Effects of Social Status on Concerns with Status Losses and Status Gains in Impaired Driving Scenarios: Loss Aversion and Deviance in Peer Groups

by
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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

At the forefront of current peer influence research in criminology is an attempt to understand how peers impact an individual's participation in crime and deviance. Research seeks to explore whether social forces shape decision-making processes that lead a person to commit a deviant or dangerous act. This study examines how social status (popularity and social competency) and peer relations affect individuals' willingness to engage in impaired driving related actions. More specifically, through the use of a survey experiment, this research project examines whether a person's social status and peers framing an act of deviance as social status losses or gains impacts a person's willingness to drive impaired or get into a car with an impaired driver. In addition to the survey experiment, to further understand connections between impaired driving and young people, this project includes a thematic analysis examine the ways in which these effects of peer influence and social status are presented (or not) in relevant public engagement materials that seek to educate youth about impaired driving.

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Chapter 1: Situating the Current Study of Peer Influence and Impaired Driving

This thesis project examines factors that contribute to a youth's willingness to engage in impaired driving-related actions. The project orientation fits into a broader trend at the forefront of current peer influence research in criminology, which attempts to understand how peers impact an individual's participation in crime and deviance. Specifically, this research connects peer influence and deviance to explore whether social forces shape decision-making processes that lead a person to commit a deviant or dangerous impaired-driving related action.

The focus of this project on impaired driving is an especially relevant contribution to the fields of criminology and sociology because often work related to youth deviance focuses on how peers impact a youth's engagement in other acts of deviance such as shoplifting or substance use. Therefore, the impact of peers on a youth's willingness to drive or ride in a car while impaired is relatively understudied and is important due to both the potential consequences of engaging in these actions as well as providing further insight into how peers can impact decision-making more generally. Due to the potentially deadly consequences of impaired driving-related accidents, especially when it relates to youth, impaired driving has been a point of interest for lawmakers, non-profit groups, and the public for decades. Traditionally, these discussions around impaired driving have specifically focused on the impact of youth driving under the influence of alcohol, however the emergence of new laws legalizing the use of cannabis for recreational use in Canada in 2018 and some states in the United States beginning in 2012 has changed the scope of how 'impaired driving' is conceptualized. Therefore, as cannabis use has become more widely available through legalization, it is important to include cannabis in the discussion and academic investigation of impaired driving and youth deviance more generally.

My thesis research will contribute to the body of knowledge related to youth deviance by examining whether peers framing an impaired driving-related action as social status losses or gains impacts a person's decision to drive or ride in a car while impaired and varies depending on their social status. Additionally, this thesis project will examine the ways in which these effects of peer influence and social status are presented (or not) in relevant public engagement materials that seek to educate youth about impaired driving. This is guided by the following four research questions:

Research Question 1: Are people more likely to engage in impaired driving or riding when peers frame consequences as status losses or status gains?

Research Question 2: How does an individual's placement in the social hierarchy impact their willingness to engage in impaired driving or riding when peers frame social consequences as status losses or status gains?

Research Question 3: Does the effect assessed in RQ2 differ across offense type (i.e., alcohol-impaired driving and cannabis-impaired driving)?

Research Question 4: How do existing public engagement materials related to impaired driving (from Mothers Against Drunk Driving (MADD) and Royal Canadian Mounted Police (RCMP)) in Canada frame their content and messaging?

To address these research questions, this mixed-methods thesis project contains several chapters. Chapter 1 synthesizes relevant literature related to peer influence, social hierarchy, and

behavioural economics to situate the current project's approach to the research questions. Chapter 1 also provides an overview of the two methodological components of this project: the survey experiment and the qualitative analysis based on Bacchi (1999)'s "What's the problem approach." Chapter 2 presents the results of the quantitative survey experiment. Chapter 3 discusses the results of the qualitative analysis. Chapter 4 describes and presents the arts-based dissemination of the project, which represents the main research findings from Chapter 2 and Chapter 3 in a visual display. Chapter 5 is the final chapter and includes a discussion of: the strengths and limitations of the project, avenues for future research, and conclusion.

Literature Review

This project is specifically interested in examining a particular trend in criminology – that adolescents and young adults commit a disproportionate amount of crime compared to other age groups (Antonaccio et al., 2010). Among the plethora of explanations for this trend, existing literature has focused on peer influence as a contributing factor in this age group's higher level of deviance (Monahan et al., 2009). However, the way that peers enact their 'influence' is contested and these different theories of peer influence are discussed below. The connection between deviance and peers is based upon relevant theories in criminology that broadly identify how interactions with people and environmental factors contribute to an individual's engagement in deviance. The subsequent overview of relevant works related to social learning theories, behavioural economics, and social status, will situate this study's approach and illustrate the connection between peer influence, social status, and deviance, which provides the theoretical underpinning of this thesis project.

Social Learning Theories

Social learning theories posit that people learn to be deviant through their associations with people who engage in deviance (Hoffmann, 2011). Sutherland's (1947) theory of differential association put forward nine propositions to explain crime, all of which are tied to the importance of interactions and communication with people in shaping a person's propensity for crime. Sutherland posited that through interactions with family, friends, and peers individuals learn definitions of acceptable behaviours, techniques, rationalizations, and attitudes to commit crimes. These interactions are more influential when they are longer, more frequent, more emotionally intense, and are established early in the person's life. Based on Sutherland's (1947) theory of differential association, Akers' (1998, 2001) developed social learning theory. Social learning theory argues that, when people are exposed to definitions of crime that are favourable, both by people they associate with and reinforced by the broader environment, they are less likely to conform to norms and more likely to engage in deviance. Crime and deviance are defined as favourable through situational justification and the anticipation of a reward for the behaviour. In testing social learning theory, peers' and caregivers' provision of these positive definitions of crime is correlated with adolescent delinquency (Brauer, 2009; Akers, 1998; Akers, 2001). In this way, the connection between peers, delinquency, and social learning theory is described by Hoffmann (2011):

> As children enter adolescence, those who have learned to rely on coercive and negative reinforcement strategies are typically rejected by conforming peers at schools and in their neighbourhoods. Therefore, they tend to gravitate toward peers who share their style of interaction. These peers then provide positive reinforcement for coercive strategies, which translate naturally into deviant forms of behaviour such as fighting and stealing (p. 133).

However, learning theories are critiqued for not accounting for how delinquency often precedes associations with delinquent peers, and many studies that test social learning theory do not account for the impact of early childhood socialization (Hoffman, 2011). Regardless, learning theories, especially Akers works, have been applied to illustrate and explain the impact of peer influence on a person's engagement in deviance (Hoffman, 2011). As such, elements of social learning theory are present in much peer influence research that focuses on the relationship between peer dynamics, peer rejection, and social networks on deviant behaviours (Dishion et al., 2010; Haynie, 2002; Warr, 2001; Warr, 2009).

Deviant Decision-Making and Risk Calculation Theories

As well as processes of socialization, environmental impact and learning, scholars have also identified that, in making decisions (deviant and otherwise), individuals engage in a calculation of risk (Becker, 1968; Kahneman & Tversky, 1979; Hoeben & Thomas, 2019). When calculating the 'risk' associated with a particular crime, scholars (including Becker, 1968) have posited that individuals engage in an analysis that seeks to identify the rewards and consequences of a particular action. Such consequences may include monetary losses, legal sanction, or feelings of shame (Hoeben & Thomas, 2019). To further understand these calculations of 'risk', prospect theory's (Kahneman & Tversky, 1979) loss aversion principle explains that avoiding loss is more important than obtaining potential gains. This calculation of risk can also be influenced by the presence of peers (Hoeben & Thomas, 2019). In fact, "when adolescents engage in delinquent conduct, they generally do so in the presence of peers" which tends to lower the perceived consequences of the act as well as skews the individuals' perception of the risk of engaging in the acts (Hoeben & Thomas, 2019, p. 759). In this way, peer presence may create accomplices and an

"appreciative audience" that encourage individuals to engage in deviance (Hoeben & Thomas, 2019, p. 761).

Connecting Peer Influence, Social Status, and Deviance

The existing literature illustrates how several theories related to crime and deviance include elements of interactions with other people in their attempts to explain deviance, especially peer influence. What is of primary interest to the study is how belonging plays a role in these peer offending situations. While there may be individual differences in resistance to peer influence (Steinberg & Monahan, 2007), fundamentally people desire a certain level of belonging to their friend groups and among their peers (Baumeister, 1995), especially adolescents, who often behave in ways similar to their friends (Haynie, 2001; Warr, 2001; Warr, 2009). Furthermore, peer influence is also a correlate of crime (Antonaccio et al., 2010) and individuals with deviant friends tend to commit more crime (Pratt et al., 2010; Walters, 2018). Additionally, individuals may commit more deviant acts in the presence of their peers due to pressures to fit with the norms of the group (Thomas & Nguyen, 2020) and to gain social status because "adolescents prioritize popularity goals over other social goals such as friendship and romantic involvement" (Hoeben & Thomas, 2019), and "engaging in delinquency with friends can demonstrate courage or strength and thus enhance one's status in the group" (Hoffmann, 2011, p. 137). However, different peer groups engage in different levels and forms of deviance, and there may be social consequences for engaging in forms and amounts of deviance that fall outside of the norm of the friend group (Thomas & Nguyen, 2020). Therefore, interacting with peers influences a young person's engagement in deviance.

Of importance to this project is how these connections between peers and deviance and social status interact with a person's calculation of risk. A person's calculation of the risk associated with an action may be different when amongst their peers or friend group (Hoeben & Thomas, 2019), and importantly, according to the loss aversion principle, avoiding loss may be more important than obtaining potential gains (Kahneman & Tversky, 1979). Meaning that individuals that are more popular in their friend groups "have the most to lose […] by not adopting the network's behaviour" (Haynie, 2001, p. 1026). Additionally, Gallupe's (2017) work suggests that individuals with high popularity who are more delinquent may contribute to an overall climate of delinquency in adjacent friend networks by acting as role models that embody the social value of delinquency. This suggests that social status loss in the friend group would more greatly concern people of higher popularity. Although, importantly, among people in the friend group who have lower social status, the potential social status gain may be more of a driving factor in their decision making because they have more to gain and less to lose. These works connecting social location and delinquency are relevant to consider in conjunction with Thomas and Nguyen's (2020) work that connects peer influence, deviance, and social status, and describe how when choosing whether to participate in an offence, individuals were more likely to follow the expectations of their peer group "not necessarily to gain social status, but to prevent their friends from losing respect for or thinking less of them" (p. 2). Thomas and Nguyen's (2020) work explores (non)deviance related to status gains (to gain popularity and social standing from conforming to the peer/friend group) and status losses (to lose popularity and social standing from not conforming to the peer/friend group) and found that status losses were a more significant driving force than status gains in decisions to offend in groups for the crimes of fighting, drunk driving, and marijuana use. However, this study did not include the element of social status in its analysis, which as

aforementioned is a contributing factor to deviance within peer groups, and people of varying social statuses may have different reasons for engaging in deviance.

Therefore, it is necessary to understand how social status and peer influence are connected to deviant and dangerous decision-making. Although as seen above there are studies focused on the impact of status gain and status loss in general on some types of deviance, there is no existing research to date that explores how social status interacts with status loss and status gain to shape decisions around impaired driving specifically. To what extent does a person's social status in their friend group and peer messaging impact their likelihood or perception that it is 'worth it' to engage in deviance? This is a significant gap in our understanding of how an individual's place in the social hierarchy affects their calculation of risk, and whether this risk calculation changes depending on the type of deviance. This thesis research aims to address this gap specifically related to impaired driving. In this way, this project tests how peer messaging and a respondent's social status interact to impact their willingness or perception that it is 'worth it' to be an impaired driver or get in the car with an impaired driver.

Methodology and Analytic Approach

This project has two methodological components: an online survey experiment and a qualitative analysis of youth-oriented impaired driving program materials. The survey experiment component was administered through the recruitment firm Prolific to people aged 18-20 years old from Canada, the United Sates, and the United Kingdom. Given Thomas and Nguyen's (2020) findings about the significance of status loss as a driving factor in criminal decision-making, my thesis project adds a new element to this equation – social status – and examines how people with varying levels of social status (social competency and perceived popularity) are differently

influenced by status loss and gain framed messages. This survey experiment randomly assigned participants to prompts that describe a hypothetical scenario framing their involvement in four different impaired driving situations (i.e., alcohol-impaired driver, being driven by an alcohol-impaired driver, cannabis impaired driver, being driven by a cannabis-impaired driver) as an opportunity for status loss or as an opportunity for status gain among their peers. Subsequently, based on the responses to the loss or gain framing in the scenarios, the variance between respondents who have different scores on the social status scales was measured.

In addition to this survey experiment, this project used a qualitative thematic analysis guided by the "What's the Problem?" approach outlined in the work of Bacchi (1999, 2009), which encourages researchers to delve into the representation of a particular 'problem' and examine both how it is constructed and how it is not. The materials analyzed in the qualitative analysis include publicly available items from Mothers Against Drunk Driving (MADD) and the RCMP Youth Services Unit that are used to engage with the public (specifically youth) about the topic of impaired driving. The adapted questions from the work of Bacchi (1999, 2009) were used along with the use of 'mapping' techniques (Miles et al., 2014) where I clustered together main ideas in order to develop patterns and themes. The presentation of the results of this analysis explores the ways in which the different elements, imagery, words, and types of youth-oriented public engagement materials create a representation of the 'problem' of impaired driving. These results are presented through a write up and an infographic, with attention to mentions of how social status and peer influence relate to 'the problem'.

This mixed-methods project takes a complementary approach to multi-strategy research. In this way, the project's two different methods are used to understand the same phenomenon (impaired driving). The survey experiment takes a deductive approach by beginning with questions

and hypotheses based in literature and seeking to test them and identify causes of impaired driving, whereas the qualitative analysis takes an inductive approach which leaves both guiding questions and hypotheses open and begins with data analysis before describing the relationships and themes within the data. By using two different data sets and two different approaches to explore the same phenomenon I was not necessarily expecting that my findings from the different components would overlap, even though I was open to that possibility. The advantages of this use of mixed-methods in this project is that I am able to understand my overall topic of impaired driving more fully through the use of this variety of data sources and approaches. In this way, looking at the impact of peer influence and social status on impaired driving-related choices through the survey experiment is only one angle – focused on the likelihood and perceived 'worth' of engaging in actions related to impaired driving and exploring how social status and peer messaging affect the willingness to engage in these actions. Another relevant and related angle of my study are the reactions to these 'actions': an analysis of public engagement program materials related to impaired driving as a complementary approach and to further explore this phenomenon.

Overall, this mixed methods project will provide insight into the topic of impaired driving and is guided by the following four research questions and hypotheses:

Research Question 1: Are people more willing to engage in deviant/dangerous acts related to impaired driving when peers frame consequences as status losses or status gains?
Hypothesis 1: When scenarios are framed with the potential for status loss, people are more willing to engage in deviant/dangerous acts related to impaired driving compared to social gain or neutral framing.

Research Question 2: How does an individual's placement in the social hierarchy impact their willingness to engage in deviant/dangerous acts related to impaired driving when peers frame social consequences as status losses or status gains?
Hypothesis 2: Individuals with higher social status (i.e., high popularity) will be more influenced by potential status losses. Conversely, the decision-making of individuals with lower social status (i.e., low popularity) will be more strongly swayed by the possibility of status gains.
Research Question 3: Does the effect assessed in RQ2 differ across action type (i.e., alcohol-impaired driving, being driven by an alcohol-impaired driver, cannabis impaired driving, being driven by a cannabis-impaired driver)?
Hypothesis 3: Individuals with higher social status (i.e., high popularity) will be more influenced by potential status losses across all action types. Individuals with lower social status (i.e., low popularity) will be more influenced by potential status gains across all action types.
Research Question 4: How do existing public engagement materials related to impaired driving (from Mothers Against Drunk Driving (MADD) and Royal Canadian Mounted Police (RCMP)) in Canada frame their content and messaging?
Hypothesis 4: No specific hypotheses for this component.

Survey Experiment Details

To address the first three research questions, I designed and administered a survey experiment with 600 participants between the ages of 18-20 years living in Canada, the United States, and the United Kingdom using the sample recruitment firm Prolific. The survey was available to participants on Prolific.co from October 24th 2023 to November 2nd 2023, and then after removing incomplete or unusable responses from the data set (see 'Data Analysis Procedure'

section below for more details about inclusion and exclusion criteria), the survey was reopened again on November 14th 2023 to collect eleven additional responses in order to meet the necessary sample size for the study. Overall, the average completion time in the combined survey set was six minutes and forty-five seconds.

Canada, the US, and the UK were selected to be used for this analysis based on the number of recently active participants on Prolific that fit in this age range. In this way, using these three country locations increases the pool of respondents from 2,294 (for the US and Canada) to 3,754 (Prolific, n.d.). As well, this combination of countries is frequently used in youth deviance research (Carrington & van Mastrigt, 2013), as they are quite similar cultural contexts. While the focus of this project is not a cross-country comparison, it is relevant to consider that "conclusions about the prevalence, correlates and causes of criminal phenomena that are based on data from one country have an unknown degree of applicability in other countries" (Carrington & van Mastrigt, 2013, p. 123). Therefore, by including more than one country in the sample, this analysis will be able to see if effects remain significant after controlling for the respondent's country of origin.

Furthermore, based on a power analysis utilizing the work of Dain (2023) and Thomas and Nguyen (2020), the proposed sample size of 600 participants is appropriate for detecting moderate effect sizes.[1] This sample is a convenience non-probability sample because respondents that are included in the sample chose to sign up to be part of Prolific's participant pool, therefore only those who hear about the panel and choose to sign up are then sampled from. Participants are filtered and selected based on their age and country of residence, meaning only participants who meet the criteria of being 18-20 years old and residing in Canada, the US or the UK received the recruitment email to participate in the survey. The survey was programmed in Qualtrics, and

[1] Calculated with a d statistic of 0.312, an alpha of 0.05, and a power of 0.8.

participants were recruited to the survey on Prolific in English. Experimental manipulation was used by randomizing participants to receive either a loss, gain, or control framing treatment for four different hypothetical scenarios:

- Scenario 1A: Alcohol-impaired driving (respondent is the driver)
- Scenario 1B: Getting in a car with an alcohol-impaired driver (respondent is a passenger)
- Scenario 2A: Cannabis-impaired driving (respondent is the driver)
- Scenario 2B: Getting in a car with a cannabis-impaired driver (respondent is a passenger)

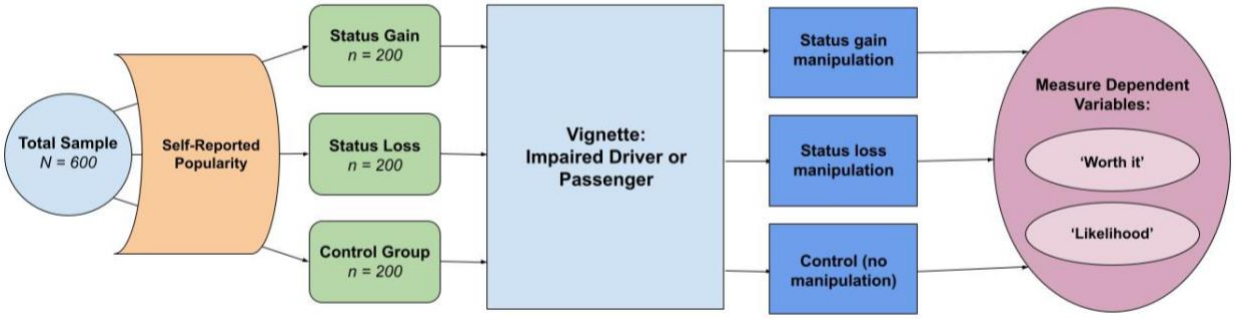
After informed consent was provided by all participants, they read an identical scenario for a specific act of deviance and were asked to think about the scenario in the context of their high school or secondary school friend group (that they were asked about previously to determine their scores on the two self-reported social status scales). See the example below of the vignette for alcohol-impaired driving:

> *Imagine you and your friends are hanging out at a party. You drove to the party and planned to leave the car in the host's driveway overnight. You have had a few drinks and are feeling dizzy and are finding it hard to keep up with conversations. Your friends are also intoxicated and are getting ready to leave. They ask you to drive them home.*

The second part of the scenario is worded differently depending on whether the participant was randomly selected to receive either a loss, gain, or control framing treatment. Also, different scenarios will be provided for the four different deviant actions. For the example of alcohol-impaired driving above, the vignette for <u>status gain</u> included: *Your friends tell you that it would be awesome if you could drive everyone home, and if you do they will invite you out again.* For the

example above, the vignette for status loss included: *Your friends tell you that if you don't drive them home it would be 'really lame,' and they won't invite you out again*. For the example above, the vignette for the control group included no additional framing. Each respondent had an equal likelihood of being assigned to the different conditions (status gain, status loss, or control group). See the graphic of the survey experiment below.

Figure 1: Experimental Design



The Sample. A sample of respondents aged 18-20 years was selected because this age range falls within the broader demographic of individuals, from early adolescence to mid-twenties, who commit the largest number of crimes (Antonaccio et al., 2010; Farrington, 1986; Lauritsen, 1998; Sweeten et al., 2013). As well, because the survey questions ask respondents to recall their high school (secondary school)[2] experiences, selecting a younger population range allows for a more accurate recall of these experiences because respondents are likely to have recently finished high school.

[2] Because the survey is run across three countries, it was important to account for small cultural variations between countries related to wording in the research questions. Therefore, to make the wording of the survey questions applicable to all who answered the survey, the use of 'high school' and 'secondary school' are both used in all applicable questions.

Because of the convenience sample used in this project, it is important to take steps to enhance the sample characteristics to improve sample quality. With acknowledgement that respondents in similar online samples tend to be younger, white, with higher education levels, lower income levels (Levay et al., 2016), and are more liberal by comparison to the general population (Berinsky et al., 2012; Krupnikov & Levine, 2014; Mullinix et al., 2015), respondents were asked to report their age, gender identity, race and ethnicity, as well as political leaning to provide insight into how the demographics of respondents compare to the general population. Additionally, to further improve sample quality, there were two bot/AI detection questions and a data quality question in addition to the checks already performed by Prolific (see details in the 'Variables' sub-section below).

Independent Variables. Status loss and status gain, and 'social status' (i.e., self-reported social competency and perceived popularity) are the main independent variables in this project, depending on the research question being addressed. Respondent social status is measured using two measures. First, a self-perceived social competency scale designed by Harter (2012) that prompts the respondent to complete five questions which self-report different elements of their social competency in their high school friend group and their broader high school environment:

> Thinking about your most recent year of high school (secondary school), where would you place yourself on the scale between the following statements?

- Regarding making friends: (0 = I found it hard to make friends, 6 = I found it pretty easy to make friends).
- Regarding making classmates like you: (0 = I didn't know how to make my classmates like me, 6 = I knew how to make my classmates like me).

- Regarding social skills to make friends: (0 = I didn't have the social skills to make friends, 6 = I had the social skills to make friends).
- Regarding peer acceptance: (0 = I didn't understand how to get my peers to accept me, 6 = I understood how to get my peers to accept me).
- Regarding popularity: (0 = I didn't know how to become popular, 6 = I knew how to become popular).

The perceived popularity measure asks respondents to self-report their overall popularity in their high school environment on a 0-10 scale using the question: "Thinking back to your most recent year of high school (secondary school), how popular would you say you were within the broader school environment?"

The other independent variable in this analysis is the experimental condition (i.e., the status loss and status gain treatments assigned to participants).[3] These experimental treatments are based in the work of Thomas and Nguyen (2020), as well as the literature review related to peer influence and risk calculation. Status loss and status gain treatments are randomly assigned to respondents and participants have an equal likelihood of receiving each of the three treatments (loss, gain, or control). There is a random assignment of a different treatment for each of the four hypothetical scenarios (i.e., alcohol-impaired driving, getting in a car with an alcohol-impaired driver, cannabis-impaired driving, getting in a car with a cannabis-impaired driver). As such, a respondent could be assigned a status loss treatment for Scenario 1, a status gain treatment for Scenario 2, be part of the control group for Scenario 3, and be assigned the status gain treatment for Scenario 4 (or any other variation).

[3] The reference category for this variable is 'Control group', who received no experimental treatment/additional peer messaging related to status loss or gain.

Dependent Variables. There are two dependent variables in this project: a respondent's self-reported ranking of their 'likelihood' of engaging in the impaired driving-related action and self-reported ranking of how 'worth it' they think it is for them to engage in the impaired driving-related action. These 'worth it' and 'likelihood' measures that provide insight into the risk calculus of the respondent are from the work of Pickett et al., (2020). The 'worth it' measure was determined by respondents ranking whether they believe a deviant act is worth participating in on a seven-point scale (0 = not at all worth it, 4 = maybe worth it, 6 = completely worth it). Similarly, the 'likelihood' measure was determined by respondents' ranking their likelihood of participating in the action on a seven-point scale (0 = not at all likely, 4 = maybe, 6 = completely likely). These measures are taken immediately after the presentation of each of the hypothetical scenarios.

Depending on the research question, action type is also a dependent variable and was included in the four descriptive scenarios provided to participants. Conceptually, depending on the respondent's scores on the self-perception social status scales and whether the scenario uses a loss or gain framing treatment, the respondents' perception of how 'worth it' or 'likely' they are to engage in the prescribed actions may vary. In this way, their perceived 'worth it' or 'likelihood' of engaging in the impaired driving-related action when accounting for social status and loss and gain framing of the scenarios, may change between action types (i.e., differences between substances: cannabis or alcohol, and differences between mode of participation: driver or passenger). Therefore, the survey design sought to use these two dependent variables to examine how a respondent's score on the self-perception social status scale, whether peers frame the action as status loss or gain, and how the specific type of action affects a respondent's calculation of risk. More specifically, this design tests whether respondents with high scores on the self-perception social status scales perceive the threat of status loss and status gain differently than those who have

low scores on the self-perception social status scales, and how these effects may vary between action types.

Sociodemographic Variables. Given that similar online samples tend not to be representative of the broader country or region's population, this survey asked respondents to share their age, race and/or ethnicity, household income, political leaning, gender identity, and country of residence.

Because the survey is administered to respondents between the ages of eighteen to twenty, the age question only had three options: eighteen, nineteen, or twenty.[4] The race and/or ethnicity measure asked respondents to select all options that apply and presented a list of eleven pre-filled options (Black; Chinese; Filipino; Japanese; Korean; Native, Aboriginal, Indigenous; Pacific Islander; South Asian; Southeast Asian; West Indian; White) and an option for respondents to type in their own response.[5] To measure respondent income, the survey uses a question adapted from the World Values Survey (Haerpfer et al., 2022), which asks respondents to place their household's income (during their last year of high school or secondary school) on an eleven-point (0-10) scale: "Thinking back to your most recent year of high school, where would you place your household's income on this scale, if 0 indicates the people in your country who have the lowest income group and 10 indicates the people in your country who have the highest income?" The question to determine a respondent's political leaning is adapted from a question in the World Values Survey (Haerpfer et al., 2022), asking respondents to score their views on an eleven-point (0-10) scale: "In political matters, people talk of 'the left' and 'the right.' How would you place your views on this scale, generally speaking?"

