construal, it is not an individual level variable.

This study asked subjects to respond to the measures for culturalism and self-construal together, which may have resulted in some confounding effects. That is to say, participants may have responded to the scales which contained somewhat similar meanings in very similar ways, without giving full consideration to each of the items measuring the two constructs. For example, within the culturalism scale, participants were asked to rate the statement, “It is important to me to respect the decisions made by my parents or friends,” and in the self-construal measure they were asked to rate the statement, “It is important to me to respect decisions made by a group I belong to.” Participants reading the second question in close proximity to the first may equate the idea of “group” with “family or friends,” and then provide a similar answer to the second question without giving it much thought. However, “a group” in the later case could refer to co-workers or school associates. Surely participants would differ in the degree of admiration they have for individuals comprising those groups relative to their own family and close friends. In the two scales measuring different dimensions of culturalism and self-construal (horizontal and vertical collectivism, and interdependent self-construal), participants answering the two questions in a similar way may not have given responses that truly reflected careful thoughts about the questions. This issue is relevant to the discriminant validity of the two scales.

A further question concerns the decision not to use a repeated measures analysis for the two messages, even though the measures and manipulations were the same in

both studies, although the topics differed. It should be noted that the nature of the two appeals involved different prescriptive/proscriptive orientations. That is, concerning the topic of safe sex, the message was essentially directing people to do something—use condoms—whereas the topic of drugs use was directing people *not* to do something—take drugs.

The nature of the two topic orientations differ in that one was in the form of promotion (safe sex) and the other in the form of prevention (drug abuse). Also, the two topics are different in the perception of hedonic relevance, with safe sex being relatively higher than the anti-drug use. Due to the opposite polarity of the appeals used with these two topics, a repeated measures design would not have been appropriate for analyzing the data. Future research seeking to use a repeated measures approach should employ two similarly framed appeals (whether prohibitive or promotional) to compare the effects of reactance inducing elements (e.g., two negative outcome oriented health risk messages, such as avoiding an unhealthy diet and preventing a sexually transmitted disease).

Finally, although most of the hypothesized relationships in this study were significant, the effect sizes for many of the results were small. Given that sample size is large (1094 in Study 2 and 812 in Study 3), statistically significant results in many cases would be expected. Possibly, although the persuasive messages designed in this study have their significant effects on the examined dependent variables, the effects they produced might not have been substantial in some cases. That is to say, reactance was aroused and had a certain degree of influence on the outcomes; however, the degree of impact the message carried may not be strong enough to create a very significant

magnitude of reactance as might be expected. Or, there are some unexplained variance accounted for by other variables that are more influential than the independent variables tested in this study. Future research might focus on intensifying the degree of reactance the persuasive messages induce or try to find out which other variables may be contributing to the outcomes.

CONCLUSION

The results questioning the role of threat to freedom as a necessary antecedent to reactance arousal warrant further examination concerning both the effects of appeal type and restoration postscripts. Other factors accompanying threats to freedom may also activate the occurrence of anger and negative cognition. Moreover, the two types of self-construal appear to play distinct roles in the activation of reactance and its corresponding negative outcomes. Individuals with low levels of interdependent self-construal appear to be more likely to respond with reactance to persuasive communications from others relative to those with either high or low levels of independent self-construal. This study also revealed that simply using culture-level characterizations to make assumptions about individuals' behavior may not be appropriate or desirable; rather, a person's individual-level self-construal appears to be a more critical and reliable predictor.

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APPENDICES

Appendix A

Scenarios –English version

Safe sex (prohibition appeal)

You should use a condom. It is necessary because you don't wanna go through the same thing that happened to me. I'm 19 and just had a baby one month ago. The pregnancy was not expected and because of that, my schoolwork has been interrupted. My dream of being a basketball player is not gonna come true. I have lost connection with my friends because we don't think about the same things anymore. My friends were talking about shopping, movies, vacations, or sports. And me, I had concerns about the baby and what baby stuff I should buy. All my life is about the baby. *A condom should be required every single time you have sex. You have to say "NO" to your partner unless you have a condom with you. You should realize that not using a condom is stupid and uncool. You definitely don't want to do what I've just done. Trust me, you don't wanna go through such a thing at such young age. You should use a condom whenever you have sex.*

Safe sex (fatalistic appeal)

