

Guidance on Messaging to Avoid Reactance and Address Moral Disengagement

by

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PROBLEM STATEMENT

Not wearing a seat belt and speeding are two significant contributing factors to motor vehicle-related fatalities. Significant efforts, including messaging, have sought to increase seat belt use and decrease speeding. These efforts have been largely successful as the majority of adults wear a seat belt and do not speed. However, traditional messaging may not be as effective with the small minority of individuals still engaging in these risky behaviors because of two psychological phenomena: psychological reactance and moral disengagement. This project seeks to better understand if these two phenomena are more prevalent among individuals still engaging in these risky behaviors and how messaging might be adjusted to mitigate these phenomena.

BACKGROUND SUMMARY

Traffic safety is a significant public health issue. In 2016, over 37,000 people were killed on U.S. roadways. About half (48%) of passenger vehicle occupants killed were unrestrained (among those crashes with known restraint use). Fatalities in speeding-related crashes increased by 4.0 percent from 2015 (National Center for Statistics and Analysis 2017, 9 pp.).

However, significant progress has been made in recent years, and fewer people are engaging in risky driving behaviors. In 2016, seat belt use reached an all-time high of 90.1 percent (National Center for Statistics and Analysis 2017, 9 pp.). Nonetheless, a small portion of the population (i.e., about 10 percent) still do not wear a seat belt and regularly speed. Understanding certain characteristics of this small group may provide insights on how to change their behaviors and thereby improve traffic safety.

Two psychological phenomena, psychological reactance and moral disengagement, may influence the decisions of individuals in this smaller portion of the population who engage in risky behaviors. Psychological reactance is “an unpleasant motivational arousal that emerges when people experience a threat to or loss of their free behaviors” (Steindl et al. 2015, p. 205). Research has found that psychological reactance is often indicated as anger and counterarguing (Rains 2013, pp. 47-73). Proneness to reactance has been measured (Reynolds 2006, p. 323-332) and shown to be associated with anger, negative feelings, and less intention to engage in protective behaviors (Dillard and Shen 2005, pp. 144-168).

Some may perceive that being told to wear a seat belt is a threat to their freedom, and, because of psychological reactance, resist this request or even be motivated to do the opposite. If psychological reactance is influencing those not wearing seat belts, then trying new approaches may be more effective in influencing this group’s behaviors. For example, messages which are based on strong enforcement may be more likely to arouse psychological reactance than other kinds of messages. Understanding what messages to avoid and what messages to use may result in better outcomes. Strategies to reduce reactance in messaging about smoking, drunk driving, high-risk drinking, and consuming soft drinks have been explored (Shen 2010, pp. 397-422, Richards, Banas, and Magid 2017, pp. 890–902); however, no similar studies applied to seat belt use were found.

Moral disengagement, originally proposed by Albert Bandura (Bandura et al. 1996, pp. 364-374), occurs when “individuals detach themselves from their usual self-regulatory processes or morality in order to behave in ways that run counter to their normal moral standards” (Cleary and Lennon 2016, 17 pp.). Mechanisms of moral disengagement include cognitively redefining the behavior, attributing blame to others, and reducing the negative impact of the behavior (e.g., “it is OK for me to speed because I won’t crash.”) (Bandura et al. 1996, pp. 364-374). Research has revealed that moral disengagement may explain aspects of aggressive driving (i.e., following too closely, excessive passing, and speeding) (Swann, Lennon, and Cleary 2017, pp. 124-136). A scale to measure moral disengagement in aggressive driving has been developed and undergone preliminary validation (Swann, Lennon, and Cleary 2017, pp. 124-136).

If some aggressive drivers are engaging in moral disengagement, messaging that overrides this justification process and reconnects the individuals with their existent, self-regulatory processes may be effective at reducing risky behavior.

A review of the Transportation Research Board's Transportation Research International Documentation database revealed nine articles referencing the term "psychological reactance." Only one study, published in 1981, addressed seat belt use. It described a study in Canada exploring heightened enforcement efforts on seat belt use, perception of being apprehended, and attitude and referenced potential impact on attitude based on reactance. However, the peer reviewed article version of the article did not address reactance.

A review of the Transportation Research Board's Transportation Research International Documentation database revealed three articles referencing the term "moral disengagement." Two of these articles are referenced above; the other one is not relevant to driving behavior.

A review of Transportation Research Board's Research in Progress database revealed no studies addressing reactance or moral disengagement.

BENEFITS

Many agencies involved with traffic safety use messaging as a means of influencing traffic safety-related behaviors. This research project will provide a better understanding of how two psychological phenomena (psychological reactance and moral disengagement) may be related to two important traffic safety related issues (i.e., seat belt use and aggressive driving). From this understanding, the project will provide practical guidance on messaging to address these phenomena. Such guidance may make messaging more effective and improve traffic safety.