[4] The reference category for this variable is 'Twenty-years old'.
[5] When recoding the race/ethnicity variable, categories that had less than 15 respondents were grouped into a combined category. The reference category for this variable is 'White'.

To determine a respondent's gender identity, the survey asked respondents to select all options that apply and presented a list of four pre-filled options (Woman: includes cis women, trans women, and anyone else who identifies as a woman; Man: includes cis men, trans men, and anyone else who identifies as a man; Non-binary; Trans), as well as an option for respondents to type in their own response and a "Prefer not to answer" option.[6] Additionally, to determine a respondents' country of origin, the survey asked respondents to select either: Canada, the UK, or the US.[7] Finally, the survey asked respondents in what year they last attended high school (secondary school) with the options: 2018 or earlier; 2019; 2020; 2021; 2022; 2023/Currently in high school (secondary school); Never attended high school (secondary school). Because several of the survey questions and prompts ask respondents to recall their high school (secondary school) experiences, this question helps to determine the length of time from which they are recalling events. This question is not used as a control, and rather is just for understanding the sample makeup. However, the other demographic variables are used to determine how well the sample aligns with the broader characteristics of the country's population and are used as controls in the multivariate analyses, see Figure 2 below.

Table 1: Demographic Breakdown in Survey Sample Compared to Country Population

	Percent of Respondents in Survey Sample	**Percent of Respondents in Country Population (Census Data)**

[6] When recoding the gender identity variable, categories that had less than 15 respondents were grouped into a combined category. The reference category for this variable is 'Man'.

[7] The reference category for this variable is 'United States'. Importantly, respondents from Canada are underrepresented and only make up 5.5% of the survey sample, while respondents from the United States make up 49.3% of the sample, and respondents from the United Kingdom make up 45.3% of the sample (see Figure 2).

Country	Canada 5.5% (N=33)	United States 49.3% (N=297)	United Kingdom 45.3% (N=273)	Canada[8]	United States[9]	United Kingdom [10]
Age						
18	6.1	11.4	10.6	N/A	N/A	N/A
19	12.1	20.9	31.1	N/A	N/A	N/A
20	81.8	67.7	58.2	N/A	N/A	N/A
Gender Identity						
Man	30.3	46.1	52.0	49.3	50.3	49.0
Woman	63.6	47.8	44.0	50.7	49.7	51.0
Non-binary	3.0	2.0	3.3	N/A	N/A	N/A
Multiple identities and no response	3.0	4.0	0.7	N/A	N/A	N/A
Race and Ethnicity						

[8] Statistics Canada. (2021). Census Profile, 2021 Census of Population [Chart]. *Government of Canada*. Retrieved from https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?LANG=E&GENDERlist=1,2,3&STATISTIClist=1&HEADERlist=1&SearchText=Canada&DGUIDlist=2021A000011124

[9] United States Census Bureau. (2022). Selected Population Profile in the United States [Chart]. *United States Government*. Retrieved from https://data.census.gov/table/ACSSPP1Y2022.S0201?q=race&t=-03&g=010XX00US; United States Census Bureau. (2022). Race [Chart]. *United States Government*. Retrieved from https://data.census.gov/table?g=010XX00US; United States Census Bureau. (2022). Income in the Past 12 Months (in 2022 Inflation-Adjusted Dollars) [Chart]. *United States Government*. Retrieved from https://data.census.gov/table?t=Income%20and%20Poverty&g=010XX00US

[10] Census data for England and Wales is used as the comparison.
United Kingdom Government. (2021). Male and female populations. Retrieved from https://www.ethnicity-facts-figures.service.gov.uk/uk-population-by-ethnicity/demographics/male-and-female-populations/latest/; United Kingdom Government. (2021). Population of England and Wales. Retrieved from https://www.ethnicity-facts-figures.service.gov.uk/uk-population-by-ethnicity/national-and-regional-populations/population-of-england-and-wales/latest/; United Kingdom Government. (2021). Household income. Retrieved from https://www.ethnicity-facts-figures.service.gov.uk/work-pay-and-benefits/pay-and-income/household-income/latest/#:~:text=The%20data%20shows%20that%2C%20in,of%20%C2%A32%2C000%20or%20more

Black	9.1	9.8	5.9	4.3	12.4	4.0
Chinese	24.2	3.7	3.3	4.7	N/A	0.7
South Asian	15.2	9.8	13.2	7.1	N/A	N/A
White	27.3	50.8	65.2	73.5	61.6	81.7
Multiple identities, other, unspecified	24.2	25.9	12.5	10.4	26.0	13.6
Political Belief						
Left	21.2	44.4	30.0	N/A	N/A	N/A
Middle	75.8	50.5	66.3	N/A	N/A	N/A
Right	3.0	5.1	3.7	N/A	N/A	N/A
Household Income*						
Low Income	6.1	7.4	8.8	13.4	16.0	26.0
Middle Income	87.9	82.2	83.2	9.9	47.0	62.0
High Income	6.1	10.4	8.1	76.7	37.1	12.0

Note: There may slight inaccuracies in rounding. Comparison data is based the most recent available census data from each country and does not differentiate by age groups.

*The categories used for comparison in the survey experiment are: 'Low Income' = 0-2, 'Middle Income' = 3-7, 'High Income' 8-10. The categories used for comparison in Canada (after taxes annually, in CAD) are: 'Low Income' = under 5000 - 29,999, 'Middle Income' = 30,000 -89,999, 'High Income' 90,000 and above. The categories used for comparison in the United States (2022 predicted, in USD) are: 'Low Income' = under 10,000 - 24,999, 'Middle Income' = 25,000 -99,999, 'High Income' 100,000 and above. The categories used for comparison in the United Kingdom (2021 weekly household income, in pounds) are: 'Low Income' = under 200 - 399, 'Middle Income' = 400 - 1599, 'High Income' 1600 and above.

As depicted in Table 1, there are differences between the survey's sample population and the population of the respondents' country. Related to gender identity, women in Canada are

overrepresented in the survey sample, and women in the US and UK are slightly underrepresented when compared to the census data from the countries. Related to race and ethnicity, in the survey sample, Black respondents living in the US were underrepresented in the survey sample. However, in all other racial and ethnic categories for all countries there were more Black, Chinese, and South Asian respondents, as well as respondents with multiple, or other racial or ethnic identities than in their comparative countries' population. Related to household income, the general trend between all country comparisons is that respondents in the 'Low' income category were underrepresented in the survey population, respondents in the 'Middle' income category were overrepresented, and respondents in the 'High' income category were underrepresented. Overall, the sample population is different from the populations of the respective countries, and therefore there are limitations to the generalization of results (see the subsection 'Limitations and Strengths of this Study' in Chapter 5).

Additional Control Variables. In addition, based on the review of literature about deviant decision making, this analysis included survey questions to determine a participant's level of self-control, unsupervised socializing, peer deviance, strain – victimization (bullying in school), caregiver supervision, and social bonds to parents or caregivers.

Self-control is determined using a six-item question series based on the work of Barnum and Solomon (2019). The questions in this scale ask respondents how strongly they agree with six statements related to spontaneous action, controlling their temper, delayed gratification, and more. The answers to these self-control-related questions are combined into a scale (mean score) to assign each respondent a score for self-control. The respondent's frequency of participation in unsupervised socializing is determined using a single question based on the work of Enzmann et

al. (n.d) that asks the respondent: "How many times a week on average did you usually go out at night without caregivers or parents present, such as going to a party, going to somebody's house, or hanging out on the street?" In conjunction with this question about unstructured socializing there were two subsequent questions asked about caregiver supervision based on the work of Enzmann et al. (n.d), that ask how often the parent or caregiver knew with who and where the respondent is spending time. The answers to these caregiver supervision-related questions are combined into a scale to assign each respondent a mean score for level of caregiver supervision. The deviance of the respondent's peer group is measured using five questions, based on the work of Enzmann et al. (n.d) that ask respondents how many of their friends (in their last year of high school or secondary school) engaged in underaged drinking, smoking cannabis (marijuana), fighting, shoplifting, and trespassing. The answers to these questions are combined and turned into a mean score to assign the friends of each respondent a deviance score. A respondent's level of strain - victimization[11] is determined through asking a series of three questions based on the work of Enzmann et al. (n.d), asking the respondent about the number of times they experienced bullying, violence, and having something stolen from them (Never, A few times, Sometimes, Often, Very Often). Based on the answers to these questions, these items are scaled to assign each respondent a score indicating their level of victimization. The respondent's social bond[12] (to their parents or caregivers) is measured by eight questions from the work of Weerman (2011). Questions in this measure ask respondents to what degree they agree or disagree with a set of eight statements related to whether they liked, felt supported, felt loved, etc. by their parents or caregivers in their

[11] There are other types of strain, however due to the financial constraints of this survey only bullying/victimization at school was explored. This decision was made because it is an predictor of social status and perceived popularity among peers, which is a main component of this projects' orientation.

[12] There are other types of social bonds, however due to the financial constraints of this survey only social bonds to parents/caregivers were explored. This decision to include this measure was based on the extensive literature showing that a youth's homelife and connections to parental figures can influence their willingness to engage in deviance.

last year of high school. Respondents' answers to these questions are scaled so each respondent is assigned a score that indicates their level of social bonds to their parents/caregivers.

Additionally, respondents were asked how often (Never, A few times, Sometimes, Often, Very Often) they consumed alcohol and cannabis in their last year of high school. Using these two questions allowed for a gauge of how personal substance use interacts with the perceived 'worth' or 'likelihood' of engagement with the substance-use related prompts and to account for it as a potential confounder. This logic is based on the assumption that respondents who answer that they have never (or infrequently) consumed these substances may not resonate with the prompts in the same way as others who do use the substances more frequently.

Data Quality Variables. Prolific takes steps to verify the identity of participants and Qualtrics includes an option to include a CAPTCHA at the start of the survey to stop bots from submitting answers, which was enabled in this survey. In addition to these measures, two data quality variables were included within this survey to screen for AI or use of bots. The first question in the survey (after gathering informed consent from participants) asks respondents to arrange five movie titles into alphabetical order. The second question asks respondents to rearrange words in a phrase. Based on the work of Walker (2023), these methods are an effective way to screen for the use of AI and bots. If there was more than one mistake in both of these questions, the respondent's data was removed from the final analysis. Additionally, the final question in the survey is a data quality check that asks respondents: "Is there any reason that we shouldn't use your data (e.g., did you randomly select responses at any point during the survey)? This response is purely to help us with our research; you will not lose your credit." Respondents select either 'yes' or 'no' and have the option to describe what they did if they answered yes. Data from respondents who selected 'yes'

without explanation were removed from the final data set. Data from respondents who selected 'yes' with an explanation were assessed on an individual basis based on the contents of their explanation.

Data Analysis Procedure

The data from the survey experiment was analyzed using a series of bivariate and multivariate tests with Stata. These analysis procedures are discussed in detail below. Note that an exploratory factor analysis was conducted to see if the dependent variable items can be scaled into 'impaired driving' and 'impaired passenger' worth it and likelihood scales. The factor analysis did not support the scaling of these items, therefore all analyses proceeded using the eight separate single-item dependent variables (DV). Before analysis began, 22 cases were deleted from the data set because: 3 cases had too few answers to be useable, 5 cases were returned and no responses were recorded, 3 cases failed to submit their survey (timed-out) and only a few questions were answered, 1 case failed the additional bot/AI checks, and 10 failed the self-report honesty check. Of the responses included in the analysis (N=603), there were very few missing values,[13] leaving the bivariate models with N=602 or N=603, main multivariate models with either N=590 or N=591, and supplementary analysis models N=597 or N=598, depending on the model.

Bivariate Tests. Eight Kruskal-Wallis tests were used to test the effect outlined in RQ1 (effect of experimental condition on worth/likelihood of being an impaired driver/passenger). Because in all

[13] More specifically, missing values within the main variable sections: 'independent variables', 'dependent variables', and 'additional control variables' resulted in the case being excluded, however missing values in the 'sociodemographic variables' sections were included. In this way, the only 'missing values' were part of the race and ethnicity or gender identity questions where respondents could choose the 'Prefer not to answer' option. Respondents who chose this option are included in the 'Multiple gender identities and no response' category for the gender variable, and in the 'Multiple racial identities, other, and unspecified' category for the race and ethnicity variable.

analyses there is a continuous DV (either 'worth it' or 'likelihood') that was not normally distributed, and three-category IV (the experimental condition), ANOVA tests cannot be used, and Kruskal-Wallis tests are appropriate. These models examine the main effect upon which this project is based – the relationship between impaired-driving-related actions and how peers frame the situation (status loss, status gain, control), regardless of their scores on the self-reported 'social status scales.' Half of these analyses involve the 'likelihood' variable (which is a continuous seven-category variable) and the 'peer influence' variable (which is a three-category variable including the categories of: status loss, status gain, or control). The second half of these analyses involves the 'worth it' variable (which is a continuous seven-category variable) and the 'peer influence' variable.

Multivariate Tests Without Interaction Effects. To further examine the relationship in RQ1, two sets of eight bootstrapped[14] linear regression models and two sets of eight ordered logistic models[15] further test the effects of experimental condition (status loss, status gain, control) on worth/likelihood of being an impaired driver/passenger with the inclusion of one of the two social

[14] Bootstrapping resamples a data set and creates many different simulated samples. In all multivariate analyses in this project there were 1000 replications used. The choice to use bootstrapping was made because through testing the required assumptions to run a trustworthy linear regression, there were issues with the normality of residuals and homogeneity of variance. Therefore, by bootstrapping the regressions, the parametric assumptions of linear regression are relaxed.

[15] A 7-point ordinal dependent variable can reasonably be assumed to be a continuous variable and therefore the main models consist of bootstrapped linear regressions (BLRMS) and not ordered logistic models (OLMS). One benefit of this approach is that linear regressions are not subject to complications around assessing interaction effects in the same way that non-linear models are (Kaufman, 2019). However, to test the validity of this assumption two sets of eight OLMs were conducted. The results of these models were compared to the above BLRMS to ensure that proceeding with the linear regressions was appropriate.

The results of the comparison between the OLMs and BLRMs showed that eleven of sixteen OLMs do not violate the proportional odds/parallel lines assumption. Of the models that do not violate the assumption, results that are significant in the OLM are almost always significant in the BLRM as well, and the coefficients among significant results are always in the same direction. There are rare instances of differences between variables being significant in the OLM and not in the BLRM (or vice versa), but these are never main effects, only control variables. Therefore, despite minor differences between the OLM models and BLRMs (without interaction effects), they both appear to tell the same story. Consequently, the BLRMs were found to be suitable, and it is assumed that the subsequent BLRMs with interaction effects are suitable as well.

status indicators in each set of models and a full set of controls. Therefore, the first set of eight models includes the self-reported social competency mean score variable, and the second set of eight models includes the self-reported perceived popularity in school network variable. A full set of controls are included in all of these models to ensure the results are robust to potential confounders, including: self-control, unsupervised socializing, peer deviance, strain – victimization (mean score), caregiver supervision (mean score), social bonds to parents or caregivers (mean score), personal use of alcohol, personal use of cannabis, peer group/friends' deviance (mean score), and sociodemographic variables (including: gender identity, race and ethnicity, political leaning, household income, and country of residence).

Multivariate Tests With Interaction Effects. Similar to the models without interaction effects above, two sets of eight bootstrapped linear regressions with interaction effects tested the effects outlined in RQ2 and RQ3 (interaction between social status and experimental condition on worth/likelihood of being an impaired driver or passenger). Although the models in this section include the interaction between a different one of the two social status indicators (self-reported social competency or perceived popularity in school network) and the experimental condition (status loss, status gain, control) on the respondents' worth/likelihood of impaired driving/riding. A full set of controls is included to ensure the results are robust to potential confounders, including: self-control, unsupervised socializing, peer deviance, strain – victimization (mean score), caregiver supervision (mean score), social bonds to parents or caregivers (mean score), personal use of alcohol, personal use of cannabis, peer group/friends' deviance (mean score), and sociodemographic variables (including: gender identity, race and ethnicity, political leaning, household income, and country of residence).

Supplementary Analysis - Multivariate Tests Without Interaction Effects Based on Directed Acyclic Graph. The directed acyclic graph (DAG) (see Appendix E) was created based on relevant literature related to youth deviance and illustrates the hypothesized causal relationships between deviance and other factors. These factors, (such as family bonding and self-control) have been operationalized in the survey. While traditional multivariate analyses would control for all of these identified possible confounders, the DAG illustrates the ways that these factors connect to each other (through paths of interconnected causation) in addition to their connection to 'deviance.' These interconnected paths of causation matter because statistical theory suggests (Pearl et al., 2016) it is not necessary to control for every factor identified in the DAG; in fact, doing so can bias estimates. Instead, only those identified by the minimum sufficient adjustment set (MSAS) are required. This is because, based on the 'backdoor criterion', not all controls are 'good' and rather than adding all possible controls, being more selective is ideal (Pearl et al., 2016). Pearl et al.'s (2016) method has three criteria: "1. We block all spurious paths between X and Y. 2. We leave all directed paths from X to Y unperturbed. 3. We create no new spurious paths.", with the goal of controlling for what is necessary to close the biasing pathways without opening any new ones and possible confounders (Pearl et al., 2016, p. 61). Therefore, based on the logic of the use of DAGs, the results of these models are expected to be similar to the fully controlled models. These DAG models tell us how the controls prescribed by the minimum sufficient adjustment set provided by the graph compares to the use of the other models with more 'traditional' controls.

Using the DAG, a single set of eight bootstrapped linear regressions was completed. Similar to the multivariate tests without interaction effects above, these DAG-informed models examine the effects of the experimental condition (status loss, status gain, control) on

worth/likelihood of impaired driving/riding with the inclusion of one of the two social status indicators and a set of controls. Because this analysis is supplementary, only eight models were estimated with the self-reported social competency mean score variable (instead of another eight models with the self-reported perceived popularity in school network variable). The difference is that these analyses were completed using the minimum sufficient adjustment set (MSAS) of control variables required to close all backdoor biasing pathways (gender identity, race and ethnicity, self-control [mean score], and household income).

Qualitative Thematic Analysis

The fourth research question is addressed by conducting a qualitative thematic analysis of relevant youth-oriented public awareness campaign materials to identify how these existing materials frame their messaging, with attention to if and how peer dynamics are portrayed within these programs, and if and how the materials are consistent with the effects discussed in Q1-3. Program materials used in this analysis related to impaired driving are from two sources: the Royal Canadian Mounted Police (RCMP) and Mothers Against Drunk Driving (MADD).

These materials are specifically made for or recommended to youth. A total of 22 materials (including lesson plans, infographics, topic pages, videos, and more) were analysed and obtained from 'Impaired Driving' and 'Drugs and Alcohol' sections of the RCMP Center for Youth Crime Prevention website (Royal Canadian Mounted Police, n.d.). A total of 24 materials were analysed and obtained from the 'Youth Awareness' section of the MADD website and includes a variety of materials (such as topic pages, videos in 'Public Awareness Videos' tab, and 'Youth Posters' under 'Posters' tab, and more) (Mothers Against Drunk Driving, n.d.). These materials were selected

because they were either publicly available content directly on the main awareness campaign page(s) or content linked directly to these main youth-oriented campaign page(s).

The thematic analysis took a qualitative approach based on the work of Rapley (2016), Starks and Trinidad (2007), and used a framework adapted from Bacchi's (1999; 2009) "What's the Problem Approach." The goal of the analysis was to examine the elements included in these materials, without any expectation of finding anything in particular. I chose this open-ended approach to the research question, hypothesis, and findings because, as discussed by Miles et al. (2014), it is bad practice to revise a hypothesis after finding disconfirming or inconsistent evidence. By keeping my research question and hypothesis open, I avoided the possibility of needing to revise them, and this inductive approach allowed me to tailor my conclusions to what I found without concern for a particular path or orientation.

Data Analysis Procedure. Before beginning the analysis, I prepared a document to contain the analytic findings that is consistent with Bacchi's (1999; 2010) "What's the Problem?" approach. Bacchi's (1999) work outlines a means to think about policy and political issues, under the assumption that often these policies present "only one possible interpretation of the issue at stake" (p. 263). Therefore a "What's the Problem?" approach prompts users to better understand how the issue is created and framed within the discourse being analyzed and to critically engage with the 'solution' being offered (Bacchi, 1999). In this way, a "What's the Problem?" approach "create[s] a space to consider competing constructions of issues addressed in the policy process, and the ways in which these constructions leave other issues untouched" (Bacchi, 1999, p. 265). To achieve this goal, Bacchi (1999) provides a series of five questions that were adapted and used to guide this qualitative analysis. The adapted questions used to guide this analysis are as follows:

1. “What is the problem?”
2. “What presuppositions underlie the representation?”
3. “What effects are produced by this representation?”
4. “What is left unproblematic in this representation?”
5. “How may ‘responses’ differ if the ‘problem’ were thought about or represented differently?”

Each of these questions were used as column headings in a chart in Microsoft Excel. Additional column headings included “Notes”, “Source Type”, “Access Date”, and “Citation/ Link”. The different rows each contained a different material from the source, with two different pages in the Excel sheet containing the materials from each source (MADD and RCMP). This layout, with these headings and guiding questions across the top of the document allow for comparisons to be made across and between different materials and sources. Through the process described in further detail below, my discovery of themes and patterns remained open, although due to the nature of the project as a whole during the theme identification and mapping process, I was sensitive to any peer dynamics or ‘peer pressure’ or mentions of social status present in these materials.

I chose to base my approach in Bacchi’s (1999) work to ensure that this part of my research project goes beyond description. In this way, the questions Bacchi’s (1999) work uses, prompt the researcher to acknowledge both what is visible in the materials and what is not, and to think about the significance of each material more conceptually and within the broader context of the issue or ‘problem’ they seek to address. Going beyond description can allow a research project to go beyond “what is going on here?” to “what is going on and how?” (Becker, 1993, p. 255). This approach is important in my specific project because it allows me to comment on how the resources

have constructed their portrayal of impaired driving, as well as note common themes and differences between the messaging shared by different sources (i.e., between a non-profit organization and law enforcement materials). Furthermore, going beyond description will allow me to discuss how these themes and portrayals of impaired driving fit with the results of my survey experiment and within existing literature.

With this direction in mind, to code my data, I began by examining one material from each source at a time and answered each of the guiding questions in the column headings, as the content of that specific material related back to Bacchi's (1999) approach. From here common themes, phrases, ideas, assumptions, and more began to emerge from the data (see results in Chapter 3). The type of coding I used was a combination of in vivo coding and causation coding (Miles et al., 2014). I jotted down direct quotes and words. Also, due to the nature of the questions above taking a critical approach and instead of solely using the words in the material, I included my own thoughts as they related to the guiding questions. This combination of coding techniques allowed me to portray and translate how the materials' words connected to the questions being explored. To develop patterns and themes I also used 'clustering' techniques, which is described by Miles et al. (2014) to "understand a phenomenon better by grouping and then conceptualizing objects that have similar patterns or characteristics" (p. 279). Using this technique, I was able to strike a balance between finding meaningful patterns while still capturing a high level of detail. Furthermore, to make better sense of how the ideas and elements of different sources connected (or 'clustered') together, I also used a pattern coding technique of 'mapping' the codes into a visual pattern (Miles et al., 2014). These maps are integral to my analysis and dissemination of results. To create these visual representations, I also drew upon the techniques and logics of Rapley (2016) and Starks and Trinidad (2007), by clustering these themes into connected areas, to create a map

(akin to a web or infographic) of connected elements and sub-themes. Therefore, by the end of the analysis, in total I had developed three 'maps' (or visual representations); one of RCMP materials, one of MADD materials, and one that combines both sources. Because my analysis is centered around two different sources (non-profit organization and law enforcement), and due to the variety of type of resource within these sources, finding the similarities in themes amongst the sources and formats can be challenging. Therefore, developing these maps guided me to encompass how the materials from these different sources were analysed through the framework of the questions adapted from Bacchi's (1999) work. Through the use of this 'mapping' strategy, I was able to assemble the data and information like a puzzle: after identifying key themes and patterns that related to each of the questions, I put them all in a document together and started to decipher how they connect to each other. Through this technique, the results came to be depicted visually and the ways the different elements, imagery, words, and types of sources represent and address the central 'problem' became clearer. Overall, the development of these graphics was used as part of the analysis process to better understand how different themes across and between different materials and sources interrelate to each other to shape the 'problem' at their center.

In order to confirm my findings, I used the tactic of seeking negative evidence. Miles et al. (2014) state that this tactic is a "more extreme version of looking for outliers and rival explanations" (p. 304). This technique consists of reviewing the materials more than once and seeking any conflicting evidence to a statement before making it. This strategy ensures the reporting of findings, the frequency with which a theme is present, and the comparisons between sources (RCMP and MADD) are accurate. Ensuring accurate comparisons is especially important given that people tend to look for patterns (Miles et al., 2014) and the techniques I use to make sense of my data also seek to identify patterns. The use of this technique prevents me from making

sweeping generalizations about what the pattern in the materials are showing, as well as being attentive to the nuance that exists within the broader patterns to develop my analysis more fully. Miles et al. (2014) discuss the importance of handling disconfirming evidence with care, and how it can result in revision of the hypotheses. However, I had no specific hypotheses for this section, so instead I have used this tactic during the tricky challenge of clustering my data into themes, developing my graphics (as described above), and in describing my results. Once I had identified and labelled a broader theme or pattern, I triple checked to make sure there were no inconsistencies and that I did not miss anything that contradicted or rivaled the connection or label I made. In this way, I looked for both inconsistencies with the label I chose to represent the theme as well as the underlying message that label or description is conveying, as well as how I reported the frequency with which the theme was present.

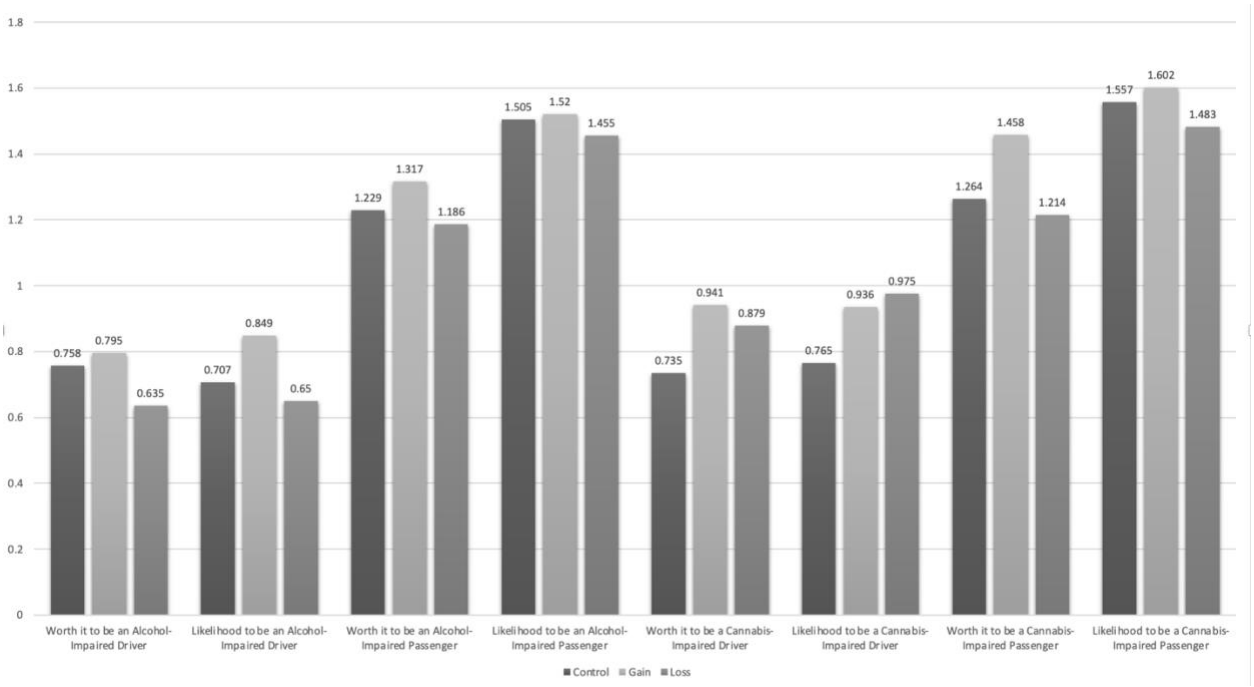
I have chosen to include the map that combines the findings from both sources (see Appendix A) along with the written analysis found in the results section that acts as the formal final analysis. While this visual representation may be used for others to understand the data and results of this analysis, its main purpose is not to be used for the dissemination of results, rather it is an integral part of my research process that I have opted to include. The findings from this analysis were synthesized and used in concert with the findings from the survey experiment that address RQ1-3, the relevant literature in the field that is discussed in 'Discussion and Conclusion' (Chapter 5) and the main results from the survey experiment and the qualitative analysis that are also portrayed visually in the arts-based dissemination (see Chapter 4).