It doesn't matter what I say, you're not gonna listen to me anyway, but if you don't wanna go through the same thing that happened to me, I think you should use a condom. I'm 19 and just had a baby one month ago. The pregnancy was not expected and because of that, my schoolwork has been interrupted. My dream of being a basketball player is not gonna come true. I have lost connection with my friends

because we don't think about the same things anymore. My friends were talking about shopping, movies, vacations, or sports. And me, I had concerns about the baby and what baby stuff I should buy. All my life is about the baby. *Regardless of what I say, you're not gonna use a condom every single time you have sex. I know, you probably won't say "NO" to your partner if you don't have a condom with you. Trust me, you definitely don't want to do what I've just done. But why listen to me? You'll just go through the same thing at such young age. It doesn't matter if I think not using a condom is stupid and uncool. I know, you will do what you wanna do anyway. You probably won't use a condom when you have sex, it doesn't matter what I say.*

Anti-drug (prohibition appeal)

Don't do drugs. You don't wanna go through the same thing that happened to me. At first, I was just curious about drugs and worried that my other friends might not talk to me if I didn't behave like them. I thought that a little bit of drugs would not cause any hurt. After I did it, however, I could not control myself. All I want is to get more and more drugs. That ruined my life. I stopped going to school. My dream of being a writer is not gonna come true. I lost my school friends. They don't wanna be a friend to someone who is hooked on drugs. My family is disappointed because I don't listen to them about quitting drugs. *Don't do drugs. You have to say "NO" to those who ask you to try drugs and must stay away from them. You should realize that doing drugs is stupid and uncool. You definitely don't want to do what I've just done. Trust me, you don't wanna go through such a miserable thing in your life. You should stay away from drugs and you should not take them, not even once.*

Anti-drug (fatalistic appeal)

I know you may wanna do drugs, regardless of what I say. However, you don't wanna go through the same thing that happened to me. At first, I was just curious about drugs and worried that my other friends might not talk to me if I didn't behave like them. I thought that a little bit of drugs would not cause any harm. After I did it, however, I could not control myself. All I want is to get more and more drugs. That ruined my life. My dream of being a writer is impossible. I stopped going to school. I lost my school friends. My family is disappointed because I don't listen to them about quitting drugs. *Regardless of what I say, you're still going to do drugs whenever you want to. I know, you won't say "NO" to your friends who ask you to try drugs. You definitely don't want to do what I've just done. But why listen to me? You'll just go through the same miserable thing in your life. It doesn't matter if I think doing drugs is stupid and uncool. I know, you will do what you wanna do. You'll use drugs whenever you want to, it doesn't matter what I say.*"

Standard restoration postscript (safe sex)

Of course, no one can make the decision for you. It's you who can decide whether to use a condom. The choice is yours and no one else can tell you what to do. You are the one who controls your life. You're independent. You're free to decide for yourself."

Standard restoration postscript (anti-drug)

Of course, no one can make the decision for you. It's you who can decide whether or not to do drugs. The choice is yours and no one else can tell you what to do. You are the one who controls your life. You're independent. You're free to decide for yourself."

Fatalistic restoration postscript (safe sex)

Of course, regardless of what I say, you will make your own decision. It doesn't matter if I tell you to use a condom, you decide whether or not to use it. I can't tell you what to do or what choice to make, you're not gonna listen to me anyway. I can't control your life, you're gonna do what you wanna do. You're gonna decide for yourself, no matter what I say.

Fatalistic restoration postscript (anti-drug)

Of course, regardless of what I say, you will make your own decision. It doesn't matter if I tell you not to do drugs, you decide whether or not to take them. I can't tell you what to do or what choice to make, you're not gonna listen to me anyway. I can't control your life, you're gonna do what you wanna do. You're gonna decide for yourself, no matter what I say.

Individual restoration (safe sex)

Of course, you decide whether or not to use a condom, it's your decision alone. You make the decision for your own good, not for the benefit of anyone else. You don't always have to worry about what other people think about you. You can live for

yourself because it is your life. You're on your own, you rely on yourself. Whatever choices you make about condom use are your own business. You choose for yourself.

Collective restoration (safe sex)

Of course, you decide whether or not to use a condom, but maybe it's not your decision alone. When you make the decision, you may also think of others, you might consider what other people think about you. Sure, it's your life, but do you just live for yourself? You're on your own, but do you only rely on yourself all the time? Whatever decision you make about condom use could be your own thing, but what other people think about you is also important. Your choices are for your own good as well as for the benefit of the others around you.

Individual restoration (anti-drug)

Of course, you decide whether or not to use drugs, it's your decision alone. You make the decision for your own good, not for the benefit of anyone else. You don't always have to worry about what other people think about you. You can live for yourself because it is your life. You're on your own, you rely on yourself. Whatever choices you make about drug use are your own business. You choose for yourself.