OBJECTIVES

The objectives of this research project are to:

- determine if the prevalence of psychological reactance and moral disengagement are higher among adult drivers who never or rarely wear their seat belts or who drive aggressively (i.e., speed, follow too closely, and pass excessively) compared to adults who do not engage in these risky behaviors; and
- identify potential messaging to minimize reactance and overcome moral disengagement regarding seat belt use and aggressive driving.

RESEARCH PLAN

The Center for Health and Safety Culture is proposing to build on existing research about psychological reactance and moral disengagement and explore these issues in the context of two traffic safety behaviors: use of seat belts and aggressive driving.

1. Method

The method proposed for this project is divided into four tasks:

- Task 0. Project Management
- Task 1. Literature Review and Scale Selection
- Task 2. Develop and Implement Surveys
- Task 3. Develop Message Guidance
- Task 4. Create Resources and Complete Final Report

Task 0. Project Management

Jay Otto will be the principal investigator for this project. As a Research Scientist at the Center for Health and Safety Culture (CHSC) and from his experience leading other projects, Otto is well qualified to lead the project. He will participate in the kick-off meeting to review the details of the project and to make sure all policies and procedures are followed to align with MDT's expectations. Otto will be supported by Dr. Nic Ward who will engage in monthly calls with MDT to review progress and will provide quarterly reports of progress addressing time and budget. Otto will assure quality for all aspects of the project. Otto will be supported by Kelly Green who will provide financial data. As part of project management, communications will leverage existing communication plans from the support contract including the monthly phone call with MDT and the quarterly meetings with the pooled fund panel. To ensure quality of deliverables, the pooled fund panel will be invited to review draft deliverables. Necessary revisions will then be made for the final products submitted to MDT.

Task 1. Literature Review and Scale Selection

A literature review on measuring psychological reactance and moral disengagement in the context of traffic safety-related behaviors will be conducted. This review will inform the design of the surveys including the scales to be used. In addition, the literature review will provide guidance on designing the assessments of potential messages. Kari Finley, Senior Research Scientist, will lead this task. Finley may be assisted by a graduate student. The literature review and selected scales will be summarized in the Task 1 Report. CHSC staff will conduct a second scan of published literature at the time of the final report and augment the literature review with recently published information in the final report.

Task 2. Develop and Implement Surveys

Based on the literature review, surveys will be developed to determine if the prevalence of psychological reactance and moral disengagement are higher among adult drivers who never or rarely wear their seat belts or who drive aggressively (i.e., speed, follow too closely, and pass excessively) compared to adults who do not engage in these risky behaviors (Objective #1). The surveys will be pilot tested with a small sample and provided to the Pooled Fund Board for approval prior to full implementation. The surveys will use purchased panels of adult respondents from Qualtrics. Because seat belt use is common (and aggressive driving relatively rare), the sample will screen for more respondents who rarely or never wear a seat belt (and others who drive

aggressively) than who may naturally participate. Comparisons of psychological reactance and moral disengagement scales will be made between those who rarely wear a seat belt and those who always or usually wear a seat belt. Similar comparisons will be made between those who regularly drive aggressively and those who rarely or never drive aggressively. Differences in psychological reactance and moral disengagement will also be explored among various demographic indicators (i.e., age, sex, education attainment, and geography). Otto will summarize the findings in the Task 2 Report.

Task 3. Develop Message Guidance

Based on the results from Task 2, potential messaging to minimize reactance and overcome moral disengagement regarding seat belt use and aggressive driving will be developed and tested with a convenience sample. Several written messages will be developed and tested with a series of convenience samples recruited by Qualtrics with opportunities to refine in between tests. The intent is to develop messages that generate minimal levels of reactance among individuals who rarely or never wear a seat belt and are prone to reactance. Similarly, messages will be developed to challenge individuals who regularly engage in aggressive driving and who appear to use moral disengagement to justify their behavior. The recommendations will be based on self-reported attitudes and beliefs about the messages and will not be substantiated by observed behaviors. Otto will summarize the methods and recommendations in the Task 3 Report.

Task 4. Create Resources and Complete Final Report

The following products will be developed to enhance dissemination of the results:

- Two information sheets (addressing seat belt use and aggressive driving, respectively) that summarize the findings and guidance;
- A brief, readily accessible document providing guidance on messaging;
- A few slides summarizing the results of the project;
- A recorded webinar summarizing the results;
- A poster suitable for use at TRB (provided as a pdf document); and
- A comprehensive research report of the project.

Otto will be responsible for completing the products. The Pooled Fund Board will review and approve the final products.