Chapter 2: Survey Experiment

Willingness to Engage in Impaired Driving Related Actions

Eight Kruskal-Wallis tests were used to test the effect outlined in RQ1 (see Appendix B). None of these tests showed any statistically significant results, however notable results emerge from a comparison of mean scores. In all analyses except for the Kruskal-Wallis test predicting likelihood to be a cannabis impaired driver with different experimental conditions (Table 1.5 in Appendix B), the mean score for the status gain category is higher than the control group and status loss experimental condition. Therefore, this could indicate that peer messaging with status gain framing increases the perceived likelihood or worth of engaging in impaired driving-related activities. Furthermore, in six of eight analyses the mean score for the status loss category is lower than the control group and the status gain experimental treatment group (except in Table 1.4 and Table 1.5 in Appendix B). See the bar graphs in Figure 2 below. These results could indicate that peer messaging with status loss framing decreases the perceived likelihood or worth of engaging in impaired driving-related activities.

Figure 2: Bar Graphs Illustrating Differences in Means Between Experimental Treatment Groups



Social Status and Willingness to Engage in Impaired Driving Related Actions

Two sets of eight bootstrapped linear regression models including controls were used to further examine the relationship in RQ1 (see Appendix C, Tables 2.0 – 2.3). Importantly, there were no significant relationships between the main effect variables in any of the linear regression models predicting willingness to engage in alcohol-impaired activities (both driving and being a passenger). Similarly, there were also no significant relationships between the main effect variables in any of the linear regression models predicting willingness to be a cannabis-impaired passenger. However, there were statistically significant results in the linear regressions predicting the willingness of participants to engage in cannabis impaired driving (see Figure 4, below). Therefore, related to the hypothesis (H1) to address RQ1, there is partial support within these results. These statistically significant results between the main effect variables (self-reported social competency or perceived popularity, experimental condition, and 'worth it' or 'likelihood' dependent variables) are as follows.

Beginning with the models that predicted the willingness of participants to engage in cannabis impaired driving using self-reported social competency as a control, in Model 1 and Model 2 in Table 2.1 there is a significant relationship between experimental condition and worth it or likelihood to be a cannabis impaired driver. More specifically, in Model 1 predicting 'worth it', compared to the control group, participants who received the status gain treatment were predicted to score higher on the 'worth it' scale to be a cannabis impaired driver (0.311 units, p<=.05), when controlling for all elements in the model, including social competency. As well, compared to the control group, participants who received the status loss treatment scored higher on the 'worth it' scale to be a cannabis impaired driver (0.282 units, p<=.05), when controlling for all elements in the model, including social competency. Similarly, in Model 2 predicting 'likelihood' to drive while impaired by cannabis, participants who received the status gain treatment had higher scores on the likelihood scale (0.289 units, p<=.05). As well, participants who received the status loss treatment had higher scores on the likelihood scale (0.357 units, p<=.01).

The effects above were similar to the significant effects found in the models that predicted the willingness of participants to engage in cannabis impaired driving using self-reported popularity as a control. In Model 1 and Model 2 in Table 2.3 there is a significant relationship between experimental condition and 'worth it' or 'likelihood' to be a cannabis impaired driver. More specifically, in Model 1 predicting 'worth it' to be a cannabis impaired driver, compared to the control group, participants who received the status gain treatment were higher on the 'worth it' scale (0.309 units, p<=.05). As well, compared to the control group, participants who received the status loss treatment were higher on the 'worth it' scale (0.279 units, p<=.05). Similarly, in Model 2 predicting 'likelihood' to drive while impaired by cannabis, both participants who

received the status gain treatment (0.274 units, p<=.05) and received the status loss treatment (0.352 units, p<=.01) scored higher on the likelihood scale.

Table 2: Summary of Significant Effects in Linear Regression Models Predicting 'Worth it' and 'Likelihood' of Cannabis-Impaired Driving

	Models Using Social Competency Measure (Model 1 and Model 2 in Table 2.1)		Models Using Self-Reported Popularity Measure (Model 1 and Model 2 in Table 2.3)	
	Worth it ß (SE)	Likelihood ß (SE)	Worth it ß (SE)	Likelihood ß (SE)
Status Gain [a]	0.311* (0.133)	0.289* (0.141)	0.309* (0.132)	0.274* (0.138)
Status Loss [a]	0.282* (0.128)	0.357** (0.137)	0.279* (0.129)	0.352** (0.137)

[a] Reference = Control group
All models are bootstrapped (1000 reps)

*p<=.05 **p<=.01 ***p<=.001

Table 2 aids in the illustration of how the results of the linear regressions related to cannabis-impaired driving partially support the hypothesis (H1) to research question (RQ1):

Research Question 1: Are people more willing to engage in deviant/dangerous acts related to impaired driving when peers frame consequences as status losses or status gains?
Hypothesis 1: When scenarios are framed with the potential for status loss, people are more willing to engage in deviant/dangerous acts related to impaired driving compared to social gain or neutral framing.

Within the cannabis driver models that use the social competency score as well as the models that use the self-reported popularity score, compared to the control group, there were higher levels of 'worth' and 'likelihood' to engage in cannabis-impaired driving among respondents who received a framing treatment (either gain or loss). In the models that used the 'worth it' measure (Model 1 in Table 2.1, and Model 1 in Table 2.3) the coefficient in the status loss framing group (0.282 for the model that used the social competency measure, and 0.279 for the model that used the self-reported popularity measure) was lower than the status gain framing group (0.311 for the model that used the social competency measure, and 0.309 for the model that used the self-reported popularity measure), which illustrates that compared to the control group, respondents who received the status gain treatment scored higher than their status loss counterparts on the 'worth it' scale, which does not support the relationship described in H1. As well, in the models predicting 'likelihood' of engaging in cannabis-impaired driving (Model 2 in Table 2.1, and Model 2 in Table 2.3), the coefficient in the status loss framing group (0.357 for the model that used the social competency measure, and 0.352 for the model that used the self-reported popularity measure) was higher than the status gain framing group (0.289 for the model that used the social competency measure, and 0.274 for the model that used the self-reported popularity measure), which illustrates

that compared to the control group respondents who received the status loss treatment were more likely than their status gain counterparts to cannabis-impaired drive, which supports H1.

Overall, these mirrored significant relationships in the models that predict the willingness of participants to engage in cannabis impaired driving could indicate that peer messaging using both status loss and status gain framing could make a young adult perceive a higher 'worth' or be more 'likely' to act as a cannabis impaired driver. In this regard, framing matters because these results could indicate that when peer messaging is framed as a status gain a young adult could perceive that it is 'worth it' to act as a cannabis impaired driver. By comparison, these results could also indicate that when peer messaging is framed as a status loss a young adult could be more 'likely' to act as a cannabis impaired driver.

Social Status and Peer Messaging – Impacts on Willingness to Engage in Impaired Driving Related Actions

In addition to the linear regressions above, this analysis included two sets of eight additional bootstrapped linear regression models including the interaction between self-reported social competency or perceived popularity and experimental condition (see Appendix C, Tables 3.0 – 3.1). The interaction effects in these models as well as the full set of controls were used to further examine the relationship outlined in RQ2 and RQ3 (interaction between social status and experimental condition on worth/likelihood of being an impaired driver or passenger):

Research Question 2: How does an individual's placement in the social hierarchy impact their willingness to engage in deviant/dangerous acts related to impaired driving when peers frame social consequences as status losses or status gains?

Hypothesis 2: Individuals with higher social status (i.e., high popularity) will be more influenced by potential status losses. Conversely, the decision-making of individuals with lower social status (i.e., low popularity) will be more strongly swayed by the possibility of status gains.
Research Question 3: Does the effect assessed in RQ2 differ across action type (i.e., alcohol-impaired driving, being driven by an alcohol-impaired driver, cannabis impaired driving, being driven by a cannabis-impaired driver)?
Hypothesis 3: Individuals with higher social status (i.e., high popularity) will be more influenced by potential status losses across all action types. Individuals with lower social status (i.e., low popularity) will be more influenced by potential status gains across all action types.

Alcohol-Related Models

In the regression models that used the self-reported popularity measure, there were no significant effects between the main variables in any of the alcohol action models. As well, in the regression models that used the social competency measure, there were no significant effects between the main variables in Model 1A predicting 'worth it' to alcohol-impaired drive or Model 2A predicting 'worth it' to be an alcohol-impaired passenger, however there were other significant results in Models 1B predicting likelihood to alcohol-impaired drive and 2B predicting likelihood to be an alcohol-impaired passenger. The variable of social competency was developed using the scale designed by Harter (2012) that prompts the respondent to complete five questions which self-report different elements of their social competency in their high school friend group and their broader high school environment (about making friends, social skills to make friends, peer acceptance, and more). The significant results between the main effect variables in the alcohol-related models that used the social competency measure are as follows.

In Table 3.0, Model 1B there is a significant relationship (p<=.05) between the interaction of social competency and experimental condition (status gain and status loss conditions) on likelihood to alcohol-impaired drive. Plots of this interaction were created to better understand the results (see Plot 1 in Appendix D). Based on this plot, compared to the control group, increased levels of social competency among those in the status loss and status gain experimental treatment groups resulted in higher scores on the 'likelihood' scale. These results suggest that people with higher social competency scores are more likely to drive under the influence of alcohol if there is either form of peer messaging (framed as loss or gain), than if there is no status loss or gain framed peer messaging. As well, between the status loss and status gain experimental treatment groups, respondents who received the status gain treatment who scored higher on the social competency scale had higher scores on the likelihood scale than their status loss counterparts. In other words, these results suggest that people with higher levels of social competency are more likely to say they will drive under the influence of alcohol if there is status gain to be had from their peers, compared with status loss. Overall, these results do not support the hypotheses (H2 and H3) because individuals who have higher social competency scores, who received either the loss or gain experimental treatment, are more likely to be an alcohol impaired driver than those with lower social competency in either group (with the high social competency status gain treatment respondents being the most likely). Despite this, given that in the other linear regressions discussed in the section above (that did not include the interaction effects), there were no significant relationships between social competency or experimental condition and likelihood to alcohol-impaired drive, the significant results of the interaction effects in Model 1B suggest that the interaction between social competency and experimental condition on likelihood to alcohol-impaired drive is more impactful than these main effects on the dependent variable individually.

Therefore, these results suggest that more socially competent people tend to state they would not be willing to engage in impaired driving in the absence of peers, however, in the presence of peers (and prompting from the peers to engage in the action) are more likely to state their willingness to drive impaired.

In Table 3.0, Model 2B there is a significant relationship ($p<=.05$) between the interaction of social competency and experimental condition (status gain condition only) on likelihood to be an alcohol-impaired passenger (see Plot 2 in Appendix D). Based on this plot, compared to the control group, increased levels of social competency among those in the status gain experimental treatment groups results in a lower level of 'likelihood' to be an alcohol-impaired passenger. These results partially support H2 and H3 because individuals who have higher social competency scores, who received the gain experimental treatment, are less likely to be an alcohol impaired passenger than those with lower social competency scores, suggesting that respondents with lower social competency were more swayed by the status gain treatment. Although because there is no significant predicted relationship between the interaction of social competency and loss experimental treatment on the likelihood to be an alcohol-impaired passenger, these results do not fully support H2 and H3. The significant results of the interaction effects in Model 2B suggest that the interaction between social competency and experimental condition of status gain on likelihood to be an alcohol-impaired passenger is more impactful than these main effects on the dependent variable individually. As well, these results suggest that status gain framing treatment may only significantly matter to individuals of higher social competency if they are taking the more active role of driver (which is a position of more leadership).

Cannabis-Related Models

In the regression models that used the self-reported popularity measure, there were no significant effects between the main variables in any of the cannabis action models, except for Model 3A (in Table 3.1). As well, in the regression models that used the social competency measure, there were no significant effects between the main variables in Model 4A and 4B predicting 'worth it' and likelihood to be a cannabis-impaired passenger, however there were other significant results in Models 3A and 3B (in Table 3.0). The significant results between the main effect variables in the cannabis-related models are as follows.

In Table 3.0, Model 3A there is a significant relationship ($p<=.01$) between the interaction of social competency and experimental condition (status gain condition only) on the 'worth' to be a cannabis-impaired driver (see Plot 3 in Appendix D). Similarly in Table 3.0, Model 3B there is a significant relationship ($p<=.05$) between the interaction of social competency and experimental condition (status gain condition only) on likelihood to be a cannabis-impaired driver (see Plot 4 in Appendix D). A similar outcome is found in the significant results in the Model that used the self-reported popularity measure. In Table 3.1, Model 3A there is a significant relationship ($p<=.05$) between the interaction of self-reported popularity and experimental condition (status gain condition only) on likelihood to be a cannabis-impaired driver (see Plot 5 in Appendix D). All these plots illustrate the same general results: that compared to the control group, increased levels of social competency among those in the status gain experimental treatment groups results in a higher score on the 'likelihood' or 'worth it' scale. These results in both Model 3A and 3B in Table 3.0 and Model 3A in Table 3.1 do not support H2 and H3, because individuals who have higher social status (measured with either the self-reported social competency measure or the popularity measure), who received the gain experimental treatment, scored higher on the 'worth it' or

likelihood scales than those who had lower social status. This indicates that individuals with higher social status are more swayed by status gain framing, which does not support H2 and H3. As well because there is no significant predicted relationship between the interaction of social status and loss experimental treatment on the 'worth' or likelihood of being a cannabis-impaired driver, these results do not fully support H2 and H3.

Final Conclusions on the Interaction Between Social Status and Peer Messaging

Cumulatively, viewing these results alongside the linear regressions without interaction effects in the section above provides further insight into the results of these interaction effect models. Above in the linear regressions (Model 1 and Model 2 in Table 2.1) there are significant relationships between experimental condition and 'worth' or likelihood to be a cannabis impaired driver. As well, in the interaction effect models (Model 3A and Model 3B in Table 3.0), there are similar results indicating significance in the status gain experimental treatment group. These similarities could indicate that experimental treatment could have an impact on the likelihood of being a cannabis impaired driver with and without social competency (i.e., status gain framing increases 'worth' and likelihood with and without the interaction of social competency). Also of interest is that because there were no significant relationships between social competency or experimental condition and likelihood to engage in alcohol-impaired driving or being an alcohol impaired passenger in the linear regressions without interaction effects, the significant results of the models with interaction effects in Models 1B and 2B suggest that the interaction between social competency and experimental condition on likelihood to alcohol-impaired drive is more impactful than these main effects on the dependent variable individually. Furthermore, these results suggest that more socially competent people tend to state they would not be willing to engage impaired

driving in the absence of peers, although, when prompted by their peers to engage in the action, they are more likely to state their willingness to drive impaired. In other words, these results suggest that social status matters when we are seeking to study how peers influence deviant and dangerous decision-making. In fact, these results suggest that the interaction between social status of the respondent and receiving an experimental treatment may more significantly affect their perceived 'worth' or likelihood of engaging in impaired-driving related actions (especially related to the alcohol). Given that people who are more socially competent are generally more in tune with the wants or needs of their friends, their higher willingness to engage in behaviours that are consistent with what the peer group wants is not surprising.

Self-Control, the Level of Friends' Deviance, and Personal Cannabis Use

There are a few overall trends that are worth noting related to self-control, the level of deviance within a respondent's friend group, and personal cannabis use, that are present within the linear regression models predicting all impaired driving action types. The following is a general overview, for more specific information see Appendix C, Tables 2.0 – 2.3 and Tables 3.0-3.1.

Self-Control

Having lower levels of self-control was commonly significantly associated with a higher score on perceived 'worth' or likelihood scales (such significant associations were present in fourteen of the sixteen models without interaction effects) when controlling for other elements in the respective models. As well, in the two sets of eight linear regressions with interaction effects that include the social competency variable (Table 3.0) and self-reported popularity variable (Table 3.1), fourteen of sixteen regressions showed a significant relationship between respondent self-

control and the 'worth' or likelihood of engaging in impaired driving/passenger actions, indicating that having lower self-control also increased the respondent's perceived 'worth' or likelihood of engaging in impaired driving/passenger actions when controlling for all other variables in the model. These results align with literature highlighting the correlation of self-control and deviance.

Level of Friends' Deviance

Within all eight models predicting the 'worth' or likelihood of cannabis-impaired actions (not in the alcohol related models), having friends with higher levels of deviance was significantly ($p<=.01$) associated with an increase in the perceived 'worth' or likelihood of engaging in impaired driving or passenger actions, when controlling for other elements in the respective models. Similar trends with the variable indicating the level of deviance of the respondent's friend group, where twelve of sixteen regressions (all models for both alcohol and cannabis related actions, except for 1A and 1B in both Table 3.0 and Table 3.1) showed a significant relationship between friend's level of deviance and the 'worth' or likelihood of engaging in impaired driving/passenger actions. Overall, these significant relationships suggest that having more deviant friends is associated with higher levels of perceived 'worth' or likelihood of impaired driving. The relationship between friend level of deviance and perceived 'worth' or likelihood is interesting when viewed alongside the significant relationships between experimental condition and perceived 'worth' or likelihood that are also present in the cannabis-impaired driving models. Overall, these significant relationships indicate that peer behaviour may increase the perceived 'worth' or likelihood of engaging in impaired driving related actions.

Personal Cannabis Use

Within the models predicting the 'worth' or likelihood of being a cannabis-impaired driving or passenger, in all eight models having a higher level of personal cannabis use is significantly ($p<=.001$) associated with higher levels of perceived 'worth' or likelihood of engaging in impaired driver or passenger actions, when controlling for other elements in the respective models. Also, in the eight cannabis-focused models with interaction effects (Models 3A-4B in both Table 3.0 and Table 3.1), personal cannabis use was significantly ($p<=.001$) related to increased levels of perceived 'worth' or likelihood in engaging in cannabis-impaired driver/passenger actions in all models, when controlling for all other variables in the model and is notably similar to the results in Tables 2.0 – 2.3. Cumulatively, these results indicating a relationship between personal cannabis use and perceived 'worth' or likelihood in the cannabis-related models are interesting because personal alcohol use is not significantly associated with perceived 'worth' or likelihood in any of the alcohol-related models.

Supplementary Analysis: Further Exploring the Effects of Social Status and Peer Messaging on Willingness to Engage in Impaired Driving Related Actions

As part of a supplementary exploratory analysis, eight models were estimated with the self-reported social competency mean score variable (instead of running another eight models with the self-reported perceived popularity in school network variable). The purpose of this exploratory analysis is to examine any differences between the DAG-informed regressions and the other linear regressions that are part of the main analysis. The DAG-informed analyses were completed using the minimum sufficient adjustment set (MSAS) of control variables required to close all backdoor

biasing pathways (gender identity, race and ethnicity, self-control (mean score), and household income). In the DAG-informed linear regressions (see Appendix C, Tables 4.0 – 4.1), there was only one significant result among the main effect variables.

In Table 4.1, Model 2 there is a significant relationship ($p<=.05$) between the experimental condition (status loss experimental treatment only) on the likelihood to be a cannabis-impaired driver. As such, compared to respondents in the control group, respondents who received the status loss treatment indicated they were more likely to be a cannabis impaired driver (0.316 units more than the control group, $p= 0.028$, $R^2=0.066$), when controlling for all elements in the model, including social competency. In the non-DAG-informed linear regression testing the same effects (Model 2 in Table 2.1), both status loss ($p=0.009$) and status gain ($p=0.040$) experimental treatments were significant. In both sets of models, the direction of the status loss coefficient is the same (suggesting that status loss experimental treatment is associated with higher likelihood of being a cannabis-impaired driver, when compared to the control group). These similarities indicate that these two models generally share the same story when it comes to significance.

Although, importantly, the difference in significance between the status gain treatment between the two models (where it is significantly related to likelihood in the linear regression, but not in the DAG-informed linear regression) is important to note and could indicate that these cannabis-impaired driver models are more model dependent. Furthermore, when it comes to the other Models in Table 4.0 and Table 4.1, there are also other significant effects in the non-DAG-informed models that do not appear to be mirrored in the DAG-informed models. The significant effects in Model 1 (in Table 2.1) suggest that status loss ($p=0.028$) and status gain ($p=0.020$) experimental treatments are associated with higher 'worth' of being a cannabis-impaired driver, when compared to the control group. In the DAG-informed models, there are no such significant

effects predicted. Cumulatively, these differences in significance between some of the DAG-informed and non-DAG-informed regressions could be explained in a few different ways, as follows.

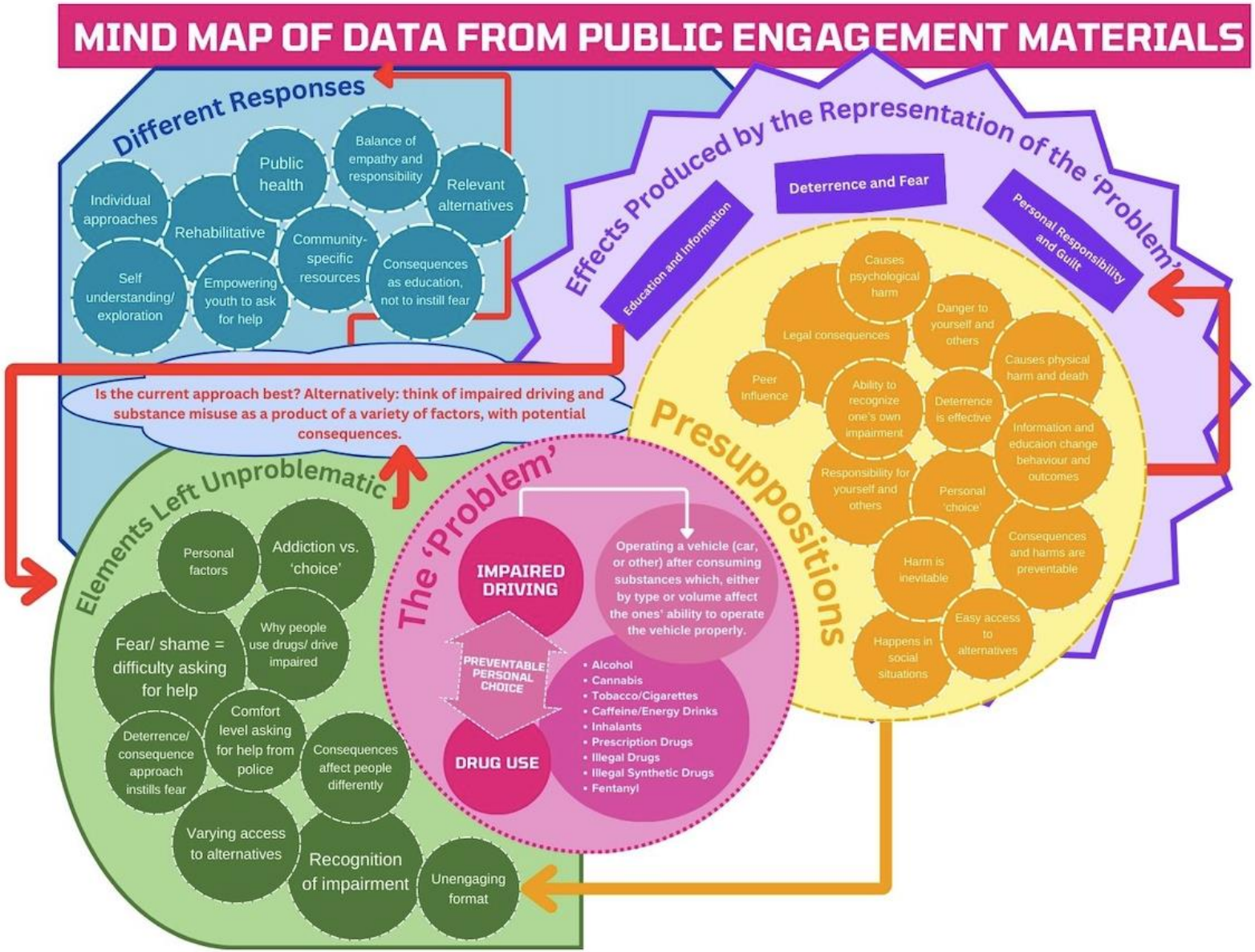
Assuming the logic behind using a DAG to determine the MSAS is correct, these differences indicate that the other linear regressions, in accounting for too many confounding variables, are producing inflated significance results. I think that these fluctuations of results between modelling approaches indicate that the cannabis-impaired driver models are more model dependent. Given that these results are less stable with different modeling approaches, it reduces confidence in the results of these models specifically, and hopefully future research can further investigate the relationships between social status, peer messaging, and willingness to engage in cannabis-impaired driving to better our understanding of the significance of these relationships. However, given that the other DAG-informed and non-DAG informed models generally tell the same story of significance and association, it increases the trustworthiness of the alcohol-related linear regression models and linear regression models with interaction effects. Therefore, the significant results that emerged in the non-DAG linear regressions with interaction effects support the underlying idea that the interaction between social status and peer messaging is more impactful on a respondents' willingness to engage in the action, than the two variables independently.

Chapter 3: Thematic Analysis

The materials for this analysis are specifically made for or recommended to youth and were retrieved from two sources: the Royal Canadian Mounted Police (RCMP) and Mothers Against Drunk Driving (MADD). A total of 22 materials (including lesson plans, infographics, topic pages, videos, and more) were analysed and obtained from 'Impaired Driving' and 'Drugs and Alcohol' sections of the RCMP Center for Youth Crime Prevention website (Royal Canadian Mounted Police, n.d.). A total of 24 materials were analysed and obtained from the 'Youth Awareness' section of MADD website and includes a variety of materials (such as topic pages, videos in 'Public Awareness Videos' tab, and 'Youth Posters' under 'Posters' tab, and more) (Mothers Against Drunk Driving, n.d.). These materials were selected to complement the underlying concepts within the survey experiment by examining a different aspect of youth impaired driving. In this way, the materials were designed for a similar age range as the survey, and through the analysis of these materials I uncovered the ways that impaired driving is understood and conveyed by these agencies (MADD and RCMP) and represented to the public (as well as the ways that it is not represented). Five questions were adapted from the work of Bacchi (1999) and used to guide this qualitative analysis of program materials related to impaired driving. The results related to each of these questions are discussed below and represented visually in Appendix A, as well as below.