Collective restoration (anti-drug)

Of course, you decide whether or not to use drugs, but maybe it's not your decision alone. When you make the decision, you may also think of others, you might consider what other people think about you. Sure, it's your life, but do you just live for yourself?

You're on your own, but do you only rely on yourself all the time? Whatever decision you make about drug use could be your own thing, but what other people think about you is also important. Your choices are for your own good as well as for the benefit of the others around you.

Scenarios—Chinese version

1. Safe sex (prohibition appeal)

你應該使用保險套。這是必要的，因為你不會想要經歷跟我一樣的事。我今年 19 歲，一個月前剛有了一個孩子。懷孕是意外的事，也因為如此，學校功課中斷。曾經有過繼續念研究所的夢想，在目前已經不太可能。與朋友之間也失去了聯絡，因為我們不再有著共同的話題。朋友們談論買東西，看電影，出去玩，或是運動。而我，我的生活圍繞著我的小孩和嬰兒用品。我所有的生活重心都是小朋友。當你要有性行為的時候，每一次都應該使用保險套。如果身邊沒有保險套，你必須對你的性伴侶說"不"。你必須要了解，不使用保險套是愚蠢，也不酷的行為。你絕對不想要跟我做一樣的事。相信我，你不想要在這麼年輕的時候，經歷同樣的事情。只要你有性行為，你一定要使用保險套。

2. Safe sex (fatalistic appeal)

反正不管我說什麼，你也不會聽我的，但如果你不想經歷跟我一樣的事，我想你應該使用保險套。我今年 19 歲，一個月前剛有了一個孩子。懷孕是意外的事，也因為如此，學校功課中斷。曾經有過繼續念研究所的夢想，在目前已經不太可能。與朋友之間也失去了聯絡，因為我們不再有著共同的話題。朋友們談論買東西，看電影，出去玩，或是運動。而我，我的生活圍繞著我的小孩和嬰兒用品。我所有的生活重心都是小朋友。不管我怎麼說，當你要有性行為的時候，你都不會使用保險套。我知道，即便身邊沒有保險套，你也不會對你的伴侶說"不"。相信我，你絕對不想要跟我做一樣的事。但，為什麼要聽我的？你就是會在這麼年輕的時候，經歷同樣的事情。我是不是認為不戴保險套是愚蠢，也不酷的行為，一點都不重要。我知道，反正你就是會去做你想做的事。不管我怎麼說，你就是不會使用保險套。

3. Standard restoration (safe sex)

當然，沒有人可以幫你做決定。只有你可以決定要不要用保險套。選擇權在你，沒有人能告訴你怎麼做。你主宰你自己的生活。你是獨立的。你有為你自己做決定的自由。

4. Fatalistic restoration (safe sex)

當然，無論我說什麼，你會自己做出決定。我是不是告訴你要用保險套這件事一點都不重要，你會自己決定是否要用它。我不能告訴你要做什麼事或做什麼樣的選擇，反正你也不會聽我的。我無法控制你的生活，你就是會去做你想做的事。不管我怎麼說，你會為自己做決定。

5. Individualistic restoration (safe sex)

當然，你決定是不是要用保險套，這是你自己的決定權。你作的決定是為自己好，而不是為了別人。你不太在意別人怎麼想你。你為自己而活，因為這是你的生活。你是獨立的個體，你依靠你自己。你對是不是使用保險套這件事所做的任何決定是你自己的事情。你為你自己做選擇。

6. Collectivistic restoration (safe sex)

當然，你自己決定是不是要用保險套，但這或許不是單單關於你自己的決定。當你作決定時，你可能會想想別人，你會擔心別人怎麼想你。無可否認地，這是你的生活，但你只為自己而活嗎？你是獨立的個體，但你都只靠自己嗎？你對是不是使用保險套這件事所做的任何決定，可能是你自己的事，但別人怎麼想你也很重要。你的選擇除了是為你自己好，也為了那些你身邊的人。

Anti-drug

7. Anti-drug (prohibition appeal)

不要吸毒。你不會想要經歷跟我一樣的事。我今年 19 歲，才剛剛開始我的大學生活。起初，我只是對毒品感到好奇，並擔心，如果我不跟朋友們做一樣的事，他們可能不理我。我以為一點點毒品不會造成任何傷害。但是，當我吸了之後，我無法控制自己。我想要的是越來越多的毒品。而這，毀了我的生活。曾經有過

繼續念研究所的夢想，在目前已經是不可能。我休學了，跟學校同學也不再聯絡。他們不想有個吸食毒品的朋友。我的家人也對我失望，因為我沒有聽他們的話去戒毒。不要吸食毒品。你必須要拒絕那些要你嘗試毒品的朋友，一定要遠離他們。你應該了解吸毒很愚蠢也不酷。你絕對不想要跟我做一樣的事。相信我，你不會想要去經歷這麼慘的事情。你必須遠離毒品，一定不吸毒，即使只有一次。