TSC POOLED FUND INVOLVEMENT

We anticipate the assistance of the TSC Pooled Fund board in contributing to the review and approval of the project deliverables.

PRODUCTS

1. Task 0 Quarterly Progress Reports
 - Progress reports based on MDT template for each quarter of project.
2. Task 1 Report: Literature Review and Scale Selection
 - A summary of the literature review and identified scales to measure the relevant constructs.
3. Task 2 Survey to Assess Psychological Reactance and Moral Disengagement
4. Task 3 Report Summarizing Message Recommendations
5. Information sheets (addressing seat belt use and aggressive driving)
6. Messaging guidance brief
 - A brief, readily accessible document providing guidance on messaging
7. A few PowerPoint slides summarizing the results of the project
8. A recorded webinar summarizing the results
9. A poster suitable for use at TRB (provided as a pdf document)
10. A comprehensive research report of the project

PROJECT IMPLEMENTATION

This project will provide those responsible for developing messaging to address seat belt use and aggressive driving guidance about how to address potential issues about psychological reactance and moral disengagement. The guidance will be readily accessible on MDT's website and be provided in practical products useable by federal, state, and local practitioners.

SCHEDULE

The timeline for the main tasks and deliverables is summarized below for this 18-month project:

	Month																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Task 0. Project Management	X			X			X			X			X			X		
Quarterly Progress Report	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Task 1. Literature Review	X	X	X	X	X	X												
Task 2. Surveys					X	X	X	X	X	X								
Task 3. Message Guidance									X	X	X	X	X	X	X			
Task 4. Final Report and Products													X	X	X	X	X	X

BUDGET

The project costs are summarized below. Table 1 summarizes the costs by budget item; Table 2 summarizes the pay rate and benefit rate for project staff; Table 3 summarizes the costs by task; and

Table 4 summarizes the project costs by fiscal year. Note that a variety of staff are included in the budget because of (1) the need for skills and knowledge across a range of disciplines, and (2) the need to control the budget by using staff from lower salary ranges.

Table 1. Project Budget by Item

Item	Total
Salaries	\$63,750
Benefits	\$21,575
Contracted Services	\$0
Supplies*	\$950
Communications	\$0
Other: Qualtrics	\$24,000
Total Direct Costs	\$110,275
Indirect Costs (25%)	\$27,569
Total Project Cost	\$137,844

*Supplies includes the purchase of A, R., Rodney. (2006). *Handbook of Research on Electronic Surveys and Measurements*. Idea Group Inc (IGI), \$120.

Table 2. Pay Rate and Benefits

Individual	Hourly Rate	Benefit Rate
Arpin, Jamie	\$24.52	44.80%
Finley, Kari	\$44.77	33.59%
Green, Kelly	\$27.49	42.12%
Otto, Jay	\$53.86	34.12%
Ward, Nic	\$87.78	26.93%

Table 3. Project Budget by Task

Item	Total
0 – Project Management	\$4,958
1 – Literature Review	\$15,593
2 – Surveys	\$51,342
3 – Message Guidance	\$47,664
4 – Final Report and Products	\$18,287
Total Project Cost	\$137,844

Table 4. Project Budget by State and Federal Fiscal Years

Item	State Fiscal Year		Federal Fiscal Year	
	2019	2020	2019	2020
Salaries	16,565	47,185	30,322	33,428
Benefits	5,632	15,943	10,254	11,321
Contracted Services	0	0	0	0
Supplies	150	800	650	300
Other	2,000	22,000	6,000	18,000
Total Direct Costs	24,347	85,928	47,226	63,049
Indirect Costs (25%)	6,087	21,482	11,807	15,762
Total Project Cost	30,434	107,410	59,033	78,811

STAFFING

Staffing for this project involves members of the Center for Health and Safety Culture. Each staff member contributes to the project in a unique way based on their specific expertise and background. Table 5 summarizes staff time by task for the 18-month duration of this project. Overall, this effort can be interpreted as the equivalent of one person working on this 42% of the time for 18 months (see FTE in Table 5). We believe this FTE equivalent effort is reasonable to satisfy the goals of this project in a cost-effective manner.

Jay Otto, M.S., will serve as the PI for the project and oversee all efforts. Otto is the principal scientist of the Center for Health and Safety Culture. He oversees all of the Center's projects and fosters integration and dissemination of research findings across projects. He routinely provides presentations and leads trainings. He has developed, implemented, and analyzed surveys of students, parents, adults, key leaders, schools, and law enforcement regarding a variety of safety issues. He is a contributing author on several of WTI's traffic safety reports and is presently leading pilot projects to reduce impaired driving and increase seat belt use.