Note that the results depicted visually in Appendix A and below were used as a method for me to understand my findings. The development of this graphic was used as part of the analysis process to better understand how different themes across and between different materials and sources interrelate to each other. While it may be used as a way to visually understand the data and

results detailed below, the graphic's main purpose is not to be used for the dissemination of results, rather it is an important part of my analysis process that I have chosen to include.


MIND MAP OF DATA FROM PUBLIC ENGAGEMENT MATERIALS
Different Responses
Individual approaches
Public health
Balance of empathy and responsibility
Relevant alternatives
Rehabilitative
Community-specific resources
Self understanding/ exploration
Empowering youth to ask for help
Consequences as education, not to instill fear
Effects Produced by the Representation of the 'Problem'
Education and Information
Deterrence and Fear
Personal Responsibility and Guilt
Causes psychological harm
Danger to yourself and others
Legal consequences
Causes physical harm and death
Peer influence
Ability to recognize one's own impairment
Deterrence is effective
Information and educaion change behaviour and outcomes
Responsibility for yourself and others
Personal 'choice'
Consequences and harms are preventable
Harm is inevitable
Easy access to alternatives
Happens in social situations
Presuppositions
Is the current approach best? Alternatively: think of impaired driving and substance misuse as a product of a variety of factors, with potential consequences.
Elements Left Unproblematic
Personal factors
Addiction vs. 'choice'
Fear/ shame = difficulty asking for help
Why people use drugs/ drive impaired
Comfort level asking for help from police
Deterrence/ consequence approach instills fear
Consequences affect people differently
Varying access to alternatives
Recognition of impairment
Unengaging format
The 'Problem'
IMPAIRED DRIVING
Operating a vehicle (car, or other) after consuming substances which, either by type or volume affect the ones' ability to operate the vehicle properly.
PREVENTABLE PERSONAL CHOICE
DRUG USE
• Alcohol
• Cannabis
• Tobacco/Cigarettes
• Caffeine/Energy Drinks
• Inhalants
• Prescription Drugs
• Illegal Drugs
• Illegal Synthetic Drugs
• Fentanyl

What is the problem?

Within all MADD materials the central 'problem' is impaired driving, with most materials defining the problem more generally and other materials focusing on specific types of impairment and using marijuana-specific or alcohol-specific messaging. In this way, either through text or imagery in every material analysed the central focus was impaired driving, which is not surprising because that is what the entire MADD cause is dedicated to.

Similarly, within RCMP program materials the 'problem' was most often impaired driving, however, there were materials included in this analysis where the primary 'problem' was drug or substance use more generally and impaired driving was not mentioned specifically (although these materials detailing the consequences of substance-use were linked as additional information related to impaired driving programming). For example, there were drug info sheets (*What is Fentanyl*, 2016; *Prescription Drugs Summary Chart*, 2013; *Illegal Synthetic Drugs Summary Chart*, 2013; and more), which outline the ways in which a particular substance or substance type (i.e. fentanyl, prescription drugs, synthetic drugs, etc.) can cause impairment.

In both the MADD and RCMP materials, there is drug-specific or alcohol-specific messaging which centered the dangers and consequences for engaging in drug and alcohol consumption. However, the key difference between the two sources is that the MADD materials always discussed drug use as a secondary connected aspect in relation to the primary 'problem' of impaired driving, whereas the RCMP materials would sometimes discuss drug/alcohol use as a primary 'problem' and discuss impaired driving as a secondary connected element related to the dangers of impairment. Both sources defined impaired driving similarly – most often discussing impaired driving as operating a car while under the influence of substances, although a few

materials from each source also discussed the operation of other vehicles while impaired (such as bicycles, or electric scooters) as falling under the category of impaired driving.

Importantly, materials from both sources almost always represent the problem(s) as preventable and a personal choice that people make. Representing impaired driving and drug use in this way is indicative of certain presuppositions that underlie the representation, as well as creates certain effects. These presuppositions and effects are discussed below.

What presuppositions underlie the representation?

Overall, when examining the presuppositions that underlie the representation of the problems of impaired driving and drug use described above, the primary presupposition that emerged is that impaired driving and drug use is a personal 'choice.' This presupposition is made evident through the language of blame and personal responsibility, as well as intertwines within other common presuppositions, such as the ideas that impaired driving and drug use are dangerous and have legal consequences. The ways that these presuppositions are present within the materials of both sources (MADD and RCMP), along with other less common presuppositions are discussed below.

Within the MADD materials, the most common presupposition aside from personal choice, was that impaired driving is dangerous and leads to physical and psychological harm and death. The presupposition of harm and death was articulated most strongly within the videos, which often included personal anecdotes from people who have been affected by impaired driving (as a victim, perpetrator, or family member or friend of a victim or perpetrator). These anecdotes commonly emphasized the lasting harms of the action of impaired driving and articulated how incidents where people are killed in impaired driving related accidents permanently affect individuals, families,

and communities. The presupposition of harm and death was also present in other materials such as the 'Contract for Life' which is a contract for parties to sign indicating they will not use substances and operate a motor vehicle (*Contract for Life*, n.d.). The signing of this contract 'for life' presupposes the dangers associated with impaired driving and simultaneously assigns parties personal responsibility for their own safety, inviting them to choose safer alternatives. The 'Contract for Life' is one of many MADD materials, which beyond the presupposition of the potential for dangers arising from impaired driving also presupposes that the consequences of impaired driving are preventable – assuming that people make a choice to engage in this action (either as a driver or passenger), and also make a choice to stop the actions of others.

Other examples of these presuppositions of personal responsibility and choice are found in the aforementioned YouTube videos such as 'Lives Lost', which features an emergency room doctor who discusses what people go through in the emergency room after being in an accident related to impaired driving (MADD, 2015c). The doctor in this video discusses how these instances are choices and situates sometimes invasive medical procedures as potential consequences of this choice. These presuppositions about impaired driving as a choice are intertwined with presuppositions about young people: that they are inexperienced drivers, immature, and do not appreciate the harm their actions related to impaired driving could cause. Further related to age, these MADD materials describe a consistent image of impaired driving and of the impaired driver, which presuppose that impaired driving happens mostly at night and is related to social situations; and the impaired driver is presupposed to be a young male, who does not think through the potential for his actions to cause harm. Importantly, the inclusion of social events with peers as a location or setting from which youth may make the 'choice' to drive impaired presupposes that peers are connected to impaired driving – although this is not a connection that is elaborated on in

great detail. The overall depiction of the 'impaired driver' is illustrated within several of the impaired driving posters as well as within a few of the YouTube videos, for example in the poster 'One more for the road' features a young man who does not make it to graduation because he engages in impaired driving (*One more for the road,* n.d.). As well, there are specific resources dedicated to having a safe prom, and alluding to how driving impaired can ruin prom night (*Safe Prom*, n.d.; *Prom,* n.d.).

Several of these materials also highlighted that impaired driving is a crime and presupposes that people who impaired drive will be deterred by the legal consequences for engaging in the action. For example, the poster 'Think Before You Drink and Drive' centers the fines and legal consequences by featuring them on a beer bottle in the center of the poster, with other facts about impaired driving that highlight the number of deaths resulting from impaired driving (*Think Before You Drink and Drive*, n.d.). It is clear that most of these materials intertwine several of these presuppositions. Often the presupposition that impaired driving is a personal choice is connected to the themes related to danger and death. As well, themes of personal choice and danger are connected to age – with materials situating age as a reason why young people make the 'bad' choice to engage in impaired driving that led to dangerous outcomes.

Within the RCMP materials, the most common presuppositions were that the 'problems' of impaired driving or drug use is illegal and dangerous and have health related consequences. For example, several materials linked to the impaired driving content were info sheets about different types of substances that can cause impairment. These info sheets were often represented in a chart form, which included symptoms and consequences of using different substances, such as fentanyl, caffeine, synthetic drugs and more. Furthermore, similar to the MADD materials, several of the RCMP materials related to impaired driving presuppose that impaired driving is preventable and

is a ‘choice’ that people make. In this way, the materials related to drug use encourage youth to make good choices, which indicates the presupposition that drug use is preventable when people choose not to engage (or use legal drugs responsibly). These presuppositions were made evident within the youth lesson plans, where there are activities dedicated to helping youth making good or safe choices (*Lesson Plan (Grades 9 to 12) Drug-Impaired Driving Overview*, n.d.; *Lesson Plan (Grades 9 to 12) Preventing Drug-Impaired Driving*, n.d.; and more). These activities included how to get out of social situations related to impaired driving or drug use that may be dangerous and how to find alternative ways to get home. These exercises that include social situations are tied to the presupposition that peers have the ability to influence a person’s choice to drive impaired. This presupposition is illustrated by the quiz ‘How Much Influence Do You Have?’ which seeks to tell youth how susceptible they are to peer influence and provide strategies for being less susceptible if applicable (*How Much Influence Do You Have?*, n.d.). The inclusion of this quiz indicates the presupposition not only that peer pressure and social situations can be conducive to impaired driving and drug use among youth, but also that becoming aware of one’s own susceptibility to influence could perhaps help youth change and make different choices. Therefore, these materials such as the quiz and lesson plans intertwine presuppositions that drug use and impaired driving are a personal ‘choice’ and responsibility, are dangerous, and that these situations frequently occur in social/peer situations.

Alongside notions of personal responsibility there is the frequent discussion of legal consequences, which has several presuppositions attached to it. Firstly, the presentation of legal consequences presupposes that articulating these consequences will act as a deterrent for the behaviour. To this effect, the video ‘Shattered’ (RCMP, 2018) sends the message to youth that these legal consequences related to impaired driving can forever negatively impact a person’s life,

which underscores the idea that these harms to one's livelihood or freedom are deterrents. Additionally, similar to the MADD materials, several of these presuppositions within the RCMP materials are intertwined together within individual materials. In this way, often the discussion of legal consequences is portrayed alongside the medical (physical and psychological) harms that can arise from illegal drug use and legal drug misuse, as well as impaired driving, which ties into the presuppositions that youth are considering these consequences when engaging in these actions, as well as that youth would find legal sanctions or the potential for harms to others as a deterrent for their behaviour.

Cumulatively, the presupposition that underlies these materials from both MADD and the RCMP is that by drawing attention to the possible harms and element of personal choice, youth will 'choose' not to engage in impaired driving. Furthermore, the inclusion of social events with peers as a location or setting from which youth may make the 'choice' to drive impaired presupposes that peers are connected to impaired driving – although this is not a connection that is elaborated on in great detail. Importantly the presuppositions that these elements of danger and legal consequence are deterrents that could change someone's willingness to engage in impaired driving never exist without being intertwined with the presupposition of personal 'choice' because the presuppositions of legal consequences and potential danger as deterrents have undertones of personal blame and personal responsibility. Therefore, the presupposition of personal 'choice' emerges as the primary presupposition both in terms of the frequency of its appearance in the materials and as its significance as irremovably intertwined with the other main presuppositions.

What effects are produced by this representation?

The aforementioned presuppositions that underlie the representation of the 'problem' create certain effects, which I have grouped into three main themes: education and information, deterrence and fear, as well as personal responsibility and guilt.

Within the MADD materials, regarding the theme of education and information, some materials offer alternatives to impaired driving, as well as provide explanations of the definitions related to impaired driving and information about the consequences of engaging in impaired driving under the (presupposed) effect that information and education is an effective deterrent. For example, in the YouTube video 'Lives Lost' (MADD, 2015c) an emergency room doctor takes an educational approach to the discussion of impaired driving and describes the frequency and types of injuries resulting from impaired driving. Through the doctor's discussion of the types of treatments and injuries in the emergency room, this effect of education and information about the physical harms of impaired driving is overshadowed by the effects of deterrence, fear, and personal responsibility when the 'problem' is situated by the doctor as a preventable 'choice'. In this way, the educational elements of the doctor's discussion of consequences are overshadowed by fear-evoking consequences to making the 'choice' to impaired drive such as: getting sued, parents divorcing, getting a criminal record. Although this is one example, importantly, the majority of the MADD materials produce deterrence, fear, personal responsibility, and guilt as primary effects, with the effects of education and information as secondary – which can be seen as a product of the presupposition that impaired driving is a preventable choice that a person makes.

To further this effect, in materials such as the videos, the imagery, music, and speech or text have the effect of evoking fear, sadness, and guilt through education and information about

the severity of the legal, moral, physical, and emotional consequences for engaging in impaired-driving related actions. For example, within several MADD videos there are a series of images of people who have lost their lives in impaired driving-related accidents and/or surviving family members discussing how they lost their loved one(s) to an impaired driving accident, which make death and psychological harm feel frequent and inevitable. The frequency and inevitability of death and harm in combination with the discussion of personal responsibility for oneself and others produces the effect of sadness but also effectively puts the onus of personal responsibility on the viewer. Information about impaired driving and its consequences are used primarily as tools to deter people from engaging in the action and is a manifestation of the presuppositions that impaired driving and associated harms are preventable, and alternatives are available.

In order to produce the effects of personal responsibility and guilt as well as deterrence and fear within several of these materials, youth are effectively portrayed as a victim or as a threat to themselves and others, often simultaneously, and through this representation young people are encouraged to make good choices in order to not harm others and avoid a plethora of negative consequences. For example, in the YouTube video 'Prisoners for Life' (MADD, 2015e), a group of teens are at a party and their designated driver smoked at the party and could not drive them home, so they end up getting a ride from a stranger who then crashes the car and the main character's sister dies. In this way, young people are depicted in contradictory ways as both victim and perpetrator, as finding alternatives but not making good choices, and as responsible but also irresponsible. These contradictory depictions of youth once again push the effects of education and information to the background, and center the effects of personal responsibility and guilt, as well as deterrence and fear.

Overall, most materials place the onus on youth to make 'good' or 'safe' choices, although there are some materials that place the onus on parents for their children's actions. For example, the PDF 'Safe Prom' (*Safe Prom*, n.d.) which is geared towards parents, placing the onus on them to be aware of and prevent 'bad choices' their children may make – which again center the effects of fear, deterrence, personal responsibility, and guilt, pushing education and information to the background. Cumulatively, the effects produced by the representation of the 'problem' of impaired driving within MADD materials are primarily deterrence and fear, as well as personal responsibility and guilt, and secondarily education and information.

The RCMP materials similarly demonstrate many of the same elements as the MADD materials: education, information, deterrence, fear, personal responsibility, and guilt. These relate to both 'problems' of impaired driving and drug use. Compared to the MADD materials, the effects of information and education are sometimes primary effects in the RCMP materials, and produced through several materials focusing more heavily on facts and statistics which share medical and legal consequences and dangers for engaging in these actions. For example, the topic pages about different substances that can cause impairment (*What is Fentanyl*, 2016; *Prescription Drugs Summary Chart*, 2013; *Illegal Synthetic Drugs Summary Chart*, 2013; and more), focus on facts about what the substance can do to the body, side effects, and more – they do not include any discussion about 'choice', personal responsibility, or teach youth an explicit moral lesson. Although, these fact sheets focus mostly on the 'negative', 'overdose', or 'impairment' indicators of the use of the substance, which could be seen as an unbalanced or 'negative' overview of substances such as caffeine or cannabis. In these representations it could be argued that at face value, the effects of deterrence and fear as well as personal responsibility are secondary to information and education, however they are still very intertwined. In this way, because the

information is presented as solely facts, the effects of education and information appear to be centered, however the severity of some of the side effects of the substances also induce the effects of fear, deterrence, and personal responsibility due to their severity or unsettling nature.

Also related to the effect of information and education, many materials include statistics on the legal and physical consequences of impaired driving, about how many people are arrested for impaired driving, or the physical effects that drugs have on the human body that range from impairment to causing death. For example, there are quizzes included in the lesson plans about consequences, as well as topic pages about impaired driving investigations, which also includes language and effect similar to MADD about impaired driving as a 'choice'. Importantly, in framing the information in this way, these materials while providing information and education, also have the effect of fear and deterrence by emphasizing the negative physical and legal consequences.

Further related to rhetoric about 'choice' is the video 'Shattered' (RCMP, 2018) which details a personal story about how drug use and impaired driving forever altered a person's life, depicting drug use and impaired driving as preventable choices with very serious legal and personal consequences. Representing the 'problems' in this way have primary effects of fear and deterrence and personal responsibility, while education and information become secondary effects. Importantly, representing the 'problems' in these ways that center deterrence and personal responsibility are products of the RCMP's presuppositions: that a discussion of consequences and potential bad outcomes act as deterrents, that by engaging in the actions a person is a danger to themselves and others, and that harm is inevitable. Therefore, these materials seek to deter youth from engaging in dangerous actions through highlighting the consequences. However, this effect of deterrence also has the effect of fear intertwined with the effect of personal responsibility.

In this way, similar to MADD materials, the RCMP materials also have the effect of reminding youth of their role in making 'choices' that positively affect their life trajectory, but RCMP materials focus more heavily on education and deterrence to avoid legal sanctions. Avoiding bodily and psychological harms are situated as a more secondary consequence in the RCMP materials, while MADD materials are almost always primarily focused on non-legal harms. Cumulatively, these representations of impaired driving (MADD and RCMP) and drug use (RCMP) have the effect of placing the onus mostly on youth to think through their actions to avoid consequences and harms to themselves and others.

What is left unproblematic in this representation?

Above, the way that RCMP and MADD materials have the effect of placing the onus mostly on youth to think through their actions to avoid consequences and harms to themselves and others is discussed. The elements in these materials that remind youth of the consequences of their actions and their role in making 'good choices' also have the effect of instilling personal responsibility and potentially guilt. In this way, the emphasis of legal consequences and potential danger as deterrents have undertones of personal blame and personal responsibility through the discussion of 'choice' and alternatives. The ways that these representations of the problem and their effects leave certain elements unproblematic is discussed below.

Several of the individual MADD materials do not provide a full picture of the problem. While this may not always have been their intention (i.e., for posters which may only focus on one type of impaired driving), within these gaps there is a missed opportunity for knowledge sharing and education, as well as the ability for the materials to be relatable to a wider audience of youth and equip them with the tools and education they need to make good 'choices'. For example, in

the posters related to cannabis use, most posters consisted of an image of a far-fetched situation, such as driving the car up an airport runway (*Runaway - If You're High, You Can't Drive*, n.d.), with few words relaying that one should not drive high. The poster may be attention grabbing, but what is left unproblematic is whether the poster will be relatable to youth, or shrugged off because the message seems ambiguous and the situation seems far-fetched to the point where it affects how seriously the message is taken. It may also provide youth with the impression that, if they are not engaging in a comparably niche action, that their behaviour will not have the same consequences.

Furthermore, if people have consumed too much of a substance to the point of impairment, what is left unproblematic is whether they are truly making a 'choice' to get behind the wheel or get into a car with someone, or if they are too impaired to make a rational, 'good choice'. Especially considering these materials are geared towards youth, placing the onus on youth to recognize their own impairment and the impairment of others is left unproblematic in most of these materials. Focusing on extreme situations (such as in the posters) is not only unrelatable, but may confuse youth who may find themselves impaired but not as impaired as the example in the poster or video and think that they are not impaired. Also left unproblematic is that someone who is a passenger in an impaired driving situation may be unaware of the driver's state, the driver may be unaware of their own impairment, or the driver may lie. Therefore, through the aforementioned presuppositions about personal choice, what is ignored is whether people are truly able to make informed choices when substance use is involved, especially youth with less life experience. Furthermore, there is not a lot of discussion about other personal factors such as addiction issues that can lead a person to engage in impaired driving or substance use. In this way, there is a missing element in these materials related to why young people consume substances in the first place, and by placing the onus on young people and discussing substance use as a 'choice', this removes

sympathy for young people who may be struggling with addiction issues and further alienates them from the conversation and instills guilt.

Similarly, there was not much discussion about how legal consequences or access to social services (related to addiction and mental health) are not equally applied and accessible to all populations in society (including BIPOC and LGBTQIA+ people). This unequal distribution of access to services was discussed in the YouTube videos 'Honouring Our Spirit Part I and Part II' (MADD, 2008a; MADD, 2008b) where members of an Indigenous community shared how increasing access to these services would greatly reduce the substance use and impaired driving within their specific community.

Furthermore, the monetary consequences such as fines and travel restrictions discussed in a few posters and videos are presumed to be deterrents, but importantly monetary deterrents do not affect everyone the same way: impacts vary depending on a person's socioeconomic background. Also left unproblematic and undiscussed is the role of social media and how wanting to belong impacts a young person's desire to engage in drug use and impaired driving. Underaged and irresponsible drinking and drug use is normalized in lots of the media young people consume, whether it be television shows and movies, or Hollywood celebrities – the normalization of this behaviour and the way it impacts a person's ability to 'choose' safer options is not discussed or considered by these materials.

Within the RCMP materials specifically, left unproblematic is the digestibility of the formatting of some of the materials that are geared towards youth. While several of the activities, infographics, and topic pages are clearly meant to be engaging, the layout of a few of the RCMP materials seems inaccessible to youth and did not present the information in an easily digestible manner, which is a core component of materials that are suited for public engagement. For

example, the topic pages about different types of drugs and substances that can cause impairment are included in a black and white table form, there are no pictures or personal engagement (see *Alcohol*, 2016; *Caffeine/Energy Drinks*, 2016; and more). These materials do relay information, but the format is not geared towards the target demographic, which could lead to the information not being retained.

Additional elements left unproblematic related to the consumption of information include how some elements that are meant to act as educational deterrents may have opposite effects. As discussed in the MADD materials, the message is sometimes ambiguous or the situation presented is far-fetched, which can affect how seriously the message is taken. For example, in one of the RCMP Lesson Plans there is an activity where youth try on a set of glasses that simulate what it looks like to be intoxicated (*Impaired Driving Lesson Plan (Grades 11 and 12),* n.d.). This activity simulating impairment may provide the wrong message and impression about impairment – that if after drinking or smoking a youth can see better than they did in the simulation they are not impaired. This example relates to another element that is left unproblematic that was also discussed in relation to the MADD materials – the assumption that youth will be able to recognize their own impairment, and even the impairment of others, or be able to stop it (or call someone to stop it or get help).

Related to asking for help and seeking alternatives, there are not full discussions about the availability of alternatives within these materials. Alternatives (public transit, taxi, safe ride, etc.) are only regionally applicable with youth in cities being more likely to use these suggestions as viable alternatives, whereas youth in rural areas may not have a public transit system or have a taxi service. Also left unproblematic is that youth may not have the ability to arrange a safe ride home or feel comfortable contacting emergency services. Several of the RCMP materials offer the

solution for youth to contact law enforcement if they get into trouble or need help making a good 'choice', which leaves unproblematic that not all youth may feel comfortable or safe to call police for help (especially if they belong to a marginalized group, have prior negative experiences with police, or have become fearful of sanctions after being informed of all the potential legal consequences for engaging in drug use or impaired driving). In this way, taking a danger-oriented approach whether it is through frequent emphasis of the legal consequences or physical harms, or other consequences, can make a youth less likely to ask for help when they need it because they may worry they would get into trouble.

Finally, overall in materials from both sources, the role of peer influence in impaired driving scenarios is rarely elaborated on in detail – how peers connect to impaired driving is largely left unaddressed. The only resource that discusses peer influence in detail is the aforementioned quiz on the RCMP website 'How Much Influence Do You Have?' (*How Much Influence Do You Have?*, n.d.) which tells youth how susceptible they are to peer influence. This seems to indicate that the effect of peer influence fluctuates depending on the youth's role in their friend group (for example, as a leader or follower). The omission of any other detailed discussion or representation of how peers actively influence impaired driving is left unproblematic. Considering that peers tend to be in the background of posters and videos, or that impaired driving is implied to stem from youth leaving social situations, this omission seems important. In connection to the omission of how peers relate to impaired driving, is also how peer influence connects to the overarching narrative of personal choice, and leaves an important question unanswered – can a youth be influenced by their peers to impaired drive and make an independent, personal choice to drive impaired at the same time? Furthermore, if there is an indication of an assumption that youth are

differently susceptible to peer influence depending on their role in the friend group, then how social status or popularity relates to impaired driving is also omitted and left unproblematic.

Cumulatively, the alternatives and solutions presented in these materials are not going to resonate with all youth. As well, the emphasis of impaired driving and drug use as a personal choice, which is present throughout most of the materials often explicitly such as in the 'Now it's Your Choice' activity at the end of the Lesson Plan about drug use and addiction (*Drugs: Use, Abuse and Addiction - Lesson Plan (Grades 9 & 10)*, 2018), may also confuse and isolate youth. Several elements are left unproblematic in the MADD and RCMP materials, including how 'choice' factors in with conflicting elements of addiction, different access to social services, access to viable alternatives, willingness or ability to ask for help, social media and the normalization of substance use, and the ability to recognize impairment.

How may 'responses' differ if the 'problem' were thought about or represented differently?

Because there is overlap between the effects, presuppositions and elements left unproblematic, the subsequent discussion of how responses may differ if the 'problem' were thought about or represented differently will speak to the materials and sources generally.

If the problem of impaired driving (or drug use) was thought of and represented as less of a personal choice and more as the product of different life circumstances, socialization, pressure, and substance use issues there could be more of a health and rehabilitative approach taken. In this way, by de-emphasizing personal choice and harsh sanctions or consequences (and instead having these effects as secondary to education and general responsibility), this would create a less personal-blame-oriented approach that could make youth feel safer to seek out help for themselves and for others when needed. Said another way, the frequent narrative about the 'problem' as a

personal choice with severe, seemingly inevitable consequences, creates fear and a sense of personal responsibility, versus how emphasizing other effects as primary effects could potentially create empowerment with personal responsibility. Empowering youth with information in combination with a focus on alternatives that are relevant and practical for youth, rather than the consequences (legal, moral, physical), could assist in reducing rates of impaired driving, normalize the use of easily accessible alternatives, and make youth feel confident in accessing these alternatives – rather than fearful.

In further discussion of making the information more accessible and relevant to youth, the physical formatting of the information matters. Therefore, for some of the less engaging, densely formatted materials or for some of the materials that include far-fetched scenarios, if the problem were represented through words, images, text, etc., in a way that was more tailored to youth it may encourage more youth to engage with the message in the materials and help them remember the information. In this way, it could be beneficial to replace the far-fetched scenarios with scenarios that are relevant and accurate to the impact of social situations and peers can have on impaired driving. As aforementioned in the section above, discussions of peer influence and popularity or social status are rarely discussed explicitly in the RCMP and MADD materials. Given that the results of the survey experiment (see Chapter 2) suggest that the interaction between social status and peer messaging framing can impact a person's willingness to engage in impaired driving related actions, the inclusion of this type of programming is relevant to youth. This omission creates a barrier for youth to absorb the information being provided to them because part of their experience is missing. As well, by not including an accurate representation of their experience, the tools they are given to address the incomplete picture will also be incomplete or irrelevant. More

specific information such as community-specific resources would supply youth with specific alternatives that they can use and make asking for help easier.

For example, supplying youth with specific transit systems or phone numbers for taxi services in their area would be more relevant to the youth in the community they are seeking to educate (i.e., consider how public transit is not always an option for youth in rural communities, or that alternatives vary between communities). Based on these alternatives, specific instructions for safety can be employed (i.e., safety on the subway or bus, safety in taxis and Ubers). In connection to this, aside from making youth less likely to ask for help by representing these 'problems' through an enforcement lens, representing the 'problem' differently (perhaps through a health or rehabilitative lens) could change how impaired driving and drug use are thought of as a personal and preventable choice and be more relevant and better received by youth who are dealing with more complex life circumstances related to substance use. In this way, educating youth more about what impairment looks or feels like, in contrast to focusing on the legal consequences, could change the response to impaired driving. As well, providing more individualized or community-specific information to youth who may be differently affected by impaired driving and drug use (such as those who are or know someone who is struggling with addiction), as well as those who are part of equity deserving groups may additionally change the response to the problem. Overall, representing the problem in a strategic way in terms of formatting, relevancy, education focused, focused on peer group dynamics, and empowering youth may result in different responses to the problem.

Main Finding and Conclusion

To discuss the main findings of this analysis, it makes the most sense to directly address the research question: How do existing public engagement materials related to impaired driving in Canada (from Mothers Against Drunk Driving (MADD) and Royal Canadian Mounted Police (RCMP)) frame their content and messaging? These public engagement materials are centered around two 'problems': impaired driving and drug use more generally.

Through analyzing how these problems are represented, specifically as preventable and personal choices, the presuppositions that underlie these representations of impaired driving and drug use become clear. These presuppositions include: that deterrence is effective, peer influence impacts these 'choices', access to alternatives is easy and viable, information and education changes behaviour, consequences are preventable, people have a responsibility for themselves and others, and that people are able to recognize their own impairment as well as the impairment of others.

These underlying presuppositions which create the representation of the problem also create effects of education and information, deterrence and fear, as well as personal responsibility and guilt. There is variation between materials and sources (RCMP and MADD) in whether these effects are either primary or secondary (in terms of their impact), which results in the overall representation of the 'problems'.

Despite the wide range of materials analyzed, there are overall elements that are left unproblematic and undiscussed in the representation of the problem. Most importantly, how the representation of impaired driving and drug use as a preventable personal 'choice' factor in with conflicting elements of: unconsidered impacts of addiction, different access to social services, access to viable alternatives, peer influence, willingness or ability to ask for help, social media and the normalization of substance use, and the ability to recognize impairment.

These elements left unproblematic underlie this analysis' exploration of how 'responses' may differ if the 'problem' were thought about or represented differently. More specifically, taking an approach to the problem that is more focused on health and rehabilitation could de-emphasize personal choice and harsh sanctions or consequences (and instead have these effects as secondary to education and general responsibility). It would create a less personal-blame-oriented approach that could make youth feel safer to seek out help for themselves and for others when needed. Furthermore, community specific resources that include the impact of peer dynamics could be developed, so that the messages are more inclusive to youth who have experience with addiction, peer pressure, or may not resonate with more 'general' advice. Alternatives should be accessible, engaging, relevant, and evoke education and information instead of fear and center seemingly inevitable consequences. This would empower youth with the tangible resources and self-awareness needed to handle situations that they are likely to find themselves in.

Finally, specifically related to how this analysis is tied to RQ1-3, peer dynamics as a cause for impaired driving or drug use were rarely a main focal point (and most often were not even mentioned at all) within the majority of the sources analyzed (both RCMP and MADD). As mentioned in the analysis above, when peer influence was discussed, it was almost always outweighed by narratives of personal choice and responsibility. Therefore, because of the limited discussion of peer influence and peer dynamics as a whole, I have opted not to relate the analysis above to the results of the survey experiment in too much detail, because rather than overlap, these methods most often speak to different elements of the same phenomenon. The way that the results of the survey experiment and qualitative analysis function together to create a fuller picture of impaired driving is discussed in detail and displayed visually through art in Chapter 4, below.

Chapter 4: Arts-Based Dissemination – A Representation of the Main Research Findings

Overview and Goal

As a component of my project, I created a painting that illustrates the main finding of both the survey experiment and thematic analysis. The use of academic jargon and the inherent quantitative nature of the survey experiment may make it inaccessible to some. As described by Mosher (2013), "A research report (the product of the translational or dissemination phase) has conventionally been intended for academic audiences, and the report language is often specific to experts in that field […] and in effect, creates more of a divide between scholarly and lay public communities during the reporting phase of the research" (p. 432). Since the findings of this survey have implications and significance to academic and public audiences, this additional component represents the main findings of this project in a way that is more accessible to the public. The development of a painting as the medium of arts-based dissemination aligns well with this project because this thesis explores both visible and invisible forces that impact an individuals' decision-making. A painting can visually illustrate the visible and invisible forces simultaneously and symbolically within the same image (Deleuze, 2003, as cited in Knight, 2018), which complements the interpretation of the results of the regression models and the qualitative analysis.

The conceptualization of this work began after the results of the survey and thematic analysis were gathered. While both components of this project each yielded a plethora of results, to streamline the process and limit confusion, one main finding was selected from the results of the survey experiment and the qualitative analysis. After, these main findings were selected, I began translating the elements that underlie the main findings into visual representations. The method of translating these elements, and combining them, into a painting is based in the works of Mosher (2013) and Barry (2017). Barry (2017) describes the importance of taking great care to

select each element of the theme or element that was once words, to translate it to a visual representation. Therefore, I began by ensuring core components that underscore the main findings were clearly and prominently represented. I also thought about my audience, and tried to design a work that would be digestible to the public, while also making the work consumable to members of the organizations (MADD and RCMP) used in the qualitative analysis, who are either made up of the public or who may not read my whole paper. I tried my best to keep the work as uncomplicated as possible and avoid too much subtle symbolism – the goal is to, if possible, have people understand the main findings of my thesis without reading the artist statement. A description of the main research findings and how they are represented in this painting are detailed below.

Main Research Findings and Their Representation

From the survey experiment the main finding that is included in this painting is: that the results of the multivariate analyses suggest that the interaction between social competency and experimental treatment (peer messaging framing of status loss or status gain) more impactfully affects a participants' willingness to engage in impaired driving related behaviours than social competency or experimental treatment individually. In fact, these results suggest that there is something important about the interaction between social status of the respondent and receiving peer messaging that significantly affects their perceived 'worth' or likelihood of engaging in impaired-driving related actions. Furthermore, within these interaction models that centered impaired driving-related actions (as opposed to impaired passenger actions), significant effects were found that illustrated that higher status youth were more swayed by the status gain framing treatments.

Therefore, the main elements of this finding are social competency (specifically higher social status individuals), experimental treatment (peer messaging specifically the status gain treatment), the interaction between the aforementioned two elements, the participant, impaired driving-related actions (specifically being a driver), and the participant's engagement in impaired driving-related actions. From the qualitative analysis the main finding that is included in the painting is: that impaired driving is thought to be a preventable and personal choice, which ignores the complexity of factors that could impact a youth's 'decision' to engage in impaired driving-related behaviours. Therefore, the surface level main elements of this finding that are depicted in the painting are personal 'choice', the participant, impaired driving-related actions, and the participant's engagement in impaired driving-related actions. The way these components are cumulatively represented, as well as the more detailed meanings behind their representation in this way are described below.

The painting includes a point of view of the driver operating a moving car. The car is on a rural road with no other cars around at night. The significance of this point of view is that it puts the viewer in the perspective of the driver during the action of driving impaired. The rural road is a subtle hint towards the element left unproblematic in the public engagement materials, that there may not be public transit available. The choice of surroundings is also meant to instill a sense of isolation, where the driver is thinking, and unaware of the alternatives and unwilling to ask for help. The car is moving at a speed limit above what is legally allowed as indicated by a speed limit sign and the speed of the car on the dashboard. The high speed of the driver is meant to illustrate a lack of control the driver has over their situation and their distance from the conventional 'rules' of the road. These elements are meant to contradict the idea that the individual driving is making a controlled and thought-through choice when operating this vehicle.

The signs of impairment of the driver are subtly reflected as warning lights on the dashboard of the car (depicting a cannabis leaf in green and a wine glass in orange). These symbols are small compared to the red and blue fog that flows from the driver, through the car, into the road, and into the distance. Keeping the symbols indicating impairment small is meant to emphasize the role of the other elements (social status and peer influence) on the drivers situation. The fog itself is meant to further signify impairment by illustrating how impairment can make a person's vision 'foggy' or unclear. Furthermore, the fog also indicates a lack of personal 'choice' because the impact of social status and peer influence on the driver are what is making the driver's surroundings and 'choice' unclear. The red fog has white text depicting elements from the 'social competency' scale prompts adapted from the survey experiment: "I know how to become popular", "I know how to make my classmates like me", "I find it pretty east to make friends", and "I know how to get my peers to accept me". The white text represents the thoughts from the driver related to social competency, ultimately indicating that these ideas of social status are contributing to the driver's impaired driving. The blue fog has white and blue text depicting elements adapted from the status gain experimental treatment prompts from the survey experiment: the white text reads "I want my friends to invite me out again", and the blue text reads "We will invite you out again if you drive us" and "It would be awesome if you drove us home". The white text in between the two blue statements is meant to represent an internal thought from the driver, whereas the blue text represents messages that have been said to the driver by their peers, which all contribute to the driver's action of impaired driving. The red and blue fog mixes together to create a distant purple void that the driver is driving towards. The transition to purple is meant to illustrate that these elements of peer messaging and social status combine to draw the driver into the impaired driving situation. The void itself, is meant to represent impairment itself – because it is hard to see in the

void. The viewer is left with this image of the car filled with fog, speeding towards the purple void, all of which is meant to make the situation seem inevitable and contradict the ‘choice’ narrative that was present in the youth public engagement materials.

I find it pretty easy to make friends
I know how to get my peers to accept me
I know how to become popular
I know how to make my classmates like me
We will invite you out again if you drive us
I want my friends to invite me out again
It would be awesome if you drove us home
80
Km/h
83mph
1:53
133
Km/h
OK

Chapter 5: Discussion and Conclusion

Significant Research Findings

From the survey experiment the main finding is that the interaction between social competency and experimental treatment (peer messaging framing of status loss or status gain) may more impactfully affect participants' willingness to engage in impaired driving related behaviours than social competency or experimental treatment individually. This is illustrated by the significant effect in the impaired driving-related interaction effect models (with the social competency measure), that were not previously present in the linear regressions without interaction effects (see Chapter 2, and Appendix C). Therefore, social status matters when we are seeking to study how peers influence deviant decision-making among youth. In fact, these results suggest that there is something important about the interaction between social status of the respondent and receiving peer messaging that significantly affects their perceived 'worth' or likelihood of engaging in impaired driving-related actions. Furthermore, within these interaction models that centered impaired driving-related actions (as opposed to impaired passenger actions), significant effects were found that illustrated that respondents who self-reported to have higher social status were more swayed by the status gain framing treatments. This association suggests that 'leaders' in peer group dynamics are more likely to feel compelled to take actions that are consistent with their role as a leader or high social status member – in this case being the driver.

From the qualitative analysis the main finding is that impaired driving is thought to be a preventable and personal choice, which ignores the complexity of factors that could impact a youth's 'decision' to engage in impaired driving-related behaviours. Especially given the findings of the survey experiment, including elements that are relevant to the social situations and pressures that youth face in impaired driving situations is imperative. The benefits of providing youth with

tools that are relevant and sensitive to their personal situation is discussed in greater detail in Chapter 4, and in the 'Contributions of this Study' sub-section below.

Limitations and Strengths of this Study

The use of a survey experiment is advantageous because it is "clearly able to distinguish a cause and effect" through the randomization of participants to treatment and control groups (Gaines et al., 2007, p. 2). However, there are limitations to the use of this method, including the potential for mutual causation, as well as the inability of the written vignette to perfectly replicate the 'real world' situation that is being analyzed (Gaines et al., 2007). Specifically in this analysis, the respondents were asked to recall their high school (secondary school) experiences, both to self-report their social status (social competency and perceived popularity) and to indicate their level of willingness to engage in the proposed impaired driving-related action. These vignettes and prompts cannot perfectly replicate the way a participant would feel at a particular moment, or account for all physical and psychological factors at play that would influence their decision, which is a limitation to this method of data collection.

Furthermore, due to the sample size and data collection procedures, there are limitations to the generalizability of results. In this way, the sample size will only allow for the detection of moderately sized effects, which means that smaller effects will not be captured. However, it is the moderate and large effects that would be of most interest. Furthermore, based on the supplementary analyses, the cannabis-impaired driver models appear to be more model dependent. This means that extra care must be given when generalizing the results from these models and hopefully future research can further investigate the relationships between social status, peer

messaging, and willingness to engage in cannabis-impaired driving to better our understanding of the significance of these relationships.

Related to the thematic analysis, using a guiding framework and confirmation technique of looking for negative evidence ensures the quality of my findings. Although importantly, my perspective of the way that these materials fit within this framework are my own, and other people may draw different conclusions. However, rather than see this as a limitation, I think this suggests an avenue for future research (see 'Implications for Future Research' below).

Contributions of this Study

Overall, this mixed methods project contributes to the discipline's understanding of how peers impact an individual's participation in impaired driving through the survey experiment, as well as the way impaired driving is constructed and represented through the qualitative thematic analysis of RCMP and MADD materials.

More broadly, this work contributes to sociology and criminology by furthering our understanding of how risk calculation in peer influence scenarios functions differently depending on a respondent's social status. The legal and criminological implications of this work are that by understanding why youth engage in risky and dangerous behaviour, perhaps these behaviours can be prevented. The sociological implications of this work are such that understanding how risk functions in association with social settings among people of different social statuses can better inform our understanding about why people make choices in other social environments. In this way, regarding existing literature related to loss aversion and peer influence, this study supports the underlying concept that peers influence a youth's deviant decision-making. However, given that this study is the first of its kind to explore the effects of the interaction between social status

and peer messaging on willingness to engage in deviant actions as well as this study's finding the interaction is significant – it becomes relevant to further explore how peers influence deviance with the inclusion of measures for social status. Also, in contrast to Thomas and Nguyen's (2020) work that focused heavily on peers framing situations as status losses (as opposed to status gains) as a driving force behind people's willingness to engage in deviance, with the addition of the interaction of social status, this work showed more significant relationships among those who received the status gain framing treatment. Ultimately, these significant results support the idea that youth tend to act in ways consistent with these friend group roles. This inference is supported by the associations suggest that leaders (or higher social status members) in friend groups are more likely to feel compelled to take actions (when offered a status gain treatment) that are consistent with their role as a leader or higher social status member – in this case being the driver of the car. On the reverse, lower social status respondents were not as likely to indicate that they were swayed by the opportunity to act in a leadership role and drive the car despite the risks associated with being impaired. Situated within the existing literature review, this idea is interesting because it speaks to youth's need to belong and affirm their identity in relation to the dynamic of the group. More broadly, these ideas about people's willingness to act in situations that they associate as consistent with their role in the peer dynamic poses an interesting sociological avenue about human nature and how perceived personal identity influences decision-making.

Importantly, the findings of the analysis of RCMP and MADD materials recommends ways to improve upon public messaging campaigns that seek to educate youth about impaired driving. As such, creating community specific resources that include the impact of peer dynamics could be developed, such as materials sensitive to personal circumstances, inclusive to youth who have experience with addiction, peer pressure, or may not resonate with more 'general' advice.

Especially given the findings of the survey experiment, including elements that are relevant to the social situations and pressures that youth face in impaired driving situations is imperative. It is also vital that the complexity of a youth's action is not undermined and dissolved in catch-all generic messaging. By drawing attention to the need for increased sensitivity to the complex and nuanced factors contributing to a youth's actions, public messaging campaigns that seek to educate youth about impaired driving can be improved upon.

Based on this study's contributions, directions for future research are discussed below.

Implications for Future Research

Related to the survey experiment, given the significant effects found on a respondent's perceived 'worth' or likelihood of engaging in impaired driving-related actions in the models that explore the interaction between social competency and experimental treatment on the outcome variables, it could be worthwhile for this study to be replicated and further explored with the use of a better-quality sample and sampling technique. This study's exploration of the interaction between these elements was the first of its kind, and the finding that the interaction is more significant than the individual variables is key to understanding more about risk calculation, peer influence, status, and impaired driving. Further in this direction, notably the models that used the social competency scale produced more significant effects (especially in the interaction models) than the models that used the self-reported perceived popularity variable. Therefore, a different or more detailed scale creation for the social competency variable (such as more elements from Harter's, 2012 Manual "Self-Perception Profile for Adolescents"), or perhaps replicating the study with several types of social competency or 'popularity' variables would be a worthwhile new direction. Using different variables could help isolate what aspect(s) of social competency or

popularity interacts with the experimental condition to produce a higher or lower perception of 'worth' or likelihood to engage in impaired driving-related actions.

Another avenue that could benefit from further exploration is related to impaired driving and cannabis use. The significant results in this study within the cannabis-related models, as well as the indicators of model dependency discovered through the DAG supplementary analysis, underscores the need for more research on the relationship between cannabis use among youth and impaired driving. Given the legalization in Canada and some US states, research in this area is needed. Specifically, this study found significant relationships between the level of deviance of the respondent's friends and perceived 'worth' or likelihood, which is interesting when viewed alongside the significant relationships between experimental condition and perceived 'worth' or likelihood that are also present in the cannabis-impaired driving models. Also, in all multivariate cannabis-related models, personal cannabis use was significantly related to perceived 'worth' or likelihood of engaging in impaired driving related actions, however personal alcohol use was not significantly related to engaging in alcohol impaired driving-related actions. These significant relationships as a whole could indicate that peer messaging and behaviour increase the perceived 'worth' or likelihood of engaging in cannabis-impaired driving related actions. Therefore, the idea that cannabis use (even when controlling for the deviance of friends, experimental condition, and social competency or perceived popularity) is significantly related to the perceived 'worth' or likelihood of engaging in cannabis impaired driving-related actions is worth further exploring.

Regarding the thematic analysis, future research could explore more materials from different sources, which would provide a fuller picture of information that youth receive about impaired driving and drug use. Another important element that is missing from the current research is the meanings that youth themselves assign to these materials. As a researcher analyzing these

materials guided through the work of other scholars, my perspective is my own, and I can imagine that others would make different meanings from the same materials I analysed. Gaining youth's perspectives about the messaging of these materials would create more understanding about the impact of these materials and any changes that would make the materials more informative and impactful. These elements would be very useful, especially given the relatively recent legalization of cannabis in Canada and in some US states. Understanding the perspectives of youth is vital for creating informative and relevant resources, while also providing further insight into the decision-making processes of youth to engage in impaired driving-related actions.

Conclusion

To conclude, this project has deepened the field's understanding of why young people may engage in impaired driving-related actions as well as how impaired driving is represented in the widespread youth-centered awareness campaigns. Most importantly, the survey experiment analysis indicates that there is a significant relationship between the interaction between social competency and experimental treatment (status loss and status gain peer messaging) on respondent's willingness to engage in impaired driving-related actions. The fact that these significant effects were present in linear regressions with interaction effects indicates that there is something worth further exploring and understanding about the interaction between those two variables that increases a respondents' willingness to engage.

Because this study is the first of its kind to explore the impact of this interaction, these significant results create a compelling argument that the interaction should be further explored in other studies so we can better understand the relationship between peer influence and deviant or dangerous behaviour. In further exploring this phenomenon of impaired driving, the results of the

qualitative analysis indicate that although peer pressure may play a role in youth-impaired driving, lots of the narratives youth receive about these impaired driving-related actions highlight that engaging in these behaviours is a personal choice, rather than the product of peer factors, substance use dependency, or life circumstances. Given the findings that indicate that these latter elements may play an important role in youth's decisions to engage in impaired driving-related behaviours, perhaps further work can be done to enhance current public awareness campaigns to determine and portray the most relevant and helpful way to educate youth about impaired driving and alternatives.

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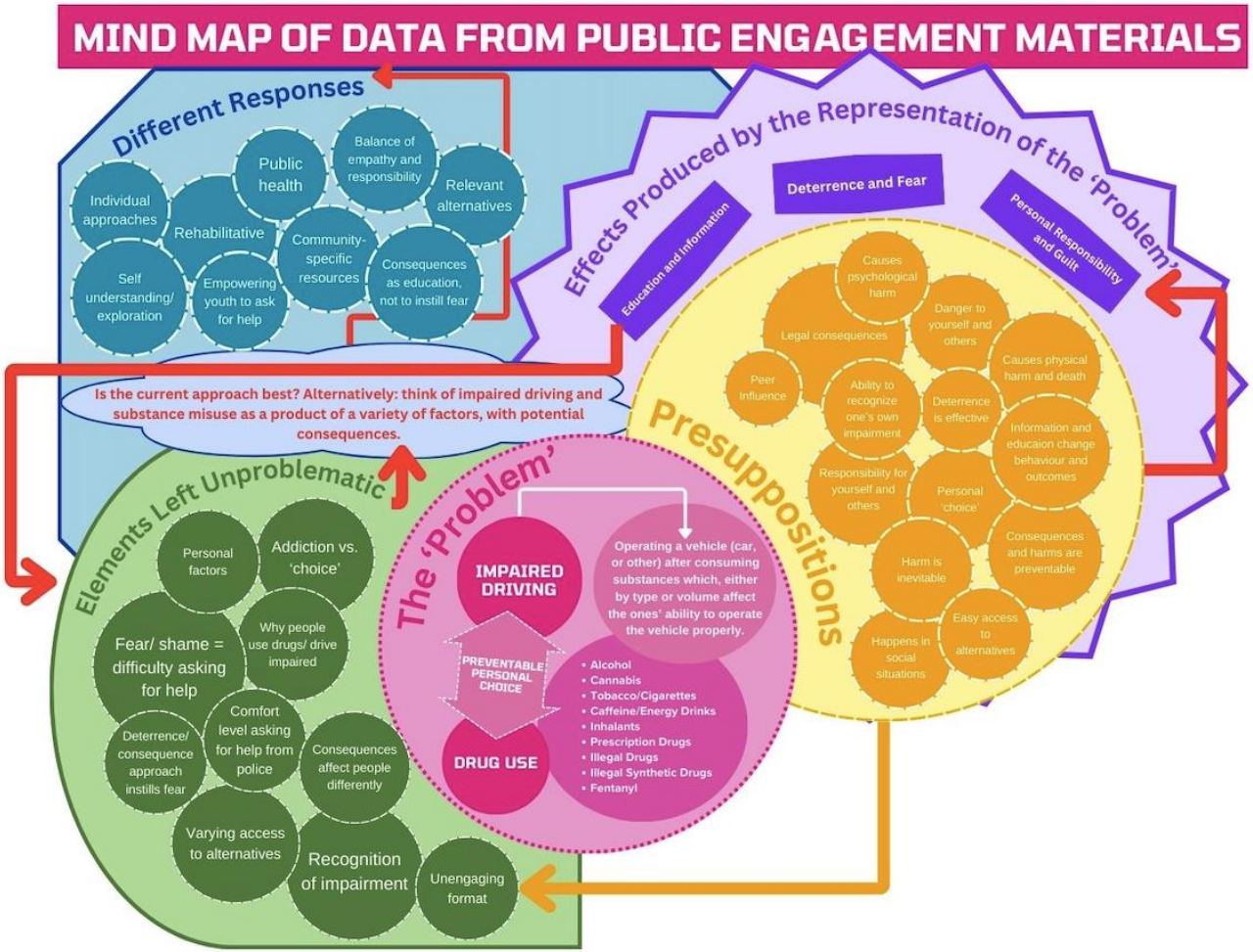
Appendices

Appendix A: Mind Map Depicting Results from the Thematic Analysis



Appendix B: Bivariate Models

Table 1.0: Kruskal-Wallace Test Predicting 'Worth it' to be an Alcohol-Impaired Driver with Different Experimental Conditions

	Experimental Condition	N	Mean	Median
Worth it to Impaired Drive (Alcohol)	Control	198	0.758	0
	Status Gain	205	0.795	0
	Status Loss	200	0.635	0
	Total	603	0.730	0

p= 0.597

Table 1.1: Kruskal-Wallace Test Predicting Likelihood to be an Alcohol-Impaired Driver with Different Experimental Conditions

	Experimental Condition	N	Mean	Median
Likelihood to Impaired Drive (Alcohol)	Control	198	0.707	0
	Status Gain	205	0.849	0
	Status Loss	200	0.650	0
	Total	603	0.736	0

p= 0.348

Table 1.2: Kruskal-Wallace Test Predicting 'Worth it' to be an Alcohol-Impaired Passenger with Different Experimental Conditions

	Experimental Condition	N	Mean	Median
Worth it to Impaired Drive (Alcohol)	Control	201	1.229	0
	Status Gain	202	1.317	0.5
	Status Loss	199	1.186	0
	Total	602	1.244	0

p= 0.859

Table 1.3: Kruskal-Wallace Test Predicting Likelihood to be an Alcohol-Impaired Passenger with Different Experimental Conditions

	Experimental Condition	N	Mean	Median
Likelihood to Impaired Drive (Alcohol)	Control	200	1.505	1
	Status Gain	202	1.520	1
	Status Loss	200	1.455	1
	Total	602	1.493	1

p= 0.986

Table 1.4: Kruskal-Wallace Test Predicting 'Worth it' to be a Cannabis-Impaired Driver with Different Experimental Conditions

	Experimental Condition	N	Mean	Median
Worth it to Impaired Drive (Alcohol)	Control	200	0.735	0
	Status Gain	204	0.941	0
	Status Loss	199	0.879	0
	Total	603	0.852	0

p= 0.144

Table 1.5: Kruskal-Wallace Test Predicting Likelihood to be a Cannabis-Impaired Driver with Different Experimental Conditions

	Experimental Condition	N	Mean	Median
Likelihood to Impaired Drive (Alcohol)	Control	200	0.765	0
	Status Gain	204	0.936	0
	Status Loss	199	0.975	0
	Total	603	0.892	0

p= 0.137

Table 1.6: Kruskal-Wallace Test Predicting 'Worth it' to be a Cannabis-Impaired Passenger with Different Experimental Conditions

	Experimental Condition	N	Mean	Median
Worth it to Impaired Drive (Alcohol)	Control	201	1.264	1
	Status Gain	201	1.458	1
	Status Loss	201	1.214	0
	Total	603	1.312	1

p= 0.222

Table 1.7: Kruskal-Wallace Test Predicting Likelihood to be a Cannabis-Impaired Passenger with Different Experimental Conditions

	Experimental Condition	N	Mean	Median
Likelihood to Impaired Drive (Alcohol)	Control	201	1.557	1
	Status Gain	201	1.602	1
	Status Loss	201	1.483	1
	Total	603	1.547	1

p= 0.564

Appendix C: Multivariate Models

Table 2.0: Linear Regressions Predicting 'Worth it' and 'Likelihood' of Alcohol-Impaired Driving/Riding with Social Competency Score

	Model 1 Adj R^2 = 0.060 Impaired Driving – Worth it (N=591)	Model 2 Adj R^2 = 0.078 Impaired Driving – Likelihood (N=591)	Model 3 Adj R^2 = 0.061 Impaired Passenger – Worth it (N=590)	Model 4 Adj R^2 = 0.071 Impaired Passenger – Likelihood (N=590)
	ß (SE)	ß (SE)	ß (SE)	ß (SE)
Alcohol-Impaired Driver [a]				
Status Gain	-0.034 (0.149)	0.047 (0.149)	- -	- -
Status Loss	-0.133 (0.127)	-0.094 (0.134)	- -	- -
Alcohol-Impaired Passenger [b]				
Status Gain	- -	- -	0.093 (0.153)	0.062 (0.171)
Status Loss	- -	- -	0.098 (0.141)	0.124 (0.159)
Self-Reported Social Competency	0.023 (0.048)	0.010 (0.046)	0.050 (0.057)	0.051 (0.058)
Strain – Bullying Victimization	0.110 (0.119)	-0.002 (0.133)	0.164 (0.150)	0.069 (0.153)
Social Bonds – To Parents/ Caregivers	-0.081 (0.142)	0.060 (0.133)	0.001 (0.146)	0.146 (0.169)
Low Self-Control [c]	0.225** (0.083)	0.309*** (0.083)	0.210* (0.099)	0.358*** (0.107)

Friend's Level of Deviance	0.049 (0.102)	0.067 (0.109)	0.327** (0.120)	0.291* (0.126)
Caregiver Supervision	-0.063 (0.061)	-0.074 (0.062)	-0.019 (0.694)	-0.048 (0.070)
Unsupervised Socializing	-0.020 (0.047)	0.010 (0.050)	-0.017 (0.055)	-0.019 (0.060)
Frequency of Personal Substance Use – Alcohol	-0.070 (0.072)	0.009 (0.074)	-0.059 (0.084)	0.058 (0.087)
Frequency of Personal Substance Use – Cannabis	0.103 (0.083)	0.021 (0.083)	0.161 (0.087)	0.186 (0.098)
Gender [d]				
Woman	-0.185 (0.140)	-0.268* (0.133)	0.040 (0.138)	0.068 (0.152)
Non-binary	0.096 (0.417)	0.238 (0.455)	0.273 (0.450)	-0.134 (0.419)
Multiple gender identities and no response	-0.447 (0.245)	-0.429* (0.217)	0.381 (0.540)	-0.115 (0.526)
Age [e]				
18	0.131 (0.225)	0.022 (0.205)	0.056 (0.235)	0.179 (0.237)
19	0.030 (0.142)	0.074 (0.148)	-0.083 (0.161)	0.034 (0.170)
Race and Ethnicity [f]				
Black	0.320 (0.251)	0.628* (0.254)	-0.046 (0.230)	-0.120 (0.270)
Chinese	-0.062 (0.242)	0.397 (0.349)	-0.135 (0.278)	-0.116 (0.345)
South Asian	0.322	0.376	0.470*	0.374

	(0.222)	(0.217)	(0.228)	(0.245)
Multiple identities, other, and unspecified	0.215	0.228	0.352	0.238
	(0.161)	(0.154)	(0.185)	(0.190)
Political Leaning [g]	0.087**	0.075*	0.066*	0.060
	(0.031)	(0.031)	(0.031)	(0.031)
Household Income	0.016	0.016	-0.013	-0.015
	(0.034)	(0.033)	(0.036)	(0.373)
Country of Residence [h]				
Canada	0.049	0.073	-0.500*	-0.248
	(0.250)	(0.290)	(0.244)	(0.308)
United Kingdom	-0.174	-0.302*	-0.110	-0.245
	(0.135)	(0.133)	(0.153)	(0.154)
Intercept	0.271	-0.168	0.026	-0.212
	(0.495)	(0.468)	(0.493)	(0.551)

[a] Reference = Control
[b] Reference = Control
[c] Positive scores indicate more indicators of low self-control, not more self-control.
[d] Reference = Man
[e] Reference = 20 years old
[f] Reference = White
[g] In the political leaning scale, 0 is left, 10 is right.
[h] Reference = United States

All models are bootstrapped (1000 reps)
*p<=.05 **p<=.01 ***p<=.001

Table 2.1: Linear Regressions Predicting 'Worth it' and 'Likelihood' of Cannabis-Impaired Driving/Riding with Social Competency Score

	Model 1 Adj R^2 = 0.186 Impaired Driving – Worth it (N=591)	Model 2 Adj R^2 = 0.202 Impaired Driving – Likelihood (N=591)	Model 3 Adj R^2 = 0.141 Impaired Passenger – Worth it (N=591)	Model 4 Adj R^2 = 0.174 Impaired Passenger – Likelihood (N=591)
	ß (SE)	ß (SE)	ß (SE)	ß (SE)
Cannabis-Impaired Driver [a]				
Status Gain	0.311* (0.133)	0.289* (0.141)	- -	- -
Status Loss	0.282* (0.128)	0.357** (0.137)	- -	- -
Cannabis-Impaired Passenger [b]				
Status Gain	- -	- -	0.107 (0.155)	-0.048 (0.164)
Status Loss	- -	- -	-0.135 (0.156)	-0.153 (0.171)
Self-Reported Social Competency	0.028 (0.042)	0.035 (0.045)	0.010 (0.051)	-0.036 (0.055)
Strain – Bullying Victimization	0.015 (0.111)	0.071 (0.121)	-0.040 (0.125)	-0.172 (0.140)
Social Bonds – To Parents/ Caregivers	0.002 (0.127)	0.001 (0.131)	0.071 (0.136)	0.222 (0.149)
Low Self-Control [c]	0.193* (0.088)	0.223** (0.087)	0.163 (0.099)	0.224* (0.109)
Friend's Level of Deviance	0.292** (0.106)	0.288** (0.112)	0.364** (0.111)	0.398** (0.126)

Caregiver Supervision	-0.023 (0.052)	-0.060 (0.053)	-0.052 (0.061)	-0.040 (0.126)
Unsupervised Socializing	0.068 (0.050)	0.104* (0.051)	0.104* (0.052)	0.142* (0.056)
Frequency of Personal Substance Use - Alcohol	-0.147* (0.066)	-0.184** (0.070)	-0.144 (0.080)	-0.085 (0.086)
Frequency of Personal Substance Use - Cannabis	0.383*** (0.089)	0.455*** (0.096)	0.391*** (0.094)	0.467*** (0.102)
Gender [d]				
Woman	-0.282* (0.118)	-0.094 (0.125)	-0.191 (0.136)	-0.093 (0.153)
Non-binary	-0.249 (0.270)	-0.317 (0.249)	-0.552 (0.311)	-0.327 (0.358)
Multiple gender identities and no response	0.076 (0.351)	-0.003 (0.333)	-0.211 (0.393)	-0.355 (0.406)
Age [e]				
18	-0.181 (0.208)	-0.170 (0.204)	-0.225 (0.192)	-0.190 (0.217)
19	-0.064 (0.131)	-0.010 (0.139)	-0.067 (0.156)	-0.079 (0.170)
Race and Ethnicity [f]				
Black	0.774** (0.291)	0.684* (0.301)	-0.010 (0.277)	0.065 (0.293)
Chinese	0.491 (0.291)	0.230 (0.257)	0.127 (0.323)	0.012 (0.375)
South Asian	0.364 (0.160)	0.1823 (0.201)	0.510* (0.226)	0.512* (0.240)
Multiple identities, other, and unspecified	0.070	-0.007	-0.057	-0.151

	(0.144)	(0.153)	(0.172)	(0.186)
Political Leaning [g]	0.016	0.016	-0.008	-0.024
	(0.026)	(0.028)	(0.030)	(0.032)
Household Income	0.001	-0.007	0.004	-0.010
	(0.031)	(0.031)	(0.037)	(0.044)
Country of Residence [h]				
Canada	-0.600**	-0.520*	-0.357	-0.442
	(0.210)	(0.233)	(0.257)	(0.326)
United Kingdom	-0.238*	-0.273*	-0.221	-0.433**
	(0.122)	(0.124)	(0.147)	(0.160)
Intercept	-0.084	-0.116	0.585	0.575
	(0.394)	(0.421)	(0.477)	(0.521)

[a] Reference = Control
[b] Reference = Control
[c] Positive scores indicate more indicators of low self-control, not more self-control.
[d] Reference = Man
[e] Reference = 20 years old
[f] Reference = White
[g] In the political leaning scale, 0 is left, 10 is right.
[h] Reference = United States

All models are bootstrapped (1000 reps)
*p<=.05 **p<=.01 ***p<=.001

Table 2.2: Linear Regressions Predicting 'Worth it' and 'Likelihood' of Alcohol-Impaired Driving/Riding with Perceived Popularity in School Network

	Model 1 Adj R^2 = 0.067 Impaired Driving – Worth it (N=591)	Model 2 Adj R^2 = 0.082 Impaired Driving – Likelihood (N=591)	Model 3 Adj R^2 = 0.063 Impaired Passenger – Worth it (N=590)	Model 4 Adj R^2 = 0.073 Impaired Passenger – Likelihood (N=590)
	ß (SE)	ß (SE)	ß (SE)	ß (SE)
Alcohol-Impaired Driver [a]				
Status Gain	-0.021 (0.147)	0.056 (0.148)	- -	- -
Status Loss	-0.123 (0.129)	-0.088 (0.135)	- -	- -
Alcohol-Impaired Passenger [b]				
Status Gain	- -	- -	0.102 (0.154)	0.066 (0.174)
Status Loss	- -	- -	0.099 (0.142)	0.120 (0.160)
Self-Reported Perceived Popularity in School Environment	0.059 (0.030)	0.039 (0.029)	0.041 (0.034)	0.037 (0.035)
Strain – Bullying Victimization	0.134 (0.117)	0.017 (0.129)	0.157 (0.143)	0.056 (0.148)
Social Bonds – To Parents/ Caregivers	-0.089 (0.138)	0.054 (0.126)	0.016 (0.145)	0.144 (0.169)
Low Self-Control [c]	0.231** (0.082)	0315*** (0.109)	0.201* (0.095)	0.349*** (0.103)
Friend's Level of Deviance	0.022 (0.104)	0.052 (0.110)	0.318** (0.121)	0.291* (0.127)

Caregiver Supervision	-0.063 (0.059)	-0.075 (0.061)	-0.015 (0.068)	-0.348 (0.069)
Unsupervised Socializing	-0.030 (0.046)	0.002 (0.049)	-0.018 (0.054)	-0.022 (0.059)
Frequency of Personal Substance Use - Alcohol	-0.083 (0.069)	0.001 (0.073)	-0.062 (0.083)	0.055 (0.089)
Frequency of Personal Substance Use - Cannabis	0.102 (0.083)	0.015 (0.083)	0.154 (0.087)	0.189 (0.097)
Gender [d]				
Woman	-0.191 (0.138)	-0.275* (0.132)	0.020 (0.138)	0.053 (0.149)
Non-binary	0.067 (0.428)	0.216 (0.462)	0.244 (0.452)	-0.157 (0.420)
Multiple gender identities and no response	-0.438 (0.238)	-0.418 (0.215)	0.346 (0.537)	-0.145 (0.524)
Age [e]				
18	0.162 (0.225)	0.433 (0.205)	0.075 (0.234)	0.188 (0.239)
19	0.072 (0.144)	0.107 (0.152)	-0.058 (0.164)	0.051 (0.173)
Race and Ethnicity [f]				
Black	0.289 (0.248)	0.610* (0.253)	-0.045 (0.233)	-0.075 (0.268)
Chinese	-0.052 (0.243)	0.404 (0.348)	-0.114 (0.275)	-0.095 (0.349)
South Asian	0.296 (0.221)	0.356 (0.217)	0.464* (0.224)	0.372 (0.246)

Multiple identities, other, and unspecified	0.208 (0.159)	0.220 (0.151)	0.357 (0.185)	0.248 (0.187)
Political Leaning [g]	0.080** (0.030)	0.070* (0.031)	0.062 (0.031)	0.058 (0.032)
Household Income	0.000 (0.033)	0.004 (0.033)	-0.023 (0.036)	-0.023 (0.038)
Country of Residence [h]				
Canada	0.086 (0.243)	0.100 (0.285)	-0.472* (0.240)	-0.231 (0.307)
United Kingdom	-0.186 (0.132)	-0.309* (0.132)	-0.106 (0.152)	-0.239 (0.148)
Intercept	0.221 (0.479)	-0.208 (0.457)	0.063 (0.482)	-0.155 (0.542)

[a] Reference = Control
[b] Reference = Control
[c] Positive scores indicate more indicators of low self-control, not more self-control.
[d] Reference = Man
[e] Reference = 20 years old
[f] Reference = White
[g] In the political leaning scale, 0 is left, 10 is right.
[h] Reference = United States

All models are bootstrapped (1000 reps)
*p<=.05 **p<=.01 ***p<=.001

Table 2.3: Linear Regressions Predicting 'Worth it' and 'Likelihood' of Cannabis-Impaired Driving/Riding with Perceived Popularity in School Network

	Model 1 Adj R^2 = 0.192 Impaired Driving – Worth it (N=591)	Model 2 Adj R^2 = 0.201 Impaired Driving – Likelihood (N=591)	Model 3 Adj R^2 = 0.143 Impaired Passenger – Worth it (N=591)	Model 4 Adj R^2 = 0.176 Impaired Passenger – Likelihood (N=591)
	ß (SE)	ß (SE)	ß (SE)	ß (SE)
Cannabis-Impaired Driver [a]				
Status Gain	0.309* (0.132)	0.274* (0.138)	- -	- -
Status Loss	0.279* (0.129)	0.352** (0.137)	- -	- -
Cannabis-Impaired Passenger [b]				
Status Gain	- -	- -	0.095 (0.154)	-0.054 (0.163)
Status Loss	- -	- -	-0.150 (0.155)	-0.173 (0.168)
Self-Reported Perceived Popularity in School Environment	0.029 (0.028)	0.024 (0.029)	0.029 (0.030)	0.008 (0.101)
Strain – Bullying Victimization	0.012 (0.108)	0.065 (0.117)	-0.030 (0.121)	-0.149 (0.137)
Social Bonds – To Parents/ Caregivers	-0.001 (0.127)	0.011 (0.133)	0.061 (0.136)	0.196 (0.149)
Low Self-Control [c]	0.193* (0.088)	0.215* (0.088)	0.168 (0.097)	0.244* (0.106)
Friend's Level of Deviance	0.287** (0.108)	0.296** (0.088)	0.353** (0.1120	0.381** (0.125)

Caregiver Supervision	-0.016 (0.052)	-0.059 (0.053)	-0.049 (0.060)	0.034 (0.063)
Unsupervised Socializing	0.063 (0.049)	0.104* (0.050)	0.098 (0.052)	0.131* (0.056)
Frequency of Personal Substance Use - Alcohol	-0.151* (0.066)	-0.184** (0.071)	-0.150 (0.081)	-0.093 (0.086)
Frequency of Personal Substance Use - Cannabis	0.387*** (0.088)	0.444*** (0.095)	0.392*** (0.093)	0.473*** (0.101)
Gender [d]				
Woman	-0.290* (0.117)	-0.111 (0.124)	-0.197 (0.136)	-0.085 (0.152)
Non-binary	-0.264 (0.269)	-0.339 (0.245)	-0.568 (0.313)	-0.327 (0.361)
Multiple gender identities and no response	0.067 (0.350)	-0.033 (0.336)	-0.203 (0.391)	-0.304 (0.400)
Age [e]				
18	-0.174 (0.208)	-0.157 (0.203)	-0.214 (0.192)	-0.193 (0.217)
19	-0.046 (0.131)	0.010 (0.138)	-0.023 (0.158)	-0.060 (0.171)
Race and Ethnicity [f]				
Black	0.814** (0.285)	0.680* (0.307)	0.004 (0.275)	0.106 (0.288)
Chinese	0.503 (0.291)	0.244 (0.257)	0.134 (0.329)	0.003 (0.386)
South Asian	0.358 (0.195)	0.182 (0.199)	0.495* (0.222)	0.490* (0.236)

Multiple identities, other, and unspecified	0.074 (0.141)	-0.00 (0.150)	-0.059 (0.168)	-0.165 (0.181)
Political Leaning [g]	0.015 (0.026)	0.012 (0.028)	-0.011 (0.029)	-0.023 (0.033)
Household Income	-0.006 (0.030)	-0.015 (0.229)	-0.005 (0.036)	-0.015 (0.041)
Country of Residence [h]				
Canada	-0.585** (0.209)	-0.497* (0.229)	-0.343 (0.254)	-0.446 (0.322)
United Kingdom	-0.237 (0.123)	-0.267* (0.123)	-0.225 (0.147)	-0.441** (0.158)
Intercept	-0.062 (0.392)	-0.077 (0.418)	0.577 (0.467)	0.514 (0.509)

[a] Reference = Control
[b] Reference = Control
[c] Positive scores indicate more indicators of low self-control, not more self-control.
[d] Reference = Man
[e] Reference = 20 years old
[f] Reference = White
[g] In the political leaning scale, 0 is left, 10 is right.
[h] Reference = United States

All models are bootstrapped (1000 reps)
*p<=.05 **p<=.01 ***p<=.001

Table 3.0: Linear Regressions Predicting 'Worth it' and 'Likelihood' of Impaired Driving/Riding, with Interaction between Experimental Treatment and Social Competency Score

	Model 1A[a] Worth it to Alcohol Impaired Drive (N=591)	Model 1B[b] Likelihood to Alcohol Impaired Drive (N=591)	Model 2A[c] Worth it to Alcohol Impaired Passenger (N=590)	Model 2B[d] Likelihood to Alcohol Impaired Passenger (N=590)	Model 3A[e] Worth it to Cannabis Impaired Drive (N=591)	Model 3B[f] Likelihood to Cannabis Impaired Drive (N=591)	Model 4A[g] Worth it to Cannabis Impaired Passenger (N=591)	Model 4B[h] Likelihood to Cannabis Impaired Passenger (N=591)
	ß (SE)	ß (SE)	ß (SE)	ß (SE)	ß (SE)	ß (SE)	ß (SE)	ß (SE)
Alcohol-Impaired Driver [i]								
Status Gain	-0.724	-0.689	-	-	-	-	-	-
	(0.390)	(0.387)	-	-	-	-	-	-
Status Loss	-0.272	-0.711*	-	-	-	-	-	-
	(0.343)	(0.334)	-	-	-	-	-	-
Alcohol-Impaired Passenger [j]								
Status Gain	-	-	0.547	0.943*	-	-	-	-
	-	-	(0.402)	(0.450)	-	-	-	-
Status Loss	-	-	0.389	0.839*	-	-	-	-
	-	-	(0.375)	(0.416)	-	-	-	-
Cannabis-Impaired Driver [k]								
Status Gain	-	-	-	-	-0.472	-0.333	-	-
	-	-	-	-	(0.275)	(0.297)	-	-
Status Loss	-	-	-	-	-0.005	-0.124	-	-
	-	-	-	-	(0.064)	(0.376)	-	-
Cannabis-Impaired Passenger [l]								
Status Gain	-	-	-	-	-	-	0.411	0.290
	-	-	-	-	-	-	(0.354)	(0.386)
Status Loss	-	-	-	-	-	-	-0.176	0.088
	-	-	-	-	-	-	(0.352)	(0.413)

Self-Reported Social Competency	-0.053	-0.119	0.125	0.213	-0.082	-0.077	0.037	0.023
	(0.080)	(0.070)	(0.084)	(0.095)	(0.063)	(0.069)	(0.079)	(0.086)
Interaction Effect [m]								
Status Gain*Social Competency	0.206	0.220*	-0.135	-0.264*	0.236**	0.188*	-0.092	-0.103
	(0.106)	(0.102)	(0.115)	(0.130)	(0.081)	(0.087)	(0.107)	(0.113)
Status Loss*Social Competency	0.041	0.184*	-0.090	-0.221	0.088	0.144	0.011	-0.073
	(0.091)	(0.093)	(0.108)	(0.120)	(0.095)	(0.107)	(0.102)	(0.115)
Strain – Bullying Victimization	0.118	0.016	0.167	0.075	0.034	0.085	-0.039	-0.174
	(0.118)	(0.130)	(0.153)	(0.157)	(0.108)	(0.118)	(0.126)	(0.141)
Social Bonds – To Parents/ Caregivers	-0.090	0.039	0.006	0.140	0.009	0.013	0.067	0.222
	(0.140)	(0.127)	(0.145)	(0.167)	(0.126)	(0.131)	(0.136)	(0.148)
Low Self-Control [n]	0.221**	0.305***	0.206*	0.352***	0.199*	0.228**	0.167	0.225*
	(0.825)	(0.082)	(0.099)	(0.106)	(0.088)	(0.087)	(0.099)	(0.108)
Friend's Level of Deviance	0.051	0.055	0.325**	0.287*	0.305**	0.302**	0.358***	0.396**
	(0.103)	(0.109)	(0.120)	(0.126)	(0.105)	(0.111)	(0.112)	(0.126)
Caregiver Supervision	-0.072	-0.080	-0.019	-0.046	-0.035	-0.067	-0.050	-0.038
	(0.061)	(0.062)	(0.069)	(0.070)	(0.052)	(0.050)	(0.061)	(0.065)
Unsupervised Socializing	-0.023	0.006	-0.020	-0.025	0.074	0.109*	0.106*	0.143**
	(0.046)	(0.049)	(0.055)	(0.060)	(0.049)	(0.050)	(0.052)	(0.056)
Frequency of Personal Alcohol Use	-0.077	0.007	-0.061	0.055	-0.158*	-0.190**	-0.149	-0.091
	(0.072)	(0.074)	(0.084)	(0.087)	(0.067)	(0.070)	(0.081)	(0.087)
Frequency of Personal Cannabis Use	0.099	0.020	0.165	0.193	0.386***	0.453***	0.392***	0.469***
	(0.082)	(0.082)	(0.088)	(0.099)	(0.089)	(0.096)	(0.093)	(0.101)
Gender Identity [o]								
Woman	-0.170	-0.262	0.042	0.072	-0.275*	-0.083	-0.191	-0.092
	(0.140)	(0.134)	(0.138)	(0.151)	(0.275)	(0.125)	(0.136)	(0.153)
Non-binary	0.120	0.227	0.303	-0.074	-0.334	-0.389	-0.549	-0.350

	(0.403)	(0.438)	(0.445)	(0.404)	(0.264)	(0.247)	(0.328)	(0.365)
Multiple gender identities and no response	-0.453	-0.466	0.387	-0.108	0.015	-0.077	-0.220	-0.377
	(0.249)	(0.238)	(0.552)	(0.540)	(0.364)	(0.347)	(0.397)	(0.411)
Age [p]								
18	0.139	0.027	0.063	0.186	-0.206	-0.202	-0.232	-0.186
	(0.223)	(0.203)	(0.235)	(0.235)	(0.210)	(0.206)	(0.193)	(0.218)
19	0.015	0.043	-0.086	0.026	-0.084	-0.030	-0.058	-0.085
	(0.142)	(0.146)	(0.161)	(0.168)	(0.130)	(0.139)	(0.157)	(0.170)
Race and Ethnicity [q]								
Black	0.322	0.620*	-0.035	-0.085	0.785**	0.699*	-0.011	0.061
	(0.248)	(0.254)	(0.230)	(0.266)	(0.287)	(0.297)	(0.277)	(0.293)
Chinese	-0.037	0.417	-0.116	-0.083	0.454	0.205	0.103	0.004
	(0.235)	(0.340)	(0.278)	(0.351)	(0.289)	(0.252)	(0.321)	(0.374)
South Asian	0.323	0.365	0.487*	0.419	0.397*	0.221	0.499*	0.495*
	(0.223)	(0.217)	(0.227)	(0.243)	(0.194)	(0.201)	(0.229)	(0.243)
Multiple identities, other, and unspecified	0.206	0.217	0.354	0.250	0.100	0.019	-0.061	-0.150
	(0.162)	(0.155)	(0.186)	(0.190)	(0.143)	(0.153)	(0.172)	(0.186)
Political Leaning [r]	0.087**	0.074*	0.066*	0.059	0.016	0.016	-0.009	-0.026
	(0.031)	(0.031)	(0.030)	(0.031)	(0.027)	(0.028)	(0.030)	(0.032)
Household Income	0.020	0.021	-0.010	-0.009	0.001	-0.006	0.003	-0.007
	(0.034)	(0.033)	(0.035)	(0.037)	(0.031)	(0.031)	(0.037)	(0.040)
Country of Residence [s]								
Canada	0.002	0.038	-0.524*	-0.306	-0.574**	-0.515*	-0.360	-0.439
	(0.250)	(0.288)	(0.244)	(0.306)	(0.205)	(0.031)	(0.256)	(0.325)
United Kingdom	-0.174	-0.308*	-0.110	-0.244	-0.245*	-0.282*	-0.222	-0.430**
	(0.135)	(0.134)	(0.030)	(0.154)	(0.122)	(0.124)	(0.147)	(0.160)
Intercept	0.554	0.339	-0.216	-0.745	0.264	0.200	0.513	0.388
	(0.531)	(0.516)	(0.508)	(0.572)	(0.410)	(0.433)	(0.514)	(0.545)

[a] Interaction = Alcohol-impaired driver scenario peer framing (gain, loss, control) x Self-reported social competency (mean score); Adj R^2 = 0.066.
[b] Interaction = Alcohol-impaired driver scenario peer framing (gain, loss, control) x Self-reported social competency (mean score); Adj R^2 = 0.085.
[c] Interaction = Alcohol-impaired passenger scenario peer framing (gain, loss, control) x Self-reported social competency (mean score); Adj R^2 = 0.060.
[d] Interaction = Alcohol-impaired passenger scenario peer framing (gain, loss, control) x Self-reported social competency (mean score); Adj R^2 = 0.078.
[e] Interaction = Cannabis-impaired driver scenario peer framing (gain, loss, control) x Self-reported social competency (mean score); Adj R^2 = 0.194.
[f] Interaction = Cannabis-impaired driver scenario peer framing (gain, loss, control) x Self-reported social competency (mean score); Adj R^2 = 0.205.
[g] Interaction = Cannabis-impaired passenger scenario peer framing (gain, loss, control) x Self-reported social competency (mean score); Adj R^2 = 0.140.
[h] Interaction = Cannabis-impaired passenger scenario peer framing (gain, loss, control) x Self-reported social competency (mean score); Adj R^2 = 0.172.
[i] Reference = Control
[j] Reference = Control
[k] Reference = Control
[l] Reference = Control
[m] Reference = Control, see above notes for model-specific details about the variables in the interaction.
[n] Positive scores indicate more indicators of low self-control, not more self-control.
[o] Reference = Man
[p] Reference = 20 years old
[q] Reference = White
[r] In the political leaning scale, 0 is left, 10 is right.
[s] Reference = United States

All models are bootstrapped (1000 reps)
*p<=.05 **p<=.01 ***p<=.001

Table 3.1: Linear Regressions Predicting 'Worth it' and 'Likelihood' of Impaired Driving/Riding, with Interaction between Experimental Treatment and Perceived Popularity in School Network

	Model 1A[a] Worth it to Alcohol Impaired Drive (N=591)	Model 1B[b] Likelihood to Alcohol Impaired Drive (N=591)	Model 2A[c] Worth it to Alcohol Impaired Passenger (N=590)	Model 2B[d] Likelihood to Alcohol Impaired Passenger (N=590)	Model 3A[e] Worth it to Cannabis Impaired Drive (N=591)	Model 3B[f] Likelihood to Cannabis Impaired Drive (N=591)	Model 4A[g] Worth it to Cannabis Impaired Passenger (N=591)	Model 4B[h] Likelihood to Cannabis Impaired Passenger (N=591)
	ß (SE)	ß (SE)	ß (SE)	ß (SE)	ß (SE)	ß (SE)	ß (SE)	ß (SE)
Alcohol-Impaired Driver [i]								
Status Gain	-0.550	0.104	-	-	-	-	-	-
	(0.357)	(0.068)	-	-	-	-	-	-
Status Loss	-0.267	0.056	-	-	-	-	-	-
	(0.324)	(0.061)	-	-	-	-	-	-
Alcohol-Impaired Passenger [j]								
Status Gain	-	-	0.406	0.681	-	-	-	-
	-	-	(0.377)	(0.426)	-	-	-	-
Status Loss	-	-	0.272	0.499	-	-	-	-
	-	-	(0.335)	(0.383)	-	-	-	-
Cannabis-Impaired Driver [k]								
Status Gain	-	-	-	-	-0.274	-0.073	-	-
	-	-	-	-	(0.284)	(0.293)	-	-
Status Loss	-	-	-	-	-0.179	0.080	-	-
	-	-	-	-	(0.308)	(0.341)	-	-
Cannabis-Impaired Passenger [l]								
Status Gain	-	-	-	-	-	-	-0.317	-0.299
	-	-	-	-	-	-	(0.324)	(0.362)
Status Loss	-	-	-	-	-	-	-0.305	-0.042
	-	-	-	-	-	-	(0.340)	(0.376)

Self-Reported Perceived Popularity in School Environment	0.014 (0.053)	-0.013 (0.046)	0.076 (0.054)	0.109 (0.060)	-0.044 (0.044)	-0.019 (0.046)	-0.013 (0.047)	-0.001 (0.053)
Interaction Effect [m]								
Status Gain*Perceived Popularity	0.112 (0.072)	-0.438 (0.345)	-0.064 (0.074)	-0.130 (0.084)	0.124* (0.056)	0.074 (0.060)	0.089 (0.065)	0.053 (0.071)
Status Loss*Perceived Popularity	0.029 (0.064)	-0.361 (0.303)	-0.039 (0.069)	-0.085 (0.076)	0.097 (0.062)	0.058 (0.069)	0.035 (0.068)	-0.026 (0.073)
Strain – Bullying Victimization	0.138 (0.116)	0.021 (0.128)	0.157 (0.145)	0.054 (0.151)	0.021 (0.108)	0.070 (0.117)	-0.031 (0.122)	-0.154 (0.137)
Social Bonds – To Parents/ Caregivers	-0.094 (0.137)	0.046 (0.124)	0.008 (0.146)	0.129 (0.168)	0.015 (0.125)	0.024 (0.133)	0.056 (0.137)	0.196 (0.149)
Low Self-Control [n]	0.226** (0.081)	0.311*** (0.081)	0.197* (0.095)	0.343*** (0.102)	0.197* (0.086)	0.218* (0.087)	0.168 (0.096)	0.240* (0.106)
Friend's Level of Deviance	0.023 (0.104)	0.053 (0.108)	0.324** (0.121)	0.283* (0.127)	0.305** (0.108)	0.307** (0.114)	0.352** (0.113)	0.384** (0.126)
Caregiver Supervision	-0.067 (0.059)	-0.077 (0.060)	-0.013 (0.068)	-0.034 (0.069)	-0.024 (0.052)	-0.064 (0.053)	-0.050 (0.060)	-0.040 (0.064)
Unsupervised Socializing	-0.034 (0.046)	-0.001 (0.049)	-0.020 (0.055)	-0.026 (0.060)	0.067 (0.049)	0.106* (0.050)	0.096 (0.053)	0.128* (0.057)
Frequency of Personal Alcohol Use	-0.083 (0.069)	-0.000 (0.073)	-0.060 (0.083)	0.060 (0.089)	-0.156* (0.066)	-0.187** (0.071)	-0.138 (0.081)	-0.084 (0.086)
Frequency of Personal Cannabis Use	0.099 (0.081)	0.013 (0.081)	0.157 (0.088)	0.194* (0.098)	0.378*** (0.087)	0.439*** (0.095)	0.385*** (0.092)	0.468*** (0.100)
Gender Identity [o]								
Woman	-0.182 (0.137)	-0.266* (0.131)	0.016 (0.138)	0.044 (0.148)	-0.283* (0.117)	-0.107 (0.125)	-0.202 (0.136)	-0.094 (0.152)
Non-binary	0.064	0.210	0.262	-0.122	-0.318	-0.371	-0.574	-0.340

	(0.416)	(0.452)	(0.449)	(0.414)	(0.257)	(0.241)	(0.306)	(0.349)
Multiple gender identities, no response	-0.471	-0.455*	0.343	-0.152	0.033	-0.053	-0.192	-0.299
	(0.249)	(0.229)	(0.545)	(0.531)	(0.352)	(0.337)	(0.392)	(0.402)
Age [p]								
18	0.178	0.059	0.088	0.212	-0.201	-0.173	-0.204	-0.173
	(0.228)	(0.207)	(0.235)	(0.240)	(0.208)	(0.203)	(0.193)	(0.218)
19	0.067	0.100	-0.059	0.048	-0.071	-0.005	-0.046	-0.299
	(0.144)	(0.153)	(0.164)	(0.172)	(0.132)	(0.140)	(0.160)	(0.402)
Race and Ethnicity [q]								
Black	0.306	0.621*	-0.041	-0.067	0.829**	0.688*	0.001	0.101
	(0.246)	(0.254)	(0.234)	(0.265)	(0.286)	(0.309)	(0.276)	(0.290)
Chinese	-0.002	0.451	-0.097	-0.061	0.486	0.234	0.147	0.027
	(0.242)	(0.346)	(0.273)	(0.352)	(0.294)	(0.260)	(0.330)	(0.386)
South Asian	0.298	0.357	0.469*	0.385	0.396*	0.205	0.511*	0.503*
	(0.222)	(0.216)	(0.223)	(0.245)	(0.196)	(0.202)	(0.221)	(0.237)
Multiple identities, other, and unspecified	0.193	0.206	0.356	0.247	0.092	0.010	-0.052	-0.152
	(0.159)	(0.151)	(0.186)	(0.188)	(0.141)	(0.150)	(0.168)	(0.181)
Political Leaning [r]	0.081**	0.070*	0.062*	0.057	0.013	0.011	-0.011	-0.024
	(0.030)	(0.031)	(0.031)	(0.032)	(0.026)	(0.280)	(0.029)	(0.033)
Household Income	0.002	0.007	-0.023	-0.023	-0.006	-0.015	-0.005	-0.014
	(0.032)	(0.033)	(0.035)	(0.038)	(0.030)	(0.031)	(0.036)	(0.041)
Country of Residence [s]								
Canada	0.070	0.092	-0.501*	-0.291	-0.568**	-0.487*	-0.339	-0.435
	(0.239)	(0.281)	(0.240)	(0.307)	(0.204)	(0.227)	(0.256)	(0.325)
United Kingdom	-0.185	-0.309*	-0.110	-0.246	-0.238	-0.268*	-0.221	-0.439**
	(0.030)	(0.132)	(0.152)	(0.148)	(0.123)	(0.124)	(0.147)	(0.158)
Intercept	0.459	0.066	-0.065	-0.425	0.224	0.093	0.779	0.564
	(0.525)	(0.510)	(0.484)	(0.555)	(0.415)	(0.435)	(0.488)	(0.536)

[a] Interaction = Alcohol-impaired driver scenario peer framing (gain, loss, control) x Self-reported perceived popularity in school environment; Adj R^2 = 0.071.
[b] Interaction = Alcohol-impaired driver scenario peer framing (gain, loss, control) x Self-reported perceived popularity in school environment; Adj R^2 = 0.083.
[c] Interaction = Alcohol-impaired passenger scenario peer framing (gain, loss, control) x Self-reported perceived popularity in school environment; Adj R^2 = 0.061.
[d] Interaction = Alcohol-impaired passenger scenario peer framing (gain, loss, control) x Self-reported perceived popularity in school environment; Adj R^2 = 0.075.
[e] Interaction = Cannabis-impaired driver scenario peer framing (gain, loss, control) x Self-reported perceived popularity in school environment; Adj R^2 = 0.197.
[f] Interaction = Cannabis-impaired driver scenario peer framing (gain, loss, control) x Self-reported perceived popularity in school environment; Adj R^2 = 0.201.
[g] Interaction = Cannabis-impaired passenger scenario peer framing (gain, loss, control) x Self-reported perceived popularity in school environment; Adj R^2 = 0.143.
[h] Interaction = Cannabis-impaired passenger scenario peer framing (gain, loss, control) x Self-reported perceived popularity in school environment; Adj R^2 = 0.175.
[i] Reference = Control
[j] Reference = Control
[k] Reference = Control
[l] Reference = Control
[m] Reference = Control, see above notes for model-specific details about the variables in the interaction.
[n] Positive scores indicate more indicators of low self-control, not more self-control.
[o] Reference = Man
[p] Reference = 20 years old
[q] Reference = White
[r] In the political leaning scale, 0 is left, 10 is right.
[s] Reference = United States

All models are bootstrapped (1000 reps).
*p<=.05 **p<=.01 ***p<=.001

Table 4.0: DAG-Informed Linear Regressions Predicting 'Worth it' and 'Likelihood' of Alcohol-Impaired Driving/Riding with Social Competency Score

	Model 1 Adj R^2 = 0.043 Impaired Driving – Worth it (N=598)	Model 2 Adj R^2 = 0.067 Impaired Driving – Likelihood (N=597)	Model 3 Adj R^2 = 0.032 Impaired Passenger – Worth it (N=597)	Model 4 Adj R^2 = 0.042 Impaired Passenger – Likelihood (N=598)
	ß (SE)	ß (SE)	ß (SE)	ß (SE)
Alcohol-Impaired Driver [a]				
Status Gain	-0.012 (0.147)	0.079 (0.141)	- -	- -
Status Loss	-0.122 (0.137)	-0.074 (0.132)	- -	- -
Alcohol-Impaired Passenger [b]				
Status Gain	- -	- -	0.073 (0.160)	0.046 (0.172)
Status Loss	- -	- -	0.001 (0.150)	0.032 (0.166)
Social Competency (mean score)	0.001 (0.040)	0.012 (0.041)	0.072 (0.047)	0.094 (0.055)
Low Self-Control [c]	0.265*** (0.076)	0.337*** (0.082)	0.353*** (0.088)	0.511*** (0.095)
Gender [d]				
Woman	-0.332** (0.121)	-0.355** (0.126)	-0.120 (0.130)	-0.060 (0.140)
Non-binary	-0.017 (0.391)	0.028 (0.439)	0.211 (0.439)	-0.282 (0.425)
Multiple gender identities and no response	-0.586** (0.202)	-0.534** (0.191)	0.401 (0.533)	-0.033 (0.532)

Race and Ethnicity [e]				
Black	0.505*	0.748**	0.096	-0.014
	(0.243)	(0.246)	(0.252)	(0.259)
Chinese	0.083	0.496	-0.357	-0.333
	(0.207)	(0.303)	(0.262)	(0.333)
South Asian	0.399	0.393	0.355	0.178
	(0.222)	(0.221)	(0.216)	(0.222)
Multiple identities, other, and unspecified	0.319*	0.327*	0.382*	0.253
	(0.142)	(0.147)	(0.181)	(0.186)
Household Income	0.016	0.024	-0.017	-0.010
	(0.032)	(0.031)	(0.037)	(0.039)
Intercept	0.263	-0.006	0.408	0.330
	(0.319)	(0.322)	(0.341)	(0.364)

[a] Reference = Control
[b] Reference = Control
[c] Positive scores indicate more indicators of low self-control, not more self-control.
[d] Reference = Man
[e] Reference = White

All models are bootstrapped (1000 reps).
*p<=.05 **p<=.01 ***p<=.001

Table 4.1: DAG-Informed Linear Regressions Predicting 'Worth it' and 'Likelihood' of Cannabis-Impaired Driving/Riding with Social Competency Score

	Model 1 Adj R^2 = 0.074 Impaired Driving – Worth it (N=598)	Model 2 Adj R^2 = 0.066 Impaired Driving – Likelihood (N=598)	Model 3 Adj R^2 = 0.035 Impaired Passenger – Worth it (N=598)	Model 4 Adj R^2 = 0.030 Impaired Passenger – Likelihood (N=598)
	ß (SE)	ß (SE)	ß (SE)	ß (SE)
Cannabis-Impaired Driver [a]				
Status Gain	0.214 (0.141)	0.201 (0.145)	- -	- -
Status Loss	0.234 (0.136)	0.316* (0.144)	- -	- -
Cannabis-Impaired Passenger [b]				
Status Gain	- -	- -	0.164 (0.160)	-0.004 (0.179)
Status Loss	- -	- -	-0.059 (0.155)	-0.083 (0.179)
Social Competency (mean score)	0.080 (0.041)	0.085 (0.045)	0.084 (0.048)	0.078 (0.055)
Low Self-Control [c]	0.348*** (0.084)	0.411*** (0.090)	0.359*** (0.091)	0.454*** (0.101)
Gender [d]				
Woman	-0.383*** (0.118)	-0.227 (0.127)	-0.263* (0.134)	-0.125 (0.159)
Non-binary	-0.396 (0.294)	-0.482* (0.246)	-0.715** (0.272)	-0.640* (0.316)
Multiple gender identities and no response	0.111 (0.434)	0.066 (0.440)	0.038 (0.469)	-0.030 (0.483)

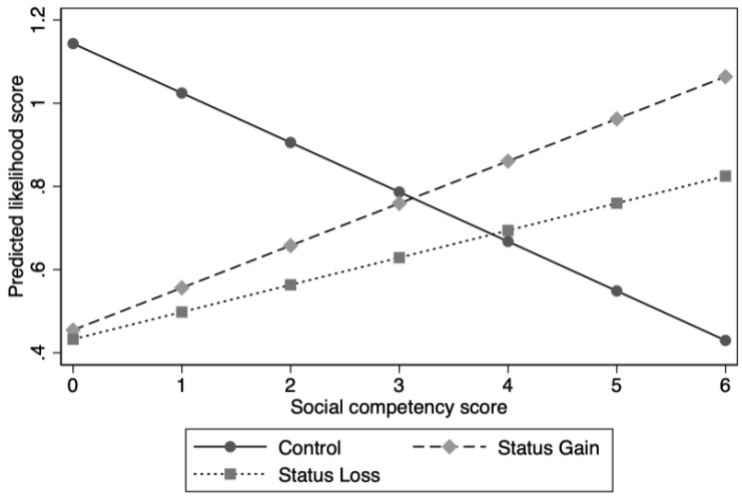
Race and Ethnicity [e]				
Black	0.909***	0.873**	0.113	0.136
	(0.265)	(0.284)	(0.259)	(0.273)
Chinese	0.155	-0.094	-0.235	-0.495
	(0.280)	(0.255)	(0.303)	(0.354)
South Asian	0.202	0.016	0.289	0.156
	(0.178)	(0.154)	(0.206)	(0.223)
Multiple identities, other, and unspecified	0.174	0.132	0.031	-0.072
	(0.148)	(0.154)	(0.163)	(0.184)
Household Income	-0.015	-0.027	-0.017	-0.026
	(0.031)	(0.033)	(0.038)	(0.043)
Intercept	-0.026	-0.093	0.591	0.778
	(0.278)	(0.289)	(0.351)	(0.399)

[a] Reference = Control
[b] Reference = Control
[c] Positive scores indicate more indicators of low self-control, not more self-control.
[d] Reference = Man
[e] Reference = White

All models are bootstrapped (1000 reps).
*p<=.05 **p<=.01 ***p<=.001

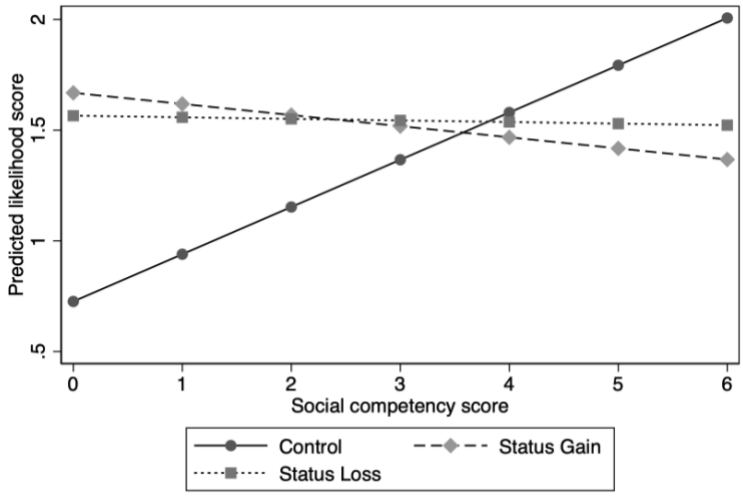
Appendix D: Interaction Effect Plots

Plot 1: Depicting Interaction Effect for Significant Results in Model 1B* in Table 3.0



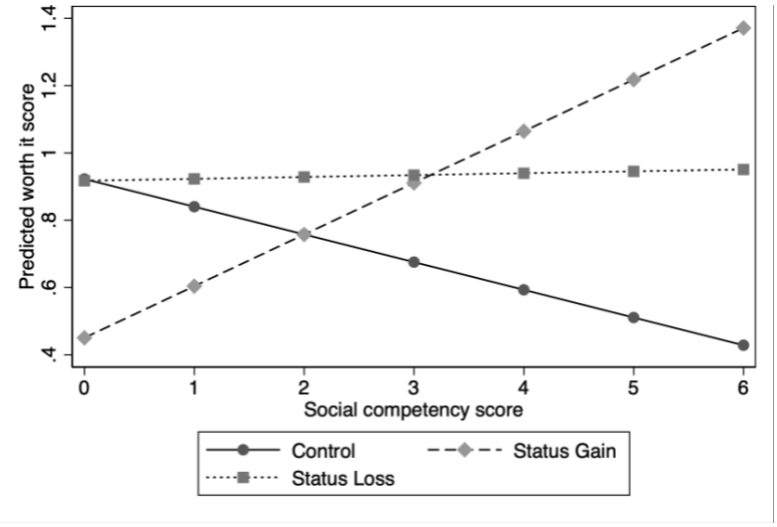
* Interaction = Alcohol-impaired driver scenario peer framing (gain, loss, control) x Self-reported social competency (mean score) on 'likelihood' to be an alcohol-impaired driver. Status gain and status loss are statistically significant (p<=.05).

Plot 2: Depicting Interaction Effect for Significant Results in Model 2B* in Table 3.0



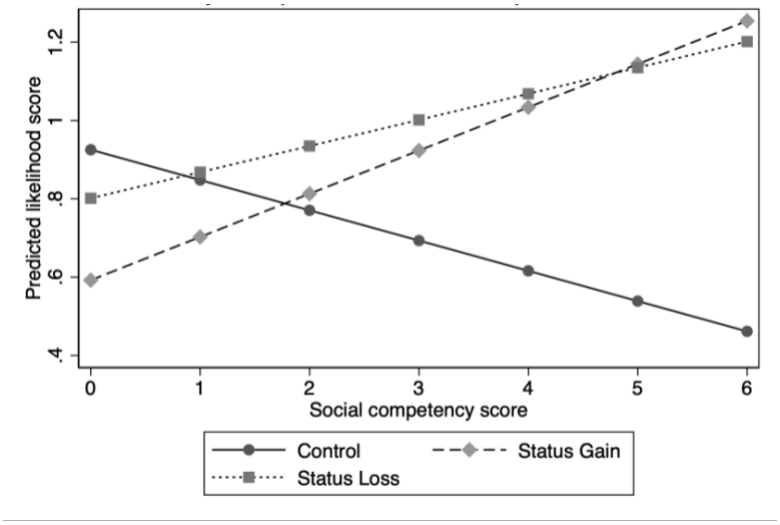
* Interaction = Alcohol-impaired passenger scenario peer framing (gain, loss, control) x Self-reported social competency (mean score) on 'likelihood' to be an alcohol-impaired passenger. Status gain is statistically significant (p<=.05).

Plot 3: Depicting Interaction Effect for Significant Results in Model 3A* in Table 3.0



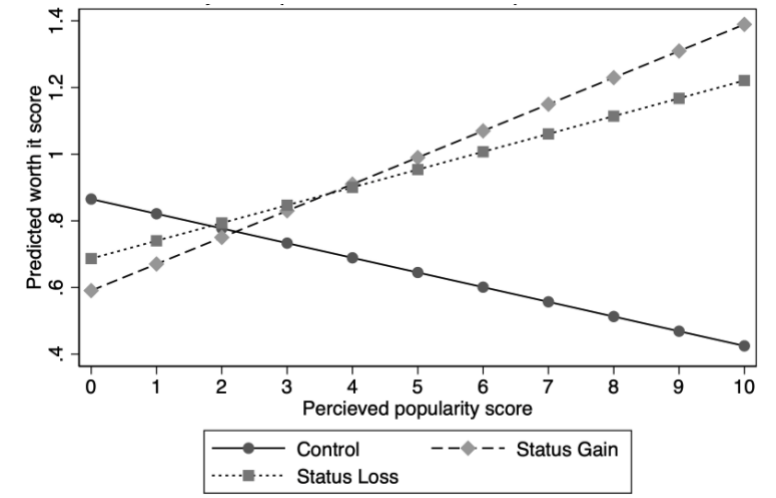
* Interaction = Cannabis-impaired driver scenario peer framing (gain, loss, control) x Self-reported social competency (mean score) on 'worth it' to cannabis-impaired drive. Status gain is statistically significant (p<=.01).

Plot 4: Depicting Interaction Effect for Significant Results in Model 3B* in Table 3.0



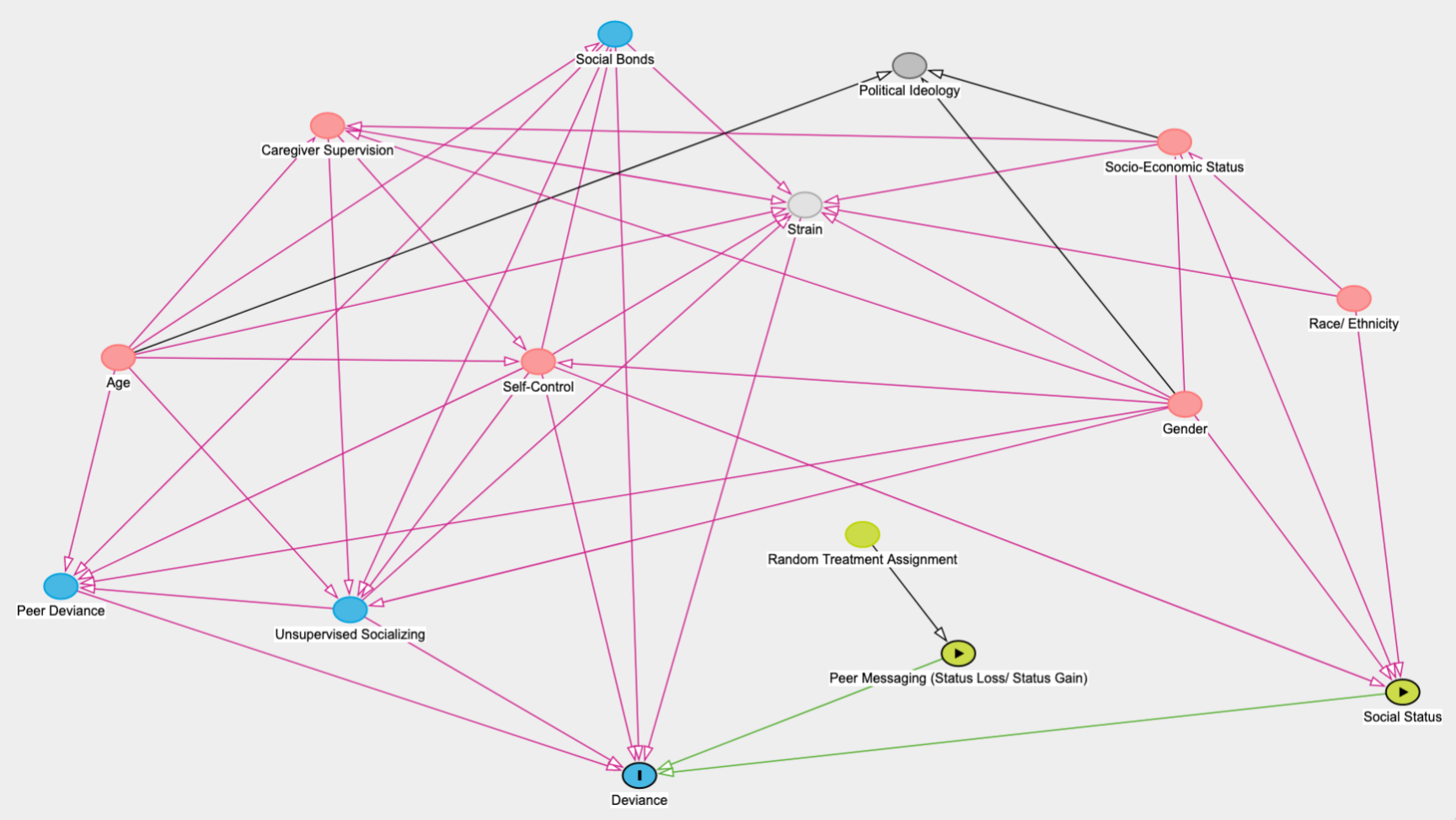
* Interaction = Cannabis-impaired driver scenario peer framing (gain, loss, control) x Self-reported social competency (mean score) on 'likelihood' to cannabis-impaired drive. Status gain is statistically significant (p<=.05).

Plot 5: Depicting Interaction Effect for Significant Results in Model 3A* in Table 3.1



* Interaction = Cannabis-impaired driver scenario peer framing (gain, loss, control) x Self-reported perceived popularity in school environment on 'worth it' to cannabis-impaired drive. Status gain is statistically significant (p<=.05)

Appendix E: Directed Acyclic Graph (DAG)



Appendix F: Copy of Survey Experiment Questionnaire

Peer Influence, Popularity, and Impaired Driving

Survey Flow

EmbeddedData
PROLIFIC_PIDValue will be set from Panel or URL.

Block: Consent (3 Questions)

Branch: New Branch
If
If Consent to participate in the survey: By providing your consent, you are not waiving your legal r... I do not agree to take part in this study. Is Selected

EndSurvey:

Branch: New Branch
If
If Consent to have your anonymized data included in the data set uploaded to Osf.io. I do not agree to have my anonymized data uploaded to Osf.io Is Selected

EndSurvey:

Standard: Prolific ID (1 Question)
Standard: Additional Bot/AI Checks (3 Questions)
Standard: High School Preliminary Questions (3 Questions)
Standard: Self-Reported Popularity (7 Questions)

BlockRandomizer: 1 - Evenly Present Elements

Group: Alcohol Impaired Driver - Control

EmbeddedData
alcohol_driver = 1

Standard: Scenario Set 1A - Alcohol-Impaired Driver - Control (1 Question)

Group: Alcohol Impaired Driver - SG

EmbeddedData
alcohol_driver = 2

Standard: Scenario Set 1A - Alcohol-Impaired Driver - SG (1 Question)

Group: Alcohol Impaired Driver - SL

EmbeddedData
alcohol_driver = 3

Standard: Scenario Set 1A - Alcohol-Impaired Driver - SL (1 Question)

Standard: Outcome measures: Scenario Set 1A - Alcohol-Impaired Driver (2 Questions)

BlockRandomizer: 1 - Evenly Present Elements

Group: Alcohol Impaired Passenger - Control

EmbeddedData
alcohol_passenger = 1

Standard: Scenario Set 1B - Alcohol-Impaired Passenger - Control (1 Question)

Group: Alcohol Impaired Passenger - SG

EmbeddedData
alcohol_passenger = 2

Standard: Scenario Set 1B - Alcohol-Impaired Passenger - SG (1 Question)

Group: Alcohol Impaired Passenger - SL

EmbeddedData
alcohol_passenger = 3

Standard: Scenario Set 1B - Alcohol-Impaired Passenger - SL (1 Question)

Standard: Outcome measures: Scenario Set 1B - Alcohol-Impaired Passenger (2 Questions)

BlockRandomizer: 1 - Evenly Present Elements

Group: Cannabis Impaired Driver - Control

EmbeddedData
cannabis_driver = 1

Standard: Scenario Set 2A - Cannabis-Impaired Driver - Control (1 Question)

Group: Cannabis Impaired Driver - SG

EmbeddedData
cannabis_driver = 2

Standard: Scenario Set 2A - Cannabis-Impaired Driver - SG (1 Question)

Group: Cannabis Impaired Driver - SL

EmbeddedData
cannabis_driver = 3

Standard: Scenario Set 2A - Cannabis-Impaired Driver - SL (1 Question)

Standard: Outcome measures: Scenario Set 2A - Cannabis-Impaired Driver (2 Questions)

BlockRandomizer: 1 - Evenly Present Elements

Group: Cannabis Impaired Passenger - Control

EmbeddedData

cannabis_passenger = 1

Standard: Scenario Set 2B - Cannabis-Impaired Passenger - Control (1 Question)

Group: Cannabis Impaired Passenger - SG

EmbeddedData
cannabis_passenger = 2

Standard: Scenario Set 2B - Cannabis-Impaired Passenger - SG (1 Question)

Group: Cannabis Impaired Passenger - SL

EmbeddedData
cannabis_passenger = 3

Standard: Scenario Set 2B - Cannabis-Impaired Passenger - SL (1 Question)

Standard: Outcome measures: Scenario Set 2B - Cannabis-Impaired Passenger (2 Questions)
Standard: Control Questions (8 Questions)
Standard: Demographic Variables (7 Questions)
Standard: Data Check Questions (2 Questions)
Standard: Appreciation (1 Question)

Page Break

Start of Block: Consent

Q1 **Title of the study: Social Status, Peer Influence, and Impaired Driving**

Research Team:
Rachel Lisk, MA student, Department of Sociology and Legal Studies, University of Waterloo, Waterloo, Canada.
Email: ralisk@uwaterloo.ca

Owen Gallupe, PhD, Department of Sociology and Legal Studies, University of Waterloo, Waterloo, Canada.
Email: ogallupe@uwaterloo.ca

Sarah Wilkins-Laflamme, PhD, Department of Sociology and Legal Studies, University of Waterloo, Waterloo, Canada.
Email: sarah.wilkins-laflamme@uwaterloo.ca

To help you make an informed decision regarding your participation, this letter will explain what the study is about, the possible risks and benefits, and your rights as a research participant. If you do not understand something in the letter, please ask the investigator prior to consenting to the study. Please print/save a copy of this letter for your records.

What is the study about?
The goal of this study is to understand how popularity and peer relations affect individuals' opinions on impaired driving. Understanding how peer relations impact a persons' engagement in impaired driving is important since past research has shown that impaired driving among young adults and youth tends to occur in social situations.

I. Your responsibilities as a participant
What does participation involve?
Participation in the study will consist of an online survey that will take approximately 7 minutes of your time. Participants will be randomly assigned to one of three different conditions and asked to read four hypothetical scenarios related to impaired driving. You will also be asked questions on the hypothetical scenarios, your personality characteristics, and demographic information.

Who may participate in the study?
In order to participate in the study, you must be between the ages of 18-20 and live in Canada, the United Kingdom, or the United States.

II. Your rights as a participant
Is participation in the study voluntary?
Your participation in this study is voluntary. You may decline to answer any question(s) you prefer not to answer by skipping to the next question. You can end your participation in the

survey at any time before submitting your survey. Up until 30 days after you submit your survey, you may contact me anonymously through Prolific to request that the data associated with your Prolific ID be permanently deleted. After that 30 day period, all Prolific IDs will be removed from the data set and it will become impossible to know which responses are attached to a specific ID.

Will I receive anything for participating in the study?

To thank you for your time, you will receive £1.05 (~$1.34US). Please be sure to click through to the end of the survey where it links back to Prolific to ensure that your participation is recorded. If you change your mind about participating after starting the survey, please be sure to click through to the end of the survey where it links back to Prolific to ensure your participation is recorded so you can receive your remuneration.

What are the possible benefits of the study?

Participation in this study will not provide any personal benefit to you. I hope the data from the surveys will aid in our understanding of how peer relations influence opinions on impaired driving.

What are the risks associated with the study?

Some of the questions in the study deal with actions that may be upsetting (such as substance use, impaired driving, and negative life experiences). If a question makes you uncomfortable, you can choose not to answer. See above for more details on voluntary participation.

Privacy, Data Retention and Storage

This survey will not ask for your name or other identifying information (e.g., email address), though responses are linked to your Prolific ID. Collected data will be securely stored on password protected computers in encrypted folders for a minimum of 1 year. Using Prolific, you may anonymously request that the data associated with your Prolific ID be permanently deleted up until 30 days. After 30 days, your Prolific ID will be permanently deleted from the data and which will make it impossible to withdraw your data.

With your permission, your anonymized data will be submitted to Osf.io. Sharing the data is integral to the research process as it allows other researchers to verify results and avoid duplicating research. Other individuals may access this data set by downloading it from the repository and may use it for future research or other purposes. Osf.io has implemented industry-standard technical and physical safeguards to protect their site, however no internet transmission is ever fully secure or error free. After consenting to have your data included in the data set uploaded to Osf.io, you will not be asked again about the future use of your data.

You will be completing the survey via an online survey operated by Qualtrics. Qualtrics has implemented technical, administrative, and physical safeguards to protect the information provided via the Services from loss, misuse, and unauthorized access, disclosure, alteration, or destruction. However, no internet transmission is ever fully secure or error free.

Please note: We do not collect or use internet protocol (IP) addresses or other information which could link your participation to your computer or electronic device.

III. Questions, comments, or concerns

Who is sponsoring/funding this study?

This study is funded by the research team and does not have a sponsor.

Has the study received ethics clearance?

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Board (REB #45627). If you have questions for the Board, contact the Office of Research Ethics, toll-free at 1-833-643-2379 (Canada and USA), 1-519-888-4440, or reb@uwaterloo.ca

Who should I contact if I have questions regarding my participation in the study?

If you have any questions regarding this study or would like additional information to assist you in reaching a decision about participation, you can contact the research team anonymously through Prolific.

You may also contact the research team: Rachel Lisk (MA student), Dr. Owen Gallupe (co-supervisor), or Dr. Sarah Wilkins-Laflamme (co-supervisor) directly using the email addresses below. However, note that emailing the research team directly is not anonymous.

Rachel Lisk, MA student, Department of Sociology and Legal Studies, University of Waterloo, Waterloo, Canada.
Email: ralisk@uwaterloo.ca

Owen Gallupe, PhD, Department of Sociology and Legal Studies, University of Waterloo, Waterloo, Canada.
Email: ogallupe@uwaterloo.ca

Sarah Wilkins-Laflamme, PhD, Department of Sociology and Legal Studies, University of Waterloo, Waterloo, Canada.
Email: sarah.wilkins-laflamme@uwaterloo.ca

Q1.1 Consent to participate in the survey: By providing your consent, you are not waiving your legal rights or releasing the investigator(s) or involved institution(s) from their legal and professional responsibilities.

○ I agree to participate in this study. (1)

○ I do not agree to take part in this study. (2)

Q1.2 Consent to have your anonymized data included in the data set uploaded to Osf.io.

○ I agree to have my anonymized data uploaded to Osf.io (1)

○ I do not agree to have my anonymized data uploaded to Osf.io (2)

End of Block: Consent

Start of Block: Prolific ID

Q2 What is your Prolific ID?

Please note that this response should autofill with the correct ID.

_____

End of Block: Prolific ID

Start of Block: Additional Bot/AI Checks

Q50 To ensure you are not a robot, please answer the following two questions:

Q51 Please arrange the following movies into alphabetical order:
_____ Barbie (1)
_____ Guardians of the Galaxy Vol. 3 (2)
_____ Oppenheimer (5)
_____ Insidious: The Red Door (3)
_____ Joy Ride (4)

Q52 Please read the statement below and then type it in the box in reverse order. Please include any capitalizations in the words that have capital letters. Do not include any punctuation (e.g., periods, quotation marks, etc.): For example, if the statement said "fun are trucks Red," you would type "Red trucks are fun":

chair the on sitting Cat

_____

End of Block: Additional Bot/AI Checks

Start of Block: High School Preliminary Questions
Page Break

Q3 In what year did you last attend high school (secondary school)?

- ○ 2018 or earlier (1)
- ○ 2019 (2)
- ○ 2020 (3)
- ○ 2021 (4)
- ○ 2022 (5)
- ○ 2023/Currently in high school (secondary school) (6)
- ○ Never attended high school (secondary school) (7)

Page Break

Q4 In your last year of high school (secondary school) how often did you consume alcohol?

- ○ Never (1)
- ○ A few times (2)
- ○ Sometimes (3)
- ○ Often (4)
- ○ Very often (5)

Page Break

Q5 In your last year of high school (secondary school) how often did you consume cannabis (marijuana)?

- ○ Never (1)
- ○ A few times (2)

○ Sometimes (3)

○ Often (4)

○ Very often (5)

End of Block: High School Preliminary Questions

Start of Block: Self-Reported Popularity

Q6 Thinking about your most recent year of high school (secondary school), where would you place yourself on the scale between the following statements?

Q6.1 Regarding making friends:

○ (0) I found it hard to make friends. (1)

○ (1) (2)

○ (2) (3)

○ (3) (4)

○ (4) (5)

○ (5) (6)

○ (6) I found it pretty easy to make friends. (7)

Q6.2 Regarding making classmates like you:

○ (0) I didn't know how to make my classmates like me. (1)

○ (1) (2)

○ (2) (3)

○ (3) (4)

○ (4) (5)

○ (5) (6)

○ (6) I knew how to make my classmates like me. (7)

Q6.3 Regarding social skills to make friends:

○ (0) I didn't have the social skills to make friends. (1)

○ (1) (2)

○ (2) (3)

○ (3) (4)

○ (4) (5)

○ (5) (6)

○ (6) I had the social skills to make friends. (7)

Q6.4 Regarding peer acceptance:

○ (0) I didn't understand how to get my peers to accept me. (1)

○ (1) (2)

○ (2) (3)

○ (3) (4)

○ (4) (5)

○ (5) (6)

○ (6) I understood how to get my peers to accept me. (7)

Q6.5 Regarding popularity:

- (0) I didn't know how to become popular. (1)
- (1) (2)
- (2) (3)
- (3) (4)
- (4) (5)
- (5) (6)
- (6) I knew how to become popular. (7)

Q6.6 Thinking back to your most recent year of high school (secondary school), how popular would you say you were within the broader school environment?

- 0 (0)
- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 (8)
- 9 (9)
- 10 (10)

End of Block: Self-Reported Popularity

Start of Block: Scenario Set 1A - Alcohol-Impaired Driver - Control

Q7 Please read the following scenario and answer the questions as if you were in your most recent year of high school (secondary school).

Imagine you and your friends are hanging out at a party. You drove to the party and planned to leave the car in the host's driveway overnight. You have had a few drinks and are feeling dizzy and are finding it hard to keep up with conversations. Your friends are also intoxicated and are getting ready to leave. They ask you to drive them home.

End of Block: Scenario Set 1A - Alcohol-Impaired Driver - Control

Start of Block: Scenario Set 1A - Alcohol-Impaired Driver - SG

Q7 Please read the following scenario and answer the questions as if you were in your most recent year of high school (secondary school).

Imagine you and your friends are hanging out at a party. You drove to the party and planned to leave the car in the host's driveway overnight. You have had a few drinks and are feeling dizzy and are finding it hard to keep up with conversations. Your friends are also intoxicated and are getting ready to leave. They ask you to drive them home. Your friends tell you that it would be awesome if you could drive everyone home, and if you do they will definitely invite you out again.

End of Block: Scenario Set 1A - Alcohol-Impaired Driver - SG

Start of Block: Scenario Set 1A - Alcohol-Impaired Driver - SL

Q7 Please read the following scenario and answer the questions as if you were in your most recent year of high school (secondary school).

Imagine you and your friends are hanging out at a party. You drove to the party and planned to leave the car in the host's driveway overnight. You have had a few drinks and are feeling dizzy and are finding it hard to keep up with conversations. Your friends are also intoxicated and are getting ready to leave. They ask you to drive them home. Your friends tell you that if you don't drive them home it would be 'really lame,' and they won't want to invite you out again.

End of Block: Scenario Set 1A - Alcohol-Impaired Driver - SL

Start of Block: Outcome measures: Scenario Set 1A - Alcohol-Impaired Driver

Q7.1 How worth it is it for you to drive your friends home?

○ (0) Not at all worth it (1)

○ (1) (2)

○ (2) (3)

○ (3) Maybe worth it (4)

○ (4) (5)

○ (5) (6)

○ (6) Completely worth it (7)

Q7.2 How likely are you to drive your friends home?

○ (0) Not at all likely (1)

○ (1) (2)

○ (2) (3)

○ (3) Maybe (4)

○ (4) (5)

○ (5) (6)

○ (6) Completely likely (7)

End of Block: Outcome measures: Scenario Set 1A - Alcohol-Impaired Driver

Start of Block: Scenario Set 1B - Alcohol-Impaired Passenger - Control

Q8 Please read the following scenario and answer the questions as if you were in your most recent year of high school (secondary school).

Now let's assume that your friends had driven you to the party. You know your friends, including the designated driver, have also been drinking, but the driver says they feel okay to drive everyone home.

End of Block: Scenario Set 1B - Alcohol-Impaired Passenger - Control

Start of Block: Scenario Set 1B - Alcohol-Impaired Passenger - SG

Q8 Please read the following scenario and answer the questions as if you were in your most recent year of high school (secondary school).

Now let's assume that your friends had driven you to the party. You know your friends, including the designated driver, have also been drinking, but the driver says they feel okay to drive everyone home. Your friends tell you that you should get a ride home with them, and if you do they will definitely invite you out again.

End of Block: Scenario Set 1B - Alcohol-Impaired Passenger - SG

Start of Block: Scenario Set 1B - Alcohol-Impaired Passenger - SL

Q8 Please read the following scenario and answer the questions as if you were in your most recent year of high school (secondary school).

Now let's assume that your friends had driven you to the party. You know your friends, including the designated driver, have also been drinking, but the driver says they feel okay to drive everyone home. Your friends tell you that if you don't ride home with them, it would be 'really lame,' and they won't want to invite you out again.

End of Block: Scenario Set 1B - Alcohol-Impaired Passenger - SL

Start of Block: Outcome measures: Scenario Set 1B - Alcohol-Impaired Passenger

Q8.1 How worth it is it for you to accept the ride home from your friends?

- ○ (0) Not at all worth it (1)
- ○ (1) (2)
- ○ (2) (3)
- ○ (3) Maybe worth it (4)
- ○ (4) (5)
- ○ (5) (6)

○ (6) Completely worth it (7)

Q8.2 How likely are you to accept the ride home from your friends?

○ (0) Not likely at all (1)

○ (1) (2)

○ (2) (3)

○ (3) Maybe (4)

○ (4) (5)

○ (5) (6)

○ (6) Completely likely (7)

End of Block: Outcome measures: Scenario Set 1B - Alcohol-Impaired Passenger

Start of Block: Scenario Set 2A - Cannabis-Impaired Driver - Control

Q9 Please read the following scenario and answer the questions as if you were in your most recent year of high school (secondary school).

Imagine you and your friends are hanging out at a party. You drove to the party and planned to leave the car in the host's driveway overnight. You smoked some weed (cannabis, marijuana) at the party. Your surroundings seem to be moving in slow motion, colours are brighter, and you feel more sensitive to sound. Your friends have also consumed cannabis (marijuana) at the party and are getting ready to leave. They ask you to drive them home.

End of Block: Scenario Set 2A - Cannabis-Impaired Driver - Control

Start of Block: Scenario Set 2A - Cannabis-Impaired Driver - SG

Q9 Please read the following scenario and answer the questions as if you were in your most recent year of high school (secondary school).

Imagine you and your friends are hanging out at a party. You drove to the party and planned to leave the car in the host's driveway overnight. You smoked some weed (cannabis, marijuana) at the party. Your surroundings seem to be moving in slow motion, colours are brighter, and you

feel more sensitive to sound. Your friends have also consumed cannabis (marijuana) at the party and are getting ready to leave. They ask you to drive them home. Your friends tell you that it would be awesome if you could drive everyone home, and if you do they will definitely invite you out again.

End of Block: Scenario Set 2A - Cannabis-Impaired Driver - SG

Start of Block: Scenario Set 2A - Cannabis-Impaired Driver - SL

Q9 Please read the following scenario and answer the questions as if you were in your most recent year of high school (secondary school).

Imagine you and your friends are hanging out at a party. You drove to the party and planned to leave the car in the host's driveway overnight. You smoked some weed (cannabis, marijuana) at the party. Your surroundings seem to be moving in slow motion, colours are brighter, and you feel more sensitive to sound. Your friends have also consumed cannabis (marijuana) at the party and are getting ready to leave. They ask you to drive them home. Your friends tell you that if you don't drive them home it would be 'really lame,' and they won't want to invite you out again.

End of Block: Scenario Set 2A - Cannabis-Impaired Driver - SL

Start of Block: Outcome measures: Scenario Set 2A - Cannabis-Impaired Driver

Q9.1 How worth it is it to drive your friends home?

- (0) Not at all worth it (1)
- (1) (2)
- (2) (3)
- (3) Maybe worth it (4)
- (4) (5)
- (5) (6)
- (6) Completely worth it (7)

Q9.2 How likely are you to drive your friends home?

○ (0) Not at all likely (1)

○ (1) (2)

○ (2) (3)

○ (3) Maybe (4)

○ (4) (5)

○ (5) (6)

○ (6) Completely likely (7)

End of Block: Outcome measures: Scenario Set 2A - Cannabis-Impaired Driver

Start of Block: Scenario Set 2B - Cannabis-Impaired Passenger - Control

Q10 Please read the following scenario and answer the questions as if you were in your most recent year of high school (secondary school).

Now let's assume that your friends had driven you to the party. You know your friends, including the designated driver, have also been smoking weed, but the driver says they feel okay to drive everyone home.

End of Block: Scenario Set 2B - Cannabis-Impaired Passenger - Control

Start of Block: Scenario Set 2B - Cannabis-Impaired Passenger - SG

Q10 Please read the following scenario and answer the questions as if you were in your most recent year of high school (secondary school).

Now let's assume that your friends had driven you to the party. You know your friends, including the designated driver, have also been smoking weed, but the driver says they feel okay to drive everyone home. Your friends tell you that you should get a ride home with them, and if you do they will definitely invite you out again.

End of Block: Scenario Set 2B - Cannabis-Impaired Passenger - SG

Start of Block: Scenario Set 2B - Cannabis-Impaired Passenger - SL

Q10 Please read the following scenario and answer the questions as if you were in your most recent year of high school (secondary school).

Now let's assume that your friends had driven you to the party. You know your friends, including the designated driver, have also been smoking weed, but the driver says they feel okay to drive everyone home. Your friends tell you that if you don't ride home with them, it would be 'really lame,' and they won't want to invite you out again.

End of Block: Scenario Set 2B - Cannabis-Impaired Passenger - SL

Start of Block: Outcome measures: Scenario Set 2B - Cannabis-Impaired Passenger

Q10.1 How worth it is it for you to accept the ride home from your friends?

- (0) Not at all worth it (1)
- (1) (2)
- (2) (3)
- (3) Maybe worth it (4)
- (4) (5)
- (5) (6)
- (6) Completely worth it (7)

Q10.2 How likely are you to accept the ride home from your friends?

- (0) Not at all likely (1)
- (1) (2)
- (2) (3)
- (3) Maybe (4)
- (4) (5)
- (5) (6)
- (6) Completely likely (7)

End of Block: Outcome measures: Scenario Set 2B - Cannabis-Impaired Passenger

Start of Block: Control Questions

Q11 When you think back to your most recent year of high school (secondary school):

Q11.1 How many times a week on average did you usually go out at night without caregivers or parents present, such as going to a party, going to somebody's house, or hanging out on the street?

- Never, I did not go out at night (1)
- Once (2)
- Twice (3)
- Three times (4)
- Four times (5)
- Five times (6)
- Six times (7)
- Daily (8)

Q11.2 Did your parents (or adult guardian) usually know who you were with when you went out?

- I didn't go out (1)
- Never (2)
- Rarely (3)
- Sometimes (4)
- Always (5)

Q11.3 Did your parents (or adult guardian) usually know where you were when you went out?

- I didn't go out (1)
- Never (2)
- Rarely (3)
- Sometimes (4)
- Always (5)

Page Break

Q12 When you think back to your most recent year of high school (secondary school):

	None (1)	A few (2)	Some (3)	Most (4)	All of them (5)	I did not have friends (6)
How many of your friends drank alcohol? (1)	○	○	○	○	○	○
How many of your friends smoked weed or used cannabis products? (2)	○	○	○	○	○	○
How many of your friends took something from a store without	○	○	○	○	○	○

paying for it? (3)						
How many of your friends got into a fight? (4)						
How many of your friends trespassed onto private property? (5)						

Page Break

Q13 Thinking about yourself in your last year of high school (secondary school), how much do you agree or disagree with the following statements?

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I often act on the spur of the moment without stopping to think. (1)					
I often do whatever brings me pleasure here and now, even at the cost of some distant goal. (2)					
I frequently try to avoid projects I know will be difficult. (3)					

I try to look out for myself first, even if it means making things difficult for other people. (4)	○	○	○	○	○
I lose my temper pretty easily. (5)	○	○	○	○	○
When I'm really angry, people better stay out of my way. (6)	○	○	○	○	○

Page Break

Q14 Thinking about your relationship with your parents (or adult caregivers or guardians) in your most recent year of high school (secondary school), how much do you agree or disagree with the following statements?

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I have nice parents (or adult caregivers or guardians). (1)	○	○	○	○	○
I would rather have had other parents (or adult caregivers or guardians). (2)	○	○	○	○	○
I didn’t like being with	○	○	○	○	○

my parents (or adult caregivers or guardians). (3)					
I felt fine when I was with my parents (or adult caregivers or guardians). (4)	○	○	○	○	○
I could notice that my parents (or adult caregivers or guardians) loved me. (5)	○	○	○	○	○
My parents (or adult caregivers or guardians) were nice to me. (6)	○	○	○	○	○
My parents (or adult caregivers or guardians) knew what I liked. (7)	○	○	○	○	○
My parents (or adult caregivers or guardians) told me when I did a good job. (8)	○	○	○	○	○

Page Break

Q15 When you think back to your most recent year of high school (secondary school):

	Never (1)	A few times (2)	Sometimes (3)	Often (4)	Very often (5)
How often were you bullied at school (other students humiliated you or made fun of you, hit or kicked you, or excluded you from their group)? (4)	○	○	○	○	○
How often was something stolen from you (such as a book, money, mobile phone, sport equipment, bicycle...)? (5)	○	○	○	○	○
How often did someone hit you violently or hurt you so much that you needed to see a doctor? (6)	○	○	○	○	○

End of Block: Control Questions

Start of Block: Demographic Variables

Q16 The following section consists of demographic questions. Collecting this information will allow us to know how well our survey sample aligns with the characteristics of the wider population in your country/region.

Q17 Where are you from?

- ○ Canada (1)
- ○ United Kingdom (2)
- ○ United States (3)

Page Break

Q18 What is your race/ethnicity? Select all that apply:

- ☐ Black (1)
- ☐ Chinese (2)
- ☐ Filipino (3)
- ☐ Japanese (4)
- ☐ Korean (5)
- ☐ Native, Aboriginal, Indigenous (e.g., North American Indian, First Nations, Métis, Inuit, etc.) (6)
- ☐ Pacific Islander (7)
- ☐ South Asian (e.g., East Indian, Pakistani, Sri Lankan, etc.) (8)
- ☐ Southeast Asian (e.g., Vietnamese, Cambodian, Malaysian, Laotian, etc.) (9)
- ☐ West Indian (e.g., Iranian, Afghan, etc.) (10)

☐ White (11)

☐ Other. Please specify: (12)
_____

☐ Prefer not to answer (13)

Page Break

Q19 Thinking back to your most recent year of high school, where would you place your household's income on this scale, if 0 indicates the people in your country who have the lowest income group and 10 indicates the people in your country who have the highest income?

○ 0 (0)

○ 1 (1)

○ 2 (2)

○ 3 (3)

○ 4 (4)

○ 5 (5)

○ 6 (6)

○ 7 (7)

○ 8 (8)

○ 9 (9)

○ 10 (10)

Page Break

Q20 In political matters, people talk of "the left" and "the right." How would you place your views on this scale, generally speaking?

- 0 (0)
- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 (8)
- 9 (9)
- 10 (10)

Page Break

Q21 How old are you?

- 18 (1)
- 19 (2)
- 20 (3)

Page Break

Q22 What gender do you identify with? Select all that apply.

- [ ] Woman (includes cis women, trans women, and anyone else who identifies as a woman) (1)
- [ ] Man (include cis men, trans men, and anyone else who identifies as a man) (2)
- [ ] Non-binary (3)
- [ ] Trans (4)
- [ ] Another gender identity. Please specify: (5) _____
- [ ] Prefer not to answer (6)

End of Block: Demographic Variables

Start of Block: Data Check Questions

Q23 Is there any reason that we shouldn't use your data (e.g., did you randomly select responses at any point during the survey)?

This response is purely to help us with our research; you will not lose your credit.

- ○ No (1)
- ○ Yes (2)

Q24 If yes, can you briefly describe what you did?
_____

End of Block: Data Check Questions

Start of Block: Appreciation

Q25 Thank you for taking part in this survey!

Your participation will help us better understand how popularity and peer influence impact impaired diving.

If you are interested in receiving more information about the results of this study, or would like a summary of the results, please email Rachel Lisk at ralisk@uwaterloo.ca, and when the study is completed, anticipated by August 2024, she will send you the information. In the meantime, if you have any questions about the study, please contact Rachel Lisk by email as noted above. You can also contact my supervisors: Owen Gallupe ogallupe@uwaterloo.ca, Sarah Wilkins-Laflamme sarah.wilkins-laflamme@uwaterloo.ca.

Have a great day!

Click through to the next page to submit your answers.

End of Block: Appreciation