8. Anti-drug (fatalistic appeal)

我知道，不管我怎麼說，你可能會想吸食毒品。然而，你不會想要經歷跟我一樣的事。我今年19歲，才剛剛開始我的大學生活。起初，我只是對毒品感到好奇，並擔心，如果我不跟朋友們做一樣的事，他們可能不理我。我以為一點點毒品不會造成任何傷害。但是，當我吸了之後，我無法控制自己。我想要的是越來越多的毒品。而這，毀了我的生活。曾經有過繼續念研究所的夢想，在目前已經是不可能。我休學了，跟學校同學也不再聯絡。他們不想有個吸食毒品的朋友。我的家人也對我失望，因為我沒有聽他們的話去戒毒。不管我怎麼說，只要你想，你還是會去吸毒。我知道，你不會拒絕那些要求你吸毒的朋友。相信我，你絕對不想要跟我做一樣的事。但，為什麼要聽我的？你就是會去經歷同樣慘的事情。我是不是認為吸毒是愚蠢，也不酷的行為，一點都不重要。我知道，反正你就是會去做你想做的事。不管我怎麼說，只要你想，你就是會去吸毒。

9. Standard restoration (anti-drug)

當然，沒有人可以幫你做決定。只有你可以決定要不要遠離毒品。選擇權在你，沒有人能告訴你怎麼做。你主宰你自己的生活。你是獨立的。你有自由為你自己做決定。

10. Fatalistic restoration (anti-drug)

當然，無論我說什麼，你會自己做出決定。我是不是告訴你不要吸毒這件事一點都不重要，而是你自己決定要不要遠離它。我不能告訴你要做什麼事或做什麼樣的選擇，反正你也不會聽我的。我無法控制你的生活，你就是會去做你想做的事。不管我怎麼說，你會為自己做決定。

11. Individualistic restoration (anti-drug)

當然，你自己決定是不是要遠離毒品，這是你自己的決定權。你作的決定是為自己好，而不是為了別人。你不太在意別人怎麼想你。你為自己而活，因為這是你的生活。你是獨立的個體，你依靠你自己。你對是不是遠離毒品這件事所做的任何決定是你自己的事情。你為你自己做選擇。

12. Collectivistic restoration (anti-drug)

當然，你自己決定是不是要**遠離毒品**，但這或許不是單單關於你自己的決定。當你作決定時，你可能會想想別人，你會擔心別人怎麼想你。無可否認地，這是你的生活，但你只為自己而活嗎？你是獨立的個體，但你都只靠自己嗎？對於**是不是遠離毒品**這件事,你所做的任何決定，可能是你自己的事，但別人怎麼想你也**很重要**。你的選擇除了是為你自己好，也為了那些你身邊的人。

Appendix B

Instruments

Individualism vs. Collectivism Scale. A total of 16 items of Triandis and Gelfand's (1998) horizontal and vertical individualism and collectivism (HVIC) are measured on a seven-point Likert scale anchored at 1=strongly disagree, 7=strongly agree.

Horizontal individualism

1. I'd rather depend on myself than others.
2. I rely on myself most of the time; I rarely rely on others.
3. I often do "my own thing".
4. My personal identity, independent of others, is very important to me.

Vertical individualism

1. It is important that I do my job better than others.
2. Winning is everything.
3. Competition is the law of nature.
4. When another person does better than I do, I get tense and aroused.

Horizontal collectivism

1. If a coworker gets a prize, I would feel proud.
2. The well-being of my coworkers is important to me.
3. To me, pleasure is spending time with others.
4. I feel good when I cooperate with others.

Vertical collectivism

1. Parents and children must stay together as much as possible.
2. It is my duty to take care of my family, even when I have to sacrifice what I want.
3. Family members should stick together, no matter what sacrifices are required.
4. It is important to me that I respect the decisions made by my groups.

Self-Constructual (Singelis, 1994), 7-point Likert anchored at 1=strongly disagree, 7=strongly agree.

Interdependent items

1. I have respect for the authority figures with whom I interact
2. It is important for me to maintain harmony within my group
3. My happiness depends on the happiness of those around me
4. I would offer my seat in a bus to my professor
5. I respect people who are modest about themselves
6. I will sacrifice my self-interest for the benefit of the group I am in
7. I often have the feeling that my relationships with others are more important than my own accomplishments
8. I should take into consideration my parents' advice when making education/career plans
9. It is important to me to respect decisions made by the group
10. I will stay in a group if they need me, even when I'm not happy with the group
11. If my brother or sister fails, I feel responsible

12. Even when I strongly disagree with group members, I avoid an argument

Independent items

1. I'd rather say "No" directly, than risk being misunderstood
2. Speaking up during a class is not a problem for me
3. Having a lively imagination is important to me
4. I am comfortable with being singled out for praise or rewards
5. I am the same person at home that I am at school
6. Being able to take care of myself is a primary concern for me
7. I act the same way no matter who I am with
8. I feel comfortable using someone's first name soon after I meet them, even
when they are much older than I am
9. I prefer to be direct and forthright when dealing with people I've just met
10. I enjoy being unique and different from others in many respects
11. My personal identity, independent of others, is very important to me
12. I value being in good health above everything

Hong's Reactance Scale, 7-point Likert anchored at 1=strongly disagree, 7=strongly

agree.

1. Regulations trigger a sense of resistance in me.
2. I find contradicting others stimulating.
3. When something is prohibited, I usually think "that's exactly what I am going to do."
4. I consider advice from others to be an intrusion.

5. Advice and recommendations induce me to do just the opposite.
6. I become frustrated when I am unable to make free and independent decisions.
7. It irritates me when someone points out things which are obvious to me.
8. I become angry when my freedom of choice is restricted.
9. I resist the attempts of others to influence me.
10. It makes me angry when another person is held up as a model for me to follow.
11. When someone forces me to do something, I feel like doing the opposite.

Perceived threat to freedom (Dillard & Shen, 2005). Four items are measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

1. The message threatened my freedom to choose.
2. The message tried to make a decision for me.
3. The message tried to manipulate me.
4. The message tried to pressure me.

Anger (Dillard & Shen, 2005). Five point response scale anchored at: 0 = none of this feeling and 4 = a great deal of this feeling on the following four items.

Irritated

Angry

Annoyed

Aggravated

Attitude toward Message (Shen & Dillard, 2005). Three items are measured on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

1. I support what the message was trying to accomplish
2. I totally agree with the position promoted in the message
3. I am favorable towards the main point of the message

Source Credibility (McCroskey, 1966). 7-point Semantic Differential anchored by opposing adjectives.

Distant/close

Angry/appreciative

Ungrateful/grateful

Annoyed/gratified

Irritated/pleased

Respect/disrespect

Admiration/scorn

Honor/despise

Esteem/disdain

Attitude toward Source (McCroskey, 1966). 7-point differential anchored on either end with opposing adjectives.

1 and 7 indicate a very strong feeling.

2 and 6 indicate a strong feeling.

3 and 5 indicate a fairly weak feeling.

4 indicates you are undecided or do not understand the adjectives themselves.

Authoritativeness

Reliable/Unreliable

Uninformed/Informed

Unqualified/Qualified

Intelligent/Unintelligent

Valuable/Worthless

Inexpert/Expert

Character

Honest/Dishonest

Unfriendly/Friendly

Pleasant/Unpleasant

Selfish/Unselfish

Awful/Nice

Virtuous/Sinful

Behavioral Intention (Shen & Dillard, 2005). Three items are measured on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

1. I plan to act in ways that are compatible with the position promoted by the message
2. I am going to make an effort to do what the message urged me to do
3. I intend to behave in ways that are consistent with the message

Hedonic relevance scale (Miller & Averbek, 2010). The following adjective pairs are measured along a 7-point semantic differential continuum.

Hedonic relevance factor:

pleasant/unpleasant

pleasurable/unpleasurable

punishing/not punishing

satisfying/unsatisfying

Importance factor:

important/unimportant

relevant/irrelevant

significant/insignificant

consequential/inconsequential

Demographics

- Gender: Female _____ Male _____
- Age: _____
- Country: Taiwan _____ U.S. _____
- What race would best describe you?
 1. _____ Asian/Asian American
 2. _____ Black/African American
 3. _____ Latino/Hispanic
 4. _____ West Indian
 5. _____ Middle Eastern
 6. _____ White/Non-Hispanic
 7. _____ Native American
 8. _____ Other (specify): _____
- Which religion best describes your affiliation?
 1. Buddhist
 2. Christian Catholic
 3. Christian Protestant
 4. Jewish – Non-Orthodox
 5. Jewish – Orthodox
 6. Hindu
 7. Islamic/Muslim
 8. Other (specify) _____

➤ What year of college best describes you?

1. Freshman

2. Sophomore

3. Junior

4. Senior

5. Other (specify): _____