Kari Finley, Ph.D., will complete the literature review and contribute to the survey development and task reports. Finley will manage the project and monitor all progress for quality. Finley will contribute to all aspects of this project and will contribute as a lead writer for the communication tools in this project. Finley is a Behavioral Specialist with extensive experience in behavior change.

Nic Ward, Ph.D., will communicate on a monthly basis with MDT and the pooled fund on the progress of the project. Ward will contribute to the project bringing nearly 20 years of international research in human factors applied to traffic safety. Professor Nicholas Ward (F. Erg. S) is currently a Professor of Mechanical and Industrial Engineering at Montana State University and Director for the Center for Health and Safety Culture at WTI. Professor Ward has led several successful interdisciplinary and international consortia for traffic safety research including intelligent transportation systems, driver behavior (impairment), and traffic safety culture.

Jamie Arpin will contribute to supporting the survey work, message development, and task report writing.

Kelly Green will be involved in the financial and contract management of this project.

Table 5. Schedule of Staffing

Name	Role	FTE*	Hours by Task					Total
			0	1	2	3	4	
Arpin, Jamie	Research Staff	0.07	0	30	75	45	75	225
Finley, Kari	Research Staff	0.12	0	75	125	115	74	389
Green, Kelly	Financial Management	0.03	90	0	0	0	0	90
Otto, Jay	Principal Investigator	0.16	0	65	185	165	72	487
Ward, Nic	Research Staff	0.04	0	20	50	47	21	138
Total		0.42	90	190	435	372	242	1,329

*based on 18 months

FACILITIES

The Western Transportation Institute (WTI) is the nation's largest transportation institute focusing on rural transportation issues and is designated as a National University Transportation Center sponsored by the U.S. Department of Transportation. The Institute was established in 1994 by the Montana and California Departments of Transportation in cooperation with Montana State University (MSU). WTI has a 50+ person multidisciplinary staff of professionals, students, and associated faculty from engineering (mechanical/industrial/civil/electrical), computer science, fish and wildlife, ecology, business, and economics.

WTI has an annual budget of approximately \$8 million, which is obtained from a diverse sponsor base including 26 state departments of transportation, the U.S. Department of Transportation (USDOT), and other federal agencies such as the National Science Foundation, Department of Homeland Security, Transportation Research Board, and the National Park Service. WTI also receives funding from private foundations, Parks Canada, and several companies.

WTI draws from eight integrated research areas to create solutions to rural transportation issues and manages seven laboratories. The 30,000 square feet of space provides dedicated onsite space and laboratories for project staff as well as facilities for archiving and transmitting data. As a department within the College of Engineering at MSU, WTI is also supported by the College and by the umbrella of MSU administrative, academic, and research resources.

Center for Health and Safety Culture

In 2009, WTI established a research center labeled the Center for Health and Safety Culture (CHSC) which is made up of an interdisciplinary team of researchers and practitioners from across North America dedicated to using science to address social issues. The mission of the CHSC is to develop methods to grow positive norms that support health and safety. The Center works with a variety of clients and sponsors including local, state, federal governmental agencies (e.g., state departments of transportation), private businesses, corporations, community coalitions, and private foundations.

Information Services

The Western Transportation Institute is housed in the Transportation and Systems Engineering Building on the Montana State University (MSU) campus, which provides ready access to MSU's library, computing, and other facilities. The MSU Library system has licenses with the largest databases of published literature as well as open access to published articles in numerous peer reviewed journals. These resources will be critical in researching past studies and identifying evidence-based strategies. Literature and information gathering is performed through the Carnegie Research Level 1 Library (Renne Library). In addition to an extensive collection of printed material, the library subscribes to dozens of databases and hundreds of refereed journals in print and electronic format. Specific items not accessible through these sources can be located and retrieved by the Interlibrary Loan service, which is affiliated with other research libraries across the United States. Typical sources used to aid literature searches include: TRIS Online (Transportation Research Information Services), E-Science Server, Transportation Research Board Research Records and Annual Meeting CD-ROMs, Google Scholar, Google, and Montana Local Technical Assistance Program library.

Graphic and Communication Services

Communications staff provides technical editing, layout, graphic design, and web page support. Information Technology staff maintains network servers and individual computers, software, and hardware. Relevant university communication facilities include a video and conference room facilities. WTI routinely conducts internet-based meetings with clients and staff located across the United States and Canada. Webinars are hosted to facilitate training and information dissemination and recorded for later access by stakeholders and clients.

Administrative Services

The researchers at WTI are assisted by a highly-qualified group of experienced support staff. administrative staff members assist with budgeting, procurement, contracts, and accounting. The university provides Extended University services for online educational course development and publications and an Institutional Review Board (IRB) to oversee all research engaging humans.